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Department of Disease Control

National Action Plan for Health Security (NAPHS)

Introduction

The National Action Plan for Health Security is an Action Plan in accordance with the agreement among member states of the World Health Organization to develop disease prevention and control systems to meet standards. It is an agreement and international commitment to cooperate in managing public health events with the potential to spread across countries to various parts of the world. The intention is to prevent and control diseases, health hazards, and public health emergencies (Public Health Emergency of International Concern: PHEIC) with policies having the most negligible impact on international travel and trade.

The Action Plan comprises a vision, development goals, Action Plans for each area, indicators, strategies, measures, and project planning which have been implemented through the integration of joint operations of the Ministry of Public Health, Ministry of Interior, Ministry of Social Development and Human Security, the Royal Thai Police, Ministry of Agriculture and Cooperatives, Ministry of Foreign Affairs and partner organizations from the public and private sectors, civil society, and the Harvard Asia Academy, with the shared vision of "Thai health standards global health standards to strengthen the health of the Thai people, support national development to be stable, prosperous, and sustainable" and this Action Plan shall be an essential guideline for the relevant agencies to follow, monitor, assess, and continually develop to raise Thailand's standards.

Production Team
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EXECUTIVE SUMMARY

This Action Plan has been developed according to the assessment of core competencies, in compliance with International Health Regulations and the National Action Plan for Health Security (NAPHS). It is based on the recommendations for priority measures from experts within the World Health Organization, to close existing gaps and to create the implementation of International Health Regulations in each Technical Area (TA) to a level of competence that can be effectively and consistently applied with sustainable competence. This ensures that operations align with the specified objectives and are efficient and effective. It shall also be used as a guideline for effective management and strategic implementation. It aims to realize the vision of the Epidemiology Division: *"Thai health standards and global health regulation standards to enhance the health of the Thai people, to support stable, prosperous, and sustainable national development."*

The Vision is defined as follows:

Thailand's Health Standards and International Health Regulation Standards mean that Thailand implements health security protocols according to international standards and has succeeded in solving problems and closing existing gaps in the development of national health care in all 19 areas according to International health regulations, with continually improved assessment results and broad development that result in best practices, or innovations, or new standards of procedure that are beneficial to the development of the country's health system. This includes the success in creating integrated cooperation agreements among network partners, along with operational standards for those responsible for preventing, detecting, and controlling disease and health hazards to meet the standards of compliance with International Health Regulations. Thailand will expand cooperation to develop operational capabilities with international organizations, which has the potential to support global development, especially in neighboring countries, to help develop and meet global health criteria.

Strengthening the Well-Being of Thai People means that Thais have better health literacy, are aware of health threats arising from hygiene issues, and live in an environment conducive to good health. Thailand has successfully protected people from public health emergencies. It has continuously decreased illness and death due to poor hygiene, infectious diseases (emerging infectious diseases), zoonotic diseases, food safety, chemicals, and radiation throughout the country.

Supporting National Development for Stability, Prosperity, and Sustainability means network organizations within the government, private, civil society, and public sectors have roles in jointly promoting, implementing, monitoring, supervising, and assessing, to enhance Thailand's capabilities and manage target areas for national development, to achieve health security with guidelines for protecting the people, society, the economy, environment, and security in line with International Health Regulations.

The country's health development system also plays an essential role in fostering and driving economic development with competitiveness, thus building confidence in investment, trade, exports, travel, and tourism. The social aspect aims to create a

healthy society, reduce illness and death from disease and health hazards resulting from public health emergencies, and reduce inequality of access to the public health system. The security aspect focuses on enhancing capacity to cope with and control the spread of disease on a large scale. The environmental element aims to create a healthy ecosystem conducive to good public health and management of a sustainable health environment,

in line with the policies of the Department of Disease Control, Ministry of Public Health. The determination of such directions or Action Plans undergoes various processes, including reviewing the context, assessing the current situation, identifying problems, gaps, and challenges, following recommendations on the most critical measures by experts from IHR-JEE in each Technical Area (TA), analyzing other relevant national Action Plans, analyzing the context of the external environment, surveying the needs of service recipients and stakeholders, analyzing strategic risks to find information to control, prevent, improve, and resolve risks that may affect the achievement of strategies, examining the linkage with policies of the Department of Disease Control, and then determining the vision, mission, strategic issues, objectives, strategies, production, indicators, and plans/projects, to be consistent with the specified vision. The main points of the Action Plan, according to an assessment of core competencies which comply with the International Health Regulations, National Action Plan for Health Security (NAPHS), are as follows:

Vision

"Meet Thai health standards and global health regulation standards to enhance the health of the Thai people, to support stable, prosperous, and sustainable national development."

Mission

1) To promote policy-oriented cooperation and actions in all aspects toward further development of policies, laws, and resource management, in accordance with the International Health Regulations and standards applicable to Thailand.

2) To strengthen the efficiency of public health operations and services in accordance with all aspects of International Health Regulations, thus ensuring high effectiveness and maximum benefit to the development of public health.

3) To encourage and support the creation of academic studies, knowledge, technology, innovation, and database systems to facilitate development in accordance with current and future International Health Regulations, while encouraging policy development aligned with global health conditions and national public health needs.

4) To foster robust cooperation and continuous commitment among all sectors of partner organizations toward the development of operations in accordance with International Health Regulations, while driving the development of Thailand's economy, society, stability, and environment toward becoming a developed nation.

Core Values

"**Uniting the power of** networks, **jointly creating** a national health system that is **internationally recognized**, **for the people** and **the country.**"

and has set **the Ultimate Goal of the 5-year development Action Plan (2023-2027) as follows:** 70 percent of the people have good health literacy that is up to date with the health threats arising from poor hygiene; a decrease in illness and death rates among the population throughout the country; a decrease in the rate of infection from emerging infectious disease by 30 percent, a decrease in deaths from emerging infectious disease by 50 percent, a decrease in the rate of illness from zoonoses by 30 percent and a decrease in death from zoonoses by 50 percent; and a decrease in the rate of illness from food insecurity by 30 percent. Chemical emergency management results are 100 percent successful (the extent of spread from the source did not exceed 5 kilometers, the problem could be contained within 3 hours, and there were no deaths from the spread). Radiological emergency management results are 100 percent successful (the extent of the spread from the source did not exceed the international standard, the problem could be contained within 3 hours, and there were no deaths from the spread). The target areas for sanitation management and the development of an environment conducive to good health in accordance with the national development goals according to the International Health Regulations achieved 100 percent success (the target areas cover the Eastern Economic Corridor, the Special Economic Zone, and other regions at risk from sanitation problems). Investors, tourists, and the people's confidence index in the management of national health and hygiene are at 85 percent, and the average score of competence development according to International Health Regulations is 4.75 (in 2022, Thailand received an average score of 4.25 based on 56 indicators).

Additionally, an Action Plan (Strategic Issues) has been established to address the foremost essential issues, or main agenda, for development according to the framework of the strategic plan, to develop methods to realize the highest results as specified in the vision, comprising 5 Action Plans as follows:

1) To establish policies, laws, resource management, and support systems to develop a highly effective national capacity that comply with International Health Regulations.

2) To improve the efficiency of health service provision in accordance with International Health Regulations in all aspects to be highly effective and of maximum benefit to the development of public health.

3) To develop a surveillance system of health hazards for disease control to support national health development in accordance with current and future International Health Regulations.

4) To develop a high-performance public health safety and biosecurity system that meets international standards.

5) To implement International Health Regulations while driving the development of Thailand's economy, society, stability, and environment toward becoming a developed nation.

Action Plan 1: To establish policies, laws, resource management, and support systems to develop highly effective national capacity and comply with International Health Regulations, This consists of 5 strategies:

1) Develop legal instruments that are up to date, effectively enforced throughout the country, and which allow people and communities to participate effectively in implementation.

2) Adjust the budget management system to ensure continuous, sufficient, cost-effective development toward meeting International Health Regulations.

3) Strengthen unity and efficiency in coordination with International Health Regulations domestically, to be aligned in terms of both policy and field operations.

4) Adjust the management system and human resource development in the development system according to International Health Regulations, which are both effective and support the country's health needs.

5) Enhance risk communication and strengthen community engagement in public health risk management.

Action Plan 2: To improve the efficiency of health service provision in accordance with International Health Regulations in all aspects. to be highly effective and of maximum benefit to the development of public health. This consists of 3 strategies:

1) Develop emergency health crisis management to be standardized, rapid, timely, and comprehensive throughout the country.

2) Increase the efficiency in linking public health agencies and security agencies to have a highly effective, integrated joint operations system with continuous development.

3) Raise quality health service provision to support the health needs and development that benefit public health.

Action Plan 3: To develop a surveillance system of health hazards for disease control, to support national health development in accordance with current and future International Health Regulations. This consists of 4 strategies:

1) Strengthen the country's capacity for integrated surveillance, warnings, and health risk management, linking and analyzing data and databases to be highly efficient and universal.

2) Increase the country's capacity to manage zoonotic diseases to meet standards, create safety for workers and citizens, and protect citizens and animals.

3) Promote the creation of knowledge and innovation in food safety, to support development in accordance with International Health Regulations and the people's food security.

4) Increase the efficiency of protection for people of all ages, to receive comprehensive immunization in a timely manner, consistent with the country's health situation, and in accordance with international standards.

Action Plan 4: To develop a high-performance public health safety and biosecurity system that meets international standards. This consists of 4 strategies:

1) Develop the capacity of Thailand's antimicrobial resistance management system to meet international standards.

2) Raise the standards for preventing and controlling hospital infections and manage hospital infection management information efficiently using technology and knowledge.

3) Develop a national laboratory system with a high capacity to support diagnosis and surveillance of human, animal, and environmental health, with national laboratory network standards that are recognized internationally throughout the country.

4) Develop a biosafety and biosecurity management system with high management standards.

Action Plan 5: To implement International Health Regulations while driving the development of Thailand's economy, society, stability, and environment toward becoming a developed nation. This consists of 4 strategies:

1) Enhance the country's capability in providing entry and exit channels, including airports, seaports, and borders, to manage public health risks in accordance with international standards within the context of national development.

2) Develop a system for monitoring and managing chemical incidents and radiological emergencies to meet standards, thus building confidence among the citizens, investors, and tourists.

3) Promote and support international health emergency operations when a health emergency occurs.

4) Strengthening development in accordance with International Health Regulations in line with national development strategies.

Additionally, measures have been set for transforming the Action Plan into practice by linking with the network agencies related to the Action Plan, for developing core competencies in the same direction, in compliance with International Health Regulations, including the ability to link and assess one's performance according to the specified strategic plan. And establishing a system for monitoring and examining the results of the implementation of the plan/project to ensure that it can respond to the development strategy of the Action Plan for developing core competencies in compliance with the International Health Regulations, and appointing a plan management committee from representatives of related agencies, developing personnel to support the development of operations according to the plan within a five-year period, and also focusing on creating cooperation among all sectors to jointly support the development according to the plan to achieve the set goals.

CHAPTER 1 INTRODUCTION

1.1 THE NECESSITY OF DEVELOPING A PLAN

Thailand uses the International Health Regulations 2005 (IHR 2005), an agreement among the member states of the World Health Organization, to develop disease prevention and control systems that meet the standards. This is an agreement and commitment to international cooperation in managing public health events with the potential to spread across countries to various parts of the world. The intention is to prevent and control disease, health hazards, and public health emergencies (Public Health Emergency of International Concern: PHEIC) with the most negligible impact on international travel and trade. Thailand was assessed by experts from the World Health Organization, Joint External Evaluation Tool (JEE), for the first time on June 26-30, 2017. After the assessment, experts from the World Health Organization provided recommendations for high-priority measures in each Technical Area (TA) as a guideline for developing competency to a higher level. Thailand has continuously developed competency based on these recommendations. In 2022, Thailand was assessed by experts from the World Health Organization, Joint External Evaluation Tool (JEE), for the second time on October 31-November 4, 2022. According to the assessment, Thailand needs to develop an Action Plan based on the assessment of core competencies, in compliance with International Health Regulations. The National Action Plan for Health Security (NAPHS), based on the recommendations for high-priority measures from experts from the World Health Organization, focuses on closing the gaps and developing implementation of International Health Regulations in each Technical Area (TA) to a level of competence that can be applied effectively, consistently, and sustainably. To ensure that operations are in accordance with the specified objectives, as well as efficient and effective, the Epidemiology Division has developed a strategic Action Plan based on assessing core competencies in compliance with the National Action Plan for Health Security (NAPHS).

1.2 OBJECTIVES

(1) To strengthen national capacity for public health emergency preparedness and health security and enhance International Health Regulations capacity in each Technical Area (TA) under IHR-JEE.

(2) To develop a National Action Plan for Health Security (NAPHS) based on World Health Organization experts' recommendations on priority measures to close the gaps.

1.3 PLAN DURATION

The National Action Plan for Health Security (NAPHS) has a 5-year time frame (2023-2027). The Plan is a tool for developing a system for disease prevention and control, health hazards, and public health emergencies (Public Health Emergency of International Concern: PHEIC), that will have the most negligible impact on international travel and trade, and to develop competency in the implementation of International Health Regulations in each Technical Area (TA) to a better level of competency that can be applied effectively, competently, and sustainably, and to prepare for public health emergencies and national health security.

1.4 OVERVIEW OF THE NATIONAL ACTION PLAN FOR HEALTH SECURITY (NAPHS)

Based on the assessment on the country's diseases, health hazards, and public health emergency prevention and control system, by experts from the World Health Organization Joint External Evaluation Tool (JEE) on both previous occasions, the first time on June 26-30, 2017, and the second time on October 31-November 4, 2022, Thailand received an average score of 4.25 out of 5 (from 56 indicators), which is considered a significant improvement in all aspects of competency that affect public health operations, compared to the first assessment in 2017, 5 years ago, which received a score of 3.75 (score from 48 indicators). An Action Plan has been developed based on assessing the country's core competencies in complying with the International Health Regulations to close the gaps according to the assessment. The recommendations for high-priority measures in each Technical Area (TA) have been used to determine the operational plans of relevant agencies to enhance the capacity to prepare for and respond to public health emergencies, including communicable diseases, zoonotic diseases, and food safety, and chemical and radiological emergencies that are likely to occur in the future.

In accordance with the requirements of the International Health Regulations, the assessment was conducted on 4 groups, totaling 19 areas, consisting of, 1) the **P**revention Group (8 areas), 2) the **D**etection Group (3 areas), 3) the **R**espond Group (5 areas), and 4) Hazard Specific Group (IHR Related Hazards and Point of Entry and Border Health), (3 areas), and 19 Technical Areas (TAs), namely:

TA1 P.1 Legal Instruments
TA2 P.2 Financing
TA3 P.3 IHR Coordination, National IHR Focal Point Functions and Advocacy
TA4 P.4 Antimicrobial Resistance (AMR)
TA5 P.5 Zoonotic Diseases
TA6 P.6 Food Safety
TA7 P.7 Biosafety and Biosecurity
TA8 P.8 Immunization
TA9 D.1 National Laboratory System
TA10 D.2 Surveillance
TA11 D.3 Human Resources
TA12 R.1 Health Emergency Management
TA13 R.2 Linking Public Health and Security Authorities
TA14 R.3 Health Services Provision

TA15 R.4 Infection Prevention and Control
TA16 R.5 Risk Communication and Community Engagement
TA17 PoE: Points of Entry (PoE) and Border Health
TA18 CE. Chemical Events (CE)
TA19 RE. Radiation Emergencies (RE)

To achieve the objectives of developing the strategic Action Plan based on the assessment of core competencies in compliance with the National Action Plan for Health Security (NAPHS) in all 19 areas, the following steps have been established:

1) Assessment of the current situation and review of recommendations on high-priority measures from experts of IHR-JEE, to determine Thailand's strategic position and development direction (2023-2027).

2) Assessment of Thailand's performance and external environment based on the criteria according to International Health Regulations (SWOT Analysis).

3) Analysis of future trends and strategic challenges based on the criteria according to International Health Regulations (Scenario Analysis).

4) Setting development targets and indicators based on the criteria according to International Health Regulations.

5) Translating targets into actions for developing core competencies based on the Blueprint for Change and according to International Health Regulations.

6) Preparation of the National Action Plan for Health Security (NAPHS).

As detailed in the next chapter.

CHAPTER 2
ASSESSMENT FRAMEWORK, GUIDELINES AND ACTION PLANS RELATED TO THE DEVELOPMENT OF AN IMPLEMENTATION SYSTEM UNDER INTERNATIONAL HEALTH REGULATIONS.

The National Action Plan for Health Security (NAPHS) is a planning process for preparing, monitoring, reporting, and responding to public health emergencies and national health security issues that implement the core competencies of International Health Regulations, which is based on a One Health approach for all hazards, a whole-of-government approach that captures national priorities for health security, integrates sectors, identifies partners, and allocates resources for health security capacity development. The concepts and principles for developing the Action Plan, assessment, and integration with related Action Plans are as follows:

2.1 EXTERNAL AND SELF-ASSESSMENT

2.1.1 Joint External Evaluation (JEE) is a process in which state parties voluntarily request a multisector assessment from the World Health Organization on their national capacity, to rapidly prevent, detect, and respond to public health risks. This allows countries to identify the most pressing needs within their health security systems to prioritize readiness opportunities, detection, and responses, including national prioritization and resource allocation based on recommendations for high-priority measures from the 2nd JEE assessment of October 31 - November 4, 2022, in each of the following technical areas:

1) Legal Instruments

- Review and update relevant laws across all sectors and levels to enable the detection, assessment, notification, reporting, and response to public health risks and emergencies.
- Develop gender-specific data collection guidelines to support gender equality and equity policies.
- Map agencies and responsibilities for the detection, assessment, notification, reporting, and response to public health risks and emergencies, as well as develop manuals and guidelines to support legal understanding, authority, and accountability across sectors and levels.

2) Financing

- Document experiences from COVID-19 on emergency response financing and identify potential areas for efficient development. Review budget requests from all agencies involved in International Health Regulations, to enable better coordination and monitoring.
- Consult with stakeholders across sectors to determine the required capacity levels to secure concrete multisectoral funding and Action Plans aligned with capacity levels.

- Pilot a shared budgeting system for cross-sectoral activities, such as One Health, zoonotic diseases, and migrant worker health, and address financing gaps for technical international health regulation issues, including laboratories, One Health, field epidemiology training, incentives for health care infection control nurses and health volunteers, mental health care, health literacy, and the use of digital technology in health care.

3) IHR Coordination, National IHR Focal Point Functions and Advocacy

- Review and improve the appropriate organizational structure and management system to promote coordination and support International Health Regulations Focal Point operations.

- Develop and implement human resource strategies to enhance and maintain the continuity of technical capacity building, implementation of the core functions of the international health regulation Focal Points, competencies, and capacity of all relevant sectors in accordance with core competencies.

- Enhance and maintain the multisectoral coordination mechanisms through updated guidelines, procedures, and operating standards, adjusted according to the situation.

- Develop plans, measures, and operating standards to enhance preparedness and response to public health emergencies related to mass gatherings.

4) Antimicrobial Resistance

- Revise the One Health monitoring and assessment principles to generate the evidence needed to guide strategic decision-making and effectively support implementation of the National Strategic Plan on Antimicrobial Resistance 2023 – 2027.

- Standardize essential data sets and frameworks for collecting Antimicrobial Resistance and healthcare-associated infections, within and between hospitals and laboratories, and connect them through the national health information system.

- Continue to maintain high levels of government commitment and organizational leadership at national, regional, and provincial levels, for collective action, including adequate and sustainable resource allocation, in line with the National Strategic Plan on Antimicrobial Resistance 2023 – 2027.

- Increase public awareness of the threat of Antimicrobial Resistance and appropriate use of antimicrobials across all sectors, through collaboration among a broad range of stakeholders, including education systems, media, health volunteers, civil society organizations, food manufacturers, and the private sector.

- Strengthen leadership and scale up integrated Antimicrobial Resistance management in hospitals by training personnel and ensuring adequate human resources for nosocomial infection prevention and control, hospital epidemiology, laboratory diagnostics, AMR & HAI surveillance, and AMR resistance management.

5) Zoonotic Disease

- Strengthen and coordinate multisectoral cooperation at the national level by establishing One Health coordinating units in the Department of Disease Control, the Department of Livestock Development, and the Department of National Parks, Wildlife

and Plant Conservation, and coordinate One Health activities consistently within and among the various sectors.

- Expand the composition of the One Health Steering Committee to cover other relevant sectors and define the roles and responsibilities of the One Health Steering Committee and Coordinating Units.

- Create a One Health agency at the regional level and strengthen Provincial Natural Resources and Environment Offices to act as provincial wildlife coordination points.

- Coordinate and maintain community-level One Health training and health communication to increase community participation in disease surveillance, control, and prevention, and expand the existing responsibilities of public health and livestock volunteers to become community health volunteers.

- Strengthen wildlife surveillance by building sustainable capacity in early detection, sample collection and reporting, to improve laboratory diagnostics, and establish a web-based system to collect, store, and share surveillance data.

- Continue to share expertise and human resources across sectors as needed, e.g., in laboratories, epidemiology, risk assessment, etc.

6) Food Safety

- Increase the use of risk analysis principles defined in the Codex Alimentarius to assess, manage, and communicate food safety risks throughout the food chain, from production to consumption.

- In collaboration and coordination with other projects that sample food chains, establish a routine surveillance systems for priority pathogens and food contaminants to develop risk assessment models and improve understanding of potential mitigation actions.

- Establish avenues for information sharing with key stakeholders, including public and private sector partners and public and international organizations, to improve risk communication and response to food safety emergencies.

- Update emergency response plans regularly with new risk analysis findings, test them through tabletop exercises and virtual simulations, and conduct post-implementation reviews of food safety emergencies.

7) Biosafety and biosecurity

- Develop a joint national biosafety and biosecurity manual.

- Review and improve legislation to provide oversight of biosafety and biosecurity policies and guidelines for the implementation, certification, and maintenance of biosafety level 3 (BSL-3) in all sectors.

- Establish national guidelines and curricula for sample referrals and conduct training for trainers on such guidelines.

- Establish national guidelines and curricula for sample referrals and train trainers on such guidelines.

8) Immunization

- Accelerate immunization coverage to offset the decline in vaccination rates due to the COVID-19 pandemic by monitoring and tracking vaccination outcomes in all provinces, conducting polio and measles-rubella vaccination campaigns, developing thematic plans to support immunization activities, and identify unvaccinated and under-vaccinated populations, especially vulnerable, hard-to-reach and hesitant populations.

- Implement a multisectoral strategy involving health and non-health sector partners, including the private sector, to identify and address hesitancy, access, and other needs in the southern border provinces. Consider local, people-centered approaches to identify barriers, and develop and refine innovative solutions.

- Improve immunization data and digitize personal immunization records, improve migrant and border worker denominators, and integrate Behavioral and Social Demands (BeSD) tools for immunization into national surveys, and sub-national assessments to enhance understanding of access and need.

- Strengthen and sustain immunization capacity by stockpiling measles-rubella vaccines in outbreak stockpiles, equipping immunization staff at all levels with sufficient training to fill gaps, and conduct rapid assessments to understand the factors driving high staff turnover.

9) National Laboratory System

- Formulate the National Laboratory Strategy Plan 2023-2026, which integrates One Health and has a budget, and prepare an annual Action Plan.

- Link laboratory, epidemiological, and clinical data in the human, animal, and environmental sectors, to create and use interconnected laboratory data.

- Establish and oversee appropriate licensing mechanisms for public and private laboratories to provide the most appropriate quality laboratory services.

- Strengthen the skilled workforce through academic training and have a clear strategy for retaining qualified personnel, such as the Global Laboratory Leadership Programme (GLLP), molecular testing, and biological laboratory risk management system training.

- Establish procedures and coordination mechanisms for the life cycle of in vitro diagnostic test development, which are tests capable of detecting diseases, conditions, and infections. This includes developing, producing, validating, assessing, and implementing post-marketing surveillance during public health emergencies.

- Establish regional training centers and communities of practice to strengthen the National Institute of Health and the Department of Medical Sciences' role in strengthening epidemiology, detection capacity, biosafety, and laboratory systems in human and animal health throughout the region.

- Improve the efficiency of the veterinary network laboratories in Thailand by testing their proficiency in animal disease diagnosis according to ISO 17043.

- Improve animal health laboratory guidelines on standardized referral and logistics systems at the national level.

- Decentralize the testing for priority and notifiable diseases to the lowest levels of the health system through improved training and procurement, and strengthening networks and infrastructure.

10) Surveillance

- Invest in data modernization, including using a big, data-enabled IT infrastructure, and apply appropriate technologies for data integration, analytics, predictive modeling, and risk analysis.

- Increase the use and adoption of digital technologies to improve event- and indicator-based disease surveillance and reporting by making systems easier to use.

- Support policies and budgets for increased disease reporting from public and private health facilities and the animal health sector, and support outbreak investigations.

- Enhanced exchange mechanisms for sharing regional and global surveillance data and increased human resources, to strengthen provincial, national, regional, and global surveillance.

11) Human Resources

- Assess and improve human resource policies based on the lessons learned from the COVID-19 pandemic. The review should include hiring, onboarding new staff, work processes, compensation, leave, training, continuing education, promotion, working environment, retention, termination, implementation of occupational health policies, and other core functions. The health workforce should be trained in other related technical issues.

- Distribute budgets and ensure they are appropriately spent across human, animal, wildlife, and environmental health.

- Increase and maintain a sufficient number of skilled personnel for health, animal, wildlife, and environmental health personnel through strategies that include, but are not limited to, expanding clear career opportunities and continuing professional development, improving motivation, and providing mental health and psychosocial support and services.

- Maximize the existing health workforce policy base and create performance indicators for multisectoral workforce development across human, animal, wildlife, and environmental health sectors.

12) Health Emergency Management

- Develop a support plan with monitoring and assessment to ensure sustainable post-pandemic funding for emergency operations centers, emergency preparedness, and risk management.

- Ensure rapid response capacity for public health emergencies by leveraging policy and legal mechanisms to identify emergencies, quickly approve funding, streamline procurement management, and recruit staff.

- Enhance preparedness for chemical, biological, radiological, nuclear, and explosive incidents within existing health emergency management systems through the formal engagement of relevant experts and institutions, and the creation of inventory data for medicines, medical supplies, and medical devices.

- Incorporate data from the Public Health Emergency Operations Center into advanced analytics processes to sustainably inform future public health emergency response efforts, through an integrated networked data management platform for automated data analysis and reporting, spatial mapping, and data visualization.

- Formalize a public health emergency research framework, prioritize action research on health emergency risk management and related areas, and assess and develop guidelines for rapid research ethics board approval during a public health emergency.

13) Linking Public Health and Security Authorities

- Establish formal mechanisms for cooperation and information sharing between health and security agencies. The security sector has legal authority to share classified information with designated health representatives with potential public health implications.

- Organize regular training/orientation/joint discussions between health and security agencies, including appropriate senior government officials, to enhance mutual understanding of their respective roles and responsibilities during emergencies, including through virtual exercises.

14) Health Services Provision

- Strengthen the capacity for emergency preparedness and health service maintenance to ensure that sufficient health personnel are in primary care facilities, to maintain essential health services and meet the health needs of the population during a public health emergency that may cause health service disruption.

- Review and strengthen logistics capacity for essential medical supplies, including storage, cold chain, and transportation, with a focus on regional health facilities and development of local production capacity.

- Conduct an assessment of the need for essential health services during an emergency which may cause health service disruption, focusing on the at-risk, vulnerable, elderly, and marginalized populations.

- The Communicable Diseases Act, which is being amended, requires a health service maintenance plan and the participation of all necessary sectors in providing health services in health facilities at the tertiary, secondary, and primary levels.

- Maintain cooperation and coordination among the public and private sectors during a public health emergency through the Public Health Emergency Operation Center and multisectoral mechanisms for sustainability.

15) Infection Prevention and Control

- Promote the Office of Infectious Disease Prevention and Control and Antimicrobial Resistance in Hospitals and the Bamrasnaradura Infectious Diseases Institute, to provide full-time staff to support the Committee on Infectious Disease Prevention and Control in Thailand in performing its duties and realizing objectives as specified in the National Infection Prevention and Control Plan in Hospitals by defining roles and responsibilities, and prepare a budget to support the activities specified in the Action Plan for Infectious Disease Prevention and Control in Hospitals 2023-2027.

- Support personnel working on infection prevention and control in hospitals at the hospital level by promoting professional advancement and increasing motivation, including compensation for personnel at a higher level, especially for infection control nurses, at a ratio of at least 1 nurse per 150 beds.

- Increase the number of hospitals participating in hospital-acquired infection/antimicrobial resistance surveillance, leveraging digital technologies and innovations to ensure the quality, accuracy, completeness, and timeliness of real-time data analysis and feedback.

- Strengthen the monitoring and assessment framework for hospital-acquired infection control, accreditation of hospital standards, and health services that have appropriately implemented infection control processes, and organize training on infectious disease control guidelines.

16) Risk Communication and Community Engagement

- Establish a public health risk communication unit within each provincial public health office, and/or enhance existing provincial public relations mechanisms to carry out risk communication work.

- Develop people-centered approaches to finding solutions to public health problems in collaboration with communities.

- Develop a training plan on risk communication standards for marginalized groups of people not limited to migrant workers, and those living in border areas.

17) Points of Entry and Border Health

- Develop guidelines and operational standards, including providing training for border checkpoint personnel, in accordance with the requirements of International Health Regulations.

- Strengthen indicator-based surveillance systems at international communicable disease control checkpoints at points of entry, using event-based surveillance strategies that feed into the national surveillance system.

- Develop guidelines for routine activities specifically designed for use at points of entry, including maintenance of food and drinking water hygiene, waste management, and vector control.

18) Chemical Events (CE)

- Review preparedness, resources, and capacity to deal with chemical incidents in various sectors by conducting risk/gap analysis to identify needs at national, federal, primary health care, and entry points, and respond to those needs.

19) Radiation Emergencies

- Finalize and enact legislation to implement the Nuclear Energy for Peace Act, B.E. 2562 (2019), across all relevant sectors.
- Establish formal operating procedures for notification and coordination under International Health Regulations Focal Points in the event of a radiological or nuclear emergency.
- Increase training for frontline personnel and emergency responders, with a focus on tabletop and field exercises and cooperation between sectors and emergency agencies.
- Ensure that clinical management procedures are in place for those affected by a radiation emergency, and that personnel in specialized hospitals are trained. Procedures and operating procedures should also be developed to provide access to essential medical supplies for the treatment of radiation injuries.
- Provide tangible budgets, materials, and equipment, including support from the private sector.

2.1.2 Universal Health and Preparedness Review (UHPR): During the COVID-19 pandemic, the critical factors found are: 1) Support from senior executives who set national policies, 2) A strengthened Thai public health system from continuous investment in universal health coverage and primary care systems for over 4 decades, 3) Collaboration between all sectors, including the government, private sector, civil society, and education sectors, including public health volunteers, 4) A process for engaging citizens and communities, and 5) Use of digital technology, innovation, and research for decision-making based on the data.

Obstacles and challenges that can be developed include integrating data from multiple sources, providing care for vulnerable groups such as laborers and slum dwellers, to provide them with greater access to health services, prepare for emergencies in urban areas and primary care systems, advance or create sustainability in the use of various innovations, and manage medical or infectious waste. There are proposals to increase investment in innovation and digital technology to enable continuous use, develop multidisciplinary workforces, and apply effective strategies to prepare for the next outbreak. Prioritizing the development of citizens' health and well-being that covers vulnerable groups. Enhance self-reliance capacity in vaccines, medicines, tests, and medical supplies, develop strategies for data integration, and identify and document good examples and essential lessons learned from pandemic management for further dissemination.

2.1.3 Global Health Security Index (GHS Index): Johns Hopkins University, USA, together with a working group of experts from around the world, conducted the 2nd Global Health Security Assessment in 2021 to compile the Global Health Security Index report from 195 countries that are members of the World Health Organization (WHO). Thailand has the highest capability in disease detection and reporting worldwide, and the highest capability in disease surveillance systems, timely disease reporting and disease investigation. In terms of emergency response, there are restrictions on trade and travel. Disease prevention has decreased due to reduced immunization or vaccination. Regarding environmental risks, Thailand has relatively low

scores for security and political risks, economic and social recovery, and environmental risks. However, the public health system, medical response and workforce deployment, and compliance with international standards, have higher scores.

2.1.4 Linking the Assessment of International Health Regulations and the Assessment of Veterinary Service Performance (National IHR-PVS bridging workshop): In July 2022, by analyzing activities to promote the development and bridging gaps in the One Health framework. It was found that coordination and governance pillars should be focused on local and regional levels, assessment of the progress of One Health implementation in Thailand, setting strategic frameworks and Action Plans, and establishing coordination units and networks of experts in relevant sectors. In addition, comprehensive strategies in surveillance, education and training, communication, and integrated legislation for zoonotic diseases and food safety should be developed, and the One Health concept should be integrated into education and training programs, and communication and cooperation among health agencies should be promoted.

Additionally, the integration of International Health Regulations with veterinary services emphasizes the importance of building capacity and disseminating knowledge to stakeholders through training programs designed to equip policymakers, new officials, civil servants, and village health volunteers, to provide them with the necessary understanding of the One Health approach, communication, surveillance, and prevention of zoonotic diseases. Establishing technical committees, working groups, and social media platforms aims to facilitate effective communication, accurate information dissemination, and coordination in addressing public health challenges from a One Health approach. Furthermore, reviewing and proposing amendments to laws and regulations related to the One Health approach is essential to ensure consistency and promote a holistic approach and collaboration in disease control and prevention.

2.1.5 Strategic Tool for Assessing Risks (STAR) for Prioritizing Zoonotic Diseases, Foodborne Diseases, and Hazards. This involves national risk analysis and prioritization of diseases based on health impacts, frequency, scale of hazardous events, likelihood of occurrence, seasonality, severity, vulnerability, response capacity, potential consequences, and confidence level in existing data for each hazard. Prioritization is a crucial step in enhancing capacity for high-risk diseases and hazards, and it allows for the efficient use of limited resources for planning and managing health risks in national emergencies.

2.2 NATIONAL STRATEGIC PLAN AND ACTION PLAN

2.1.6 20-Year National Strategic Plan for Disease Prevention and Health Hazard Control (2018 – 2037): The plan aims to ensure that by 2037, the public receives disease and health hazard prevention and control services that meet international standards. Strategy 1: Development of Policies, Measures, and Services for Disease and Health Hazard Prevention and Control Objective: To reduce the prevalence and incidence of illness and deaths from preventable and controllable diseases and health hazards. Strategy 2: Strengthening the Public Health Emergency Management System Objective: To establish a public health emergency management system and operations center in Thailand that can respond rapidly, systematically, and cohesively in an integrated, effective, and safe manner to all health hazards. Strategy 3: Enhancing the Infrastructure of the Disease and Health Hazard Prevention

and Control System Objectives: 1. To provide essential and comprehensive information and knowledge that supports the rapid, complete, accurate, integrated, and efficient functioning of the disease prevention and control system. 2. To develop a network of standardized public health laboratories located near service points, enabling the diagnosis of dangerous infectious diseases and other significant health conditions. Strategy 4: Reforming Management Systems and Developing Collaborations Objective: To establish robust structures, systems, and mechanisms for managing the disease and health hazard prevention and control system in Thailand, effectively supporting disease and health hazard prevention efforts. Strategy 5: Developing the Workforce for Disease and Health Hazard Prevention and Control Objective: To ensure the availability of competent personnel in the disease and health hazard prevention and control system at all levels, and to have sufficient experts who will be the cornerstone of disease prevention and control efforts.

2.1.7 Action Plan for Surveillance, Prevention, and Control of Communicable Diseases and Epidemics (2023 – 2027) in Accordance with the Communicable Diseases Act, B.E. 2558 (2015): To integrate efforts across all sectors in surveillance, prevention, and control of communicable diseases and epidemics. The plan outlines five key areas of development: (1) Development of policies, measures, legislation, and management mechanisms for communicable disease prevention and control; (2) Enhancement of infrastructure and improvement of surveillance, prevention, and control of communicable diseases; (3) Strengthening emergency management for communicable diseases; (4) Development of human resources and national and international collaboration networks; and (5) Advancement of risk communication and support systems for communicable disease prevention and control.

2.1.8 Five-Year National Strategic Action Plan for Infection Prevention and Control in Hospitals (2023 – 2027): To serve as a guideline for advancing national efforts in infection prevention and control in hospitals. The plan outlines nine key strategies: (1) Reform the infection prevention and control work system; (2) Develop standards for operational procedures; (3) Promote and support the creation of knowledge and innovation in infection prevention and control; (4) Enhance the capacity of infection prevention and control personnel; (5) Develop operational networks; (6) Enhance information technology systems; (7) Promote and improve communication and public relations systems; (8) Develop and integrate data systems for infection prevention and control; and (9) Develop models for infection prevention and control.

2.1.9 All-Hazards Action Plan of the Department of Disease Control for 2022 covers responses to health emergencies arising from risk analysis. This Action Plan is divided into five categories: (1) Infectious disease hazards, (2) Chemical hazards, (3) Radiological hazards, (4) Natural and environmental hazards, and (5) Hazards from accidents/injuries and terrorism/sabotage. The Plan is based on surveillance, prevention, and disease control principles through an efficient public health management system and multi-level networks that respond swiftly to emergencies. It operates under an Incident Command System, with actions spanning across all stages of preparedness (before or when a hazard is imminent), response (during the hazard), and recovery (post-hazard or rehabilitation phase).

2.1.10 The Fifth Action Plan for Preparedness, Prevention, and Response to Emerging Infectious Diseases (2023 – 2027) aims to equip Thailand with the capability to systematically and promptly prevent and control emerging infectious diseases, effectively reducing the social and economic impacts. The plan promotes integrated management with participation from all sectors to ensure stable and sustainable public health. This comprises five key strategies: (1) Developing a preparedness and management system for emerging infectious diseases to ensure national security; (2) Integrating laws and financial and fiscal management for emergencies; (3) Strengthening surveillance, prevention, treatment, and control systems for emerging infectious diseases under the One Health approach; (4) Advancing knowledge, research, technology, innovation, and medical and public health products, including veterinary public health, to sustainably achieve self-reliance in addressing emerging infectious diseases; and (5) Enhancing risk communication and public relations through networks and fostering collaboration, both domestically and internationally, in emerging infectious disease management.

2.1.11 National Action Plan on Antimicrobial Resistance (2nd Edition), 2023 – 2027, aims to address antimicrobial resistance with the following key outcomes: (1) Reduced antimicrobial use in humans; (2) Reduced antimicrobial use in animals; and (3) Enhanced capacity of the national antimicrobial resistance management system, aligned with the World Health Organization's International Health Regulations assessment criteria. Under the One Health approach, this plan emphasizes national collaboration and central mechanisms for coordinating efforts across all sectors, including human health, animal health, food, plants, and the environment. This promotes integrated antimicrobial resistance management in hospitals, raises livestock standards to avoid the use of antibiotics, and establishes a national system for monitoring antimicrobial consumption in humans and animals.

2.1.12 The National Laboratory Strategic Plan (2023 – 2026) aims to drive innovation and support regional initiatives through research and development in medical sciences and laboratory diagnostics, serving as a reference laboratory in disease control and consumer protection. The plan outlines the following key missions according to the law: (1) Establish and enhance quality standards for systems and laboratory procedures; (2) Enforce compliance with laws pertaining to pathogens, animal toxins, and other relevant regulations; (3) Conduct research and develop knowledge and technologies in medical sciences and public health; (4) Perform laboratory analyses of health products; (5) Function as a reference laboratory in medical sciences and public health, including the calibration of medical instruments; (6) Support and develop laboratory quality assurance systems; (7) Develop operational systems and mechanisms in accordance with applicable laws; and (8) Disseminate knowledge to communities and relevant agencies.

CHAPTER 3
DEVELOPMENT DIRECTION OF THE NATIONAL ACTION PLAN FOR HEALTH SECURITY (NAPHS) 2023 – 2027

1. STRATEGIC CHALLENGES

Driven by policy imperatives and the changing national landscape, Thailand faces significant strategic challenges in enhancing its capacities in accordance with International Health Regulations (IHR). These challenges stem from the 20-Year National Strategic Plan, the demands of IHR, and shifts in the external environment in various areas, as outlined below:

1) Legal Instruments

Thailand must revise its legal framework to ensure coherence across various laws, to clearly address safety issues arising from epidemics, as highlighted by the lessons learned from the coronavirus outbreak. This also includes managing key human-related risks, such as terrorism and protests. Legal revisions must address ambiguities in interpretation and application, ensure that relevant authorities have a unified understanding of the relevant laws, and align them with consistent enforcement. Additionally, regulations, guidelines, and laws should be developed to facilitate the collection of gender-disaggregated data (including gender sensitivity in related projects). This data is critical for designing policies and financial mechanisms that promote gender equality and equity.

On the legal front, greater emphasis must also be placed on risk communication to the public, ensuring that the information is accessible and understandable, especially for migrant workers. This involves using appropriate local languages while considering cultural sensitivities. Migrant workers should have access to accurate information they can easily comprehend. It is also essential to review and update relevant laws across all sectors and levels of government. This will enable the country to swiftly detect, assess, notify, report, and respond to public health risks (from various sources) and emergencies, meeting international standards and ensuring timely responses.

2) Financing

Thailand must urgently reform its current budgeting system to ensure it can allocate funds for activities that align with International Health Regulations (IHR). This includes coordination across the Ministry of Public Health and other relevant ministries to address the issue of insufficient funding. A joint budget system for cross-sectoral activities should also be developed, especially for initiatives like One Health, zoonotic diseases, public health events linked to climate change, migrant worker health, and more. It is essential to address financial gaps for technical matters required by the IHR, such as One Health laboratories, field epidemiology training, and incentives for local personnel (such as infection control nurses in healthcare facilities), and public health volunteers. Other emerging priorities include mental healthcare, health literacy, and integrating digital technology into health services.

Thailand must also consider the impacts of economic downturns on the country's financial resources, ensuring that these do not negatively affect the ability to monitor, prevent, control, treat, and rehabilitate public health issues. Limited budgets should maintain the efficiency of healthcare services for the population. Moreover, the process for requesting financial support from central funds and external loans needs to be simplified, as the current procedures are cumbersome, lack flexibility, and are time-consuming, delaying the work of public health officials and hindering timely responses to urgent situations.

3) IHR Coordination

Thailand must urgently develop a system to enhance the capacity-building process for implementing International Health Regulations (IHR), particularly for new staff tasked with coordination roles. This includes creating and utilizing human resource strategies to strengthen and maintain continuity in developing technical competencies related to IHR. The primary focus should be on improving the core competencies of IHR coordinators, particularly in managing electronic information systems crucial to Thailand's public health emergency preparedness and response. Additionally, the country must sustain and continuously assess the performance of IHR implementation to ensure ongoing effectiveness.

Strengthening, updating, and maintaining multisectoral coordination mechanisms through modernized Standard Operating Procedures (SOPs) adaptable to changing situations is essential. This includes improving coordination across technical sectors to address inefficiencies. There must be a regular review of plans, measures, and SOPs to enhance preparedness and response to public health emergencies, particularly those involving large gatherings. Organizational structures and management systems should also be reviewed and adjusted to ensure effective IHR coordination in supporting IHR National Focal Points (IHR NFPs). Strengthening the link between public health and security cooperation will further ensure effective disease prevention and control. Lastly, Thailand should ensure the sustainability and advancement of IHR implementation by upgrading and testing existing mechanisms for coordination, communication, and development support. This will reinforce health security and promote adequate, sustainable progress in IHR operations.

4) Human Resources

Thailand must urgently develop training programs in preventive medicine to enhance preparedness and response to public health emergencies. This includes managing human resources in non-medical health specialists, such as veterinarians and public health technicians, who often face unclear career paths and limited incentives. These challenges have become more prominent during the pandemic, with high turnover rates, increased workloads, and limited staffing. This primary concern could hinder recruitment and the expansion of field epidemiology programs.

Additionally, the country faces significant challenges in transferring primary care services and other responsibilities (including essential preventive services) from the Ministry of Public Health-run facilities to local government agencies. This is particularly difficult in areas where local governments have limited capacity and resources.

Thailand must also accelerate the training of health personnel in all fields on critical issues related to their duties in disease prevention, including a foundational understanding of public health laws (particularly those related to the IHR), to support the implementation of International Health Regulations. Personnel capacity development should also enhance their understanding of modern methodologies in emerging fields like data science and forecasting, which may be critical for future disease prevention functions. Addressing the limited availability of mentorship in training programs is also crucial. This is due to an inefficient recruitment mechanism and budget constraints exacerbated by a mentor shortage. There needs to be a more effective plan for recruiting mentors, alongside increased investment to expand future programs that support professional training to address public health issues and ensure core public health services.

5) Risk Communication and Community Engagement

Thailand must urgently recruit sufficient spokespersons and risk communication specialists who understand the diverse cultural, social, and linguistic contexts of different regions and communities. Strengthening community engagement, especially in vulnerable populations, ethnic minorities, and remote rural communities in border areas across the country, is crucial. Relevant agency spokespersons, volunteers, and personnel working in information centers (such as migrant health volunteers) need more training in risk communication, including in various languages. Developing self-learning courses for local officials is also essential.

Additionally, formal agreements on risk communication related to disease and health hazards, both during normal situations and emergencies, must be established. These agreements should involve relevant agencies, such as the Ministry of Interior, Ministry of Defense, and the Border Patrol Police, to ensure a coordinated and effective communication strategy.

6) Health Emergency Management

Thailand faces the challenge of developing an efficient system for the detection and surveillance of health emergencies, with a focus on integration across relevant agencies. Strengthening resources to enhance the capabilities of Emergency Operations Centers (EOC), Situation Awareness Teams (SAT), and rapid risk assessment at the provincial level is essential. There is a need to transfer public health emergency management knowledge to new personnel and reinforce the capacity of Public Health Emergency Operations Centers (PHEOC) in terms of staff, equipment, information technology, and systematic emergency management. Continuous training for PHEOC personnel at the Ministry of Public Health (MOPH) and Department of Disease Control (DDC) levels is necessary, along with the development of real-time training programs for surge staff. Data management within EOC systems must be improved through enhanced collaboration across national EOCs while addressing data analysis and visualization limitations.

Thailand must also reform its budget allocation system for health emergency management in the post-COVID-19 era by fostering collaboration and agreements with relevant agencies. This includes revisiting or revising financial regulations, procurement policies, and personnel rules, to ensure efficient emergency response, reduce

operational risks, and ensure comprehensive emergency management. It is critical to secure essential materials for responding to public health emergencies.

Regarding management, Thailand should establish a standardized and authorized personnel directory for medical and public health teams across the Ministry of Public Health, external agencies, other ministries, and the private sector. A standard operating procedure (SOP) manual should be developed for orientation and assessment before and after implementation. A digital platform should also be created for public health and medical operations, including tracking, logistics, and operational follow-up. Developing policies and guidelines for the Emergency Medical Team (EMT) for national and international collaboration is also necessary. Thailand should conduct drills involving personnel from various departments and agencies, including the deployment and reception of public health personnel (both domestically and internationally) during public health emergencies. Emergency logistics infrastructure must be enhanced to support primary healthcare, and research related to health emergency management should be promoted and disseminated. This includes research on improving emergency health management and streamlining bioethics approval processes for related studies.

7) Linking Public Health

Thailand faces significant challenges in developing collaboration and information-sharing mechanisms among public health and security agencies. These efforts must be expanded and formalized, creating a comprehensive information-sharing system that addresses relevant legal considerations for these sectors. A joint task force should facilitate sustainable cooperation, ensuring effective data management and collaboration across agencies through formal agreements or shared protocols.

8) Health Services Provision

Thailand faces challenges in developing health services, particularly in enhancing the efficient planning and management of supply chains and value chains. Establishing tight management and coordination systems is crucial, as well as integrating evidence-based medicine and expert opinions to create timely health service guidelines, especially for emergencies. There is also an urgent need to improve and expand the use of IT/digital technology in rural areas while enhancing the digital literacy of communities so they can better utilize technology to access healthcare. Particular attention should be given to some vulnerable groups in rural areas to ensure they can access essential health services and resources that meet the diverse healthcare needs of the population. Another challenge is maintaining and expanding health literacy and services for undocumented migrants, ensuring access to essential medical care at the subregional level.

Additionally, human resource management and support must focus on capacity building, particularly mental health support for medical personnel and frontline healthcare workers. Health services must also be strengthened to improve public health economics, ensuring access to health security and reimbursement systems for undocumented migrants and workers facing issues such as the impact of COVID-19 vaccinations and long COVID-19 symptoms that affect livelihoods.

9) Chemical Events (CE)

Thailand faces ongoing challenges in managing chemical risks, requiring the development of a continuous and regular emergency response drill system for chemical events. All relevant agencies must participate in these drills and regularly review response plans, and sufficient training and preparedness, adequate resources, personnel, and capabilities must be prepared to handle chemical events across various sectors, including new chemical incidents. A surveillance and information-sharing system related to chemical events must be developed and coordinated with the responsible agencies across sectors to improve the efficiency of chemical management.

There must be well-equipped poison control centers in every health region, capable of treating and referring patients affected by chemical exposure, and enough toxicology specialists to meet demand. The capacity of the national toxicology information system must be enhanced to connect hospitals across the country. In addition, risk analysis and lessons learned from chemical events should be used to develop a national action plan model for chemical event management. Continuous drills must be conducted to maintain preparedness and test emergency response plans involving all relevant stakeholders. These drills will help ensure that the plans remain up to date and effective in managing chemical emergencies.

10) Radiation Emergencies (RE)

Thailand must update its regulations and ministerial regulations to support the National Radiation Emergency Response Plan (NRREP), and ensure that it aligns with IAEA standards. Additionally, the capacity of personnel responding to radiation emergencies must be enhanced, focusing on training and conducting national-level drills that involve integrating information among relevant agencies. There must also be improved capabilities for individual dose limitation assessment (including biodosimetry and bioassays for internal contamination monitoring), and the development of standard operating procedures for rapid access to essential medical supplies for treating radiation injuries.

Moreover, a coordination center should be established to work under International Health Regulations (IHR) National Focal Points in the event of an international radiation emergency along with national authorities (Office of Atoms for Peace or OAP). Clear roles and responsibilities should be defined, including collaboration during preparedness and response phases. Joint capacity building (through training, drills and information sharing), and creating clear guidelines and Standard Operating Procedures (SOPs) are essential. Healthcare facilities that can treat and refer those affected by radiation emergencies must be available in every health region. Guidelines for managing patients affected by radiation emergencies should be developed, along with the training of hospital staff, in handling such cases. Clinical management guidelines for diagnosing and treating radiation injuries should also be established. An integrated cooperation agreement with relevant agencies from all sectors must be implemented to foster collaboration in radiation response efforts. Additionally, adequate budget allocation is necessary to support operations and enhance the capacity to respond to radiation emergencies effectively.

11) Points of Entry (PoE) and Border Health

Thailand must urgently restructure and align its workforce with the increasing responsibilities of managing transportation routes, driven by the growth of the economy, society, tourism, and national security. This includes upgrading the information systems and surveillance indicators at International Communicable Disease Control points of entry, to ensure they are integrated into a unified database, to enable systematic, efficient, and timely data analysis. The personnel capacity must be developed, and the necessary budget should be allocated for equipment to facilitate smooth and rapid operations, particularly as traveler numbers increase. Specific procedures, regulations, and training programs must also be established, such as developing high-speed rail inspections and disease and health hazard training tailored to border health needs. Guidelines and manuals for border officials should be created (as these officials are not responsible for direct operations, but must be trained to report or coordinate with relevant agencies). Additionally, emergency drills for chemical and nuclear events at points of entry should be conducted, with regular monitoring and assessment of performance.

Efforts must also focus on improving the quality control systems for environmental factors such as food and drinking water, ensuring they meet international standards. Budget planning and management are needed for environmental testing to elevate operations and monitoring to global standards. There is a need to strengthen the capacity to respond to disease outbreaks and health hazards according to International Health Regulations (IHR) by assessing risks in the context of points of entry and prioritizing them accordingly. Coordination mechanisms should be established to formalize agreements with local healthcare facilities for isolating and treating imported animals affected by health hazards, in collaboration with other necessary agencies (e.g., animal quarantine stations, Department of Livestock Development). Procedures must be implemented to handle public health emergencies at points of entry when measures are needed beyond what the World Health Organization (WHO) requires. These permanent and temporary measures should follow a mechanism that involves seeking the WHO's feedback at least 48 hours in advance, in accordance with Article 43 of the International Health Regulations (2005).

12) Surveillance

Thailand must leverage GPS technology and dashboards for disease reporting, developing automatic integration among laboratory and epidemiological surveillance data for communicable diseases. This would enable real-time, timely, comprehensive disease reporting, including event-based surveillance. Collecting mortality data to assess signals for detecting abnormal health events is essential for risk assessment by specialists and policymakers. The results of these assessments must be communicated to the public and stakeholders to reduce the impacts and improve the efficiency of disease surveillance at an international level.

Additionally, the capacity of multidisciplinary teams needs to be strengthened for comprehensive surveillance, covering mortality, health issues and emergency surveillance. It is essential to build frontline workers' understanding of public health disease surveillance, particularly their role in detecting and reporting cases. Partnerships with universities, private sector allies, and relevant agencies should be

established to support these efforts. Adequate financial and human resources must be allocated to ensure 24/7/365 surveillance and outbreak response capabilities. Thailand should also develop sustainable alert systems for civil society and establish a public-facing warning system. Building a knowledgeable and versatile workforce (multidisciplinary teams) is crucial, as is increasing the number of personnel trained in data management and analysis, including those with multilingual capabilities. Furthermore, inter-ministerial coordination must be improved to ensure effective collaboration across sectors.

13) Zoonotic Diseases

Thailand faces significant challenges in developing mechanisms for information sharing across relevant sectors at all levels, including health and non-health sectors, with real-time, systematic reporting. Enhancing surveillance, response, and prevention capacity for animals, wildlife, wildlife sampling, and reporting, and developing integrated databases that connect human, animal, and environmental health sectors is crucial. This includes newly emerging zoonotic diseases and natural disasters. Clear designated coordinators in each agency should be empowered to make decisions and coordinate information sharing to ensure systematic collaboration across sectors, along with designated agencies. Furthermore, Thailand must develop accessible and systematic databases of resources for disease management by each agency to facilitate future integration with other sectors. Securing international funding sources to support operations, especially during emergencies, is also critical, as is ensuring access to emergency funds and resources for immediate control measures.

The country should also build collaboration for continuous and systematic public awareness and knowledge sharing among the health sector and other sectors, such as academic institutions, the police, and the military. This includes educating relevant stakeholders across the supply chain on proper hygienic livestock production, and developing traceability systems for critical consumables. Capacity-building for staff investigating diseases originating from animal products is essential, as is nurturing a new generation of One Health professionals at regional, provincial, and community levels. Thailand must also enhance occupational health knowledge and skills (for farmers and/or forest rangers) to prevent zoonotic disease outbreaks, and develop mechanisms for livestock and public health volunteers to become One Health volunteers, ensuring comprehensive operations and knowledge transfer at the village level. Following the One Health approach, a critical step is establishing a risk assessment body or committee for livestock imports and consumable products that could cause zoonotic disease.

A key priority is establishing an agency or risk assessment committee focused on importing livestock and consumable products that may lead to zoonotic disease, based on the One Health approach. This will ensure that specialists carry out operations with direct responsibility, covering all relevant dimensions. Developing an effective and standardized plan for monitoring hygienic livestock production is crucial, alongside enhancing both personnel and budgetary capacities, to prevent the smuggling of livestock and wildlife for food or as pets into Thailand. Additionally, improving control systems, raising awareness about exotic animal husbandry, and preventing the illegal

import and export of livestock are essential to managing the risk of foreign disease introduction in the country.

14) Food Safety

Thailand must develop prioritized risk assessment, surveillance mechanisms and efficient reporting systems. Tools for risk assessment that can effectively predict potential threats need to be enhanced. Improving the efficiency of food safety risk communication to relevant stakeholders is crucial in ensuring timely responses to emerging situations. One of the main challenges in Thailand's food safety efforts is developing a robust food safety database system across relevant agencies, along with plans and mechanisms for surveillance and data sharing among these agencies. Integrating food safety surveillance data, linked with relevant agencies, and providing timely situation reports, are essential for developing effective policy recommendations. Mechanisms for coordinating and transferring food safety information, such as the International Food Safety Authorities Network (INFOSAN), must be strengthened.

Another critical challenge lies in integrating systems that monitor and transfer food safety information, especially regarding food and waterborne disease. This integration should involve collaboration with agencies that maintain food safety surveillance systems. Emergency response plans must be aligned with the national emergency response framework. Lessons learned from incidents should be used to improve response plans, utilizing risk analysis data, and simulations for real-time testing. Developing an emergency management system for food safety that meets international standards is also necessary.

15) Immunization

Thailand faces significant challenges in accelerating vaccine coverage to meet the standard criteria following the COVID-19 pandemic. Key actions include:

- Prioritizing the provision of essential vaccines and conducting vaccination campaigns in high-risk areas and among vulnerable populations, with the goal of increasing vaccination rates in target groups according to the national plan.
- Expediting the tracking of target groups who are either unvaccinated or incompletely vaccinated, ensuring they receive all necessary doses.
- Utilizing communication technologies to raise awareness among parents and guardians, encouraging them to bring their children in for vaccinations.
- Intensifying efforts to identify unvaccinated populations, with the aim of encouraging both target groups and their caregivers to receive vaccinations.

Moreover, Thailand must prepare its vaccine system to handle public health crises and emergencies. This includes establishing national surveys and internal assessments to improve vaccine management and meet international standards. Strengthening the cold chain system, enhancing personnel skills, and implementing continuous and rigorous performance assessments are critical. There should also be a focus on maximizing the value of vaccination services to the public, ensuring sufficient

cold chain capacity, and maintaining consistent quality control to respond to current threats and emerging diseases. Integrating all sectors within and outside the public health system in the vaccine supply chain is crucial to addressing critical national crises, such as vaccine hesitancy, accessibility issues, and other demands.

This effort should also focus on developing technologies for managing a national database that facilitates vaccine services. Immunization data should be updated, and personal vaccination records should be digitized, integrating data from private and non-ministerial public health networks. Particular attention must be given to improving data collection on migrants and border populations, and integrating behavioral and social drivers (BeSD) tools to influence vaccine-related behaviors. Measures should be developed to reduce disparities in vaccine services for mobile populations, vulnerable groups, and specific areas. Training for new staff nationwide is also essential, along with rapid assessment of the factors contributing to high staff turnover, to adjust the policies that impact personnel. Additionally, collaboration among health and non-health agencies, including private sector involvement, must be strengthened to drive immunization campaigns and promote appropriate strategies, including risk communication, community engagement, and social mobilization, to increase vaccine uptake, particularly among hard-to-reach and vaccine-hesitant groups.

16) Antimicrobial Resistance (AMR)

Thailand faces significant challenges in enhancing its capacity to address antimicrobial resistance (AMR) in line with International Health Regulations (IHR). A key challenge has been the need for a robust, integrated, and practical approach under the One Health approach, and a dedicated national policy to manage AMR. Driving the AMR agenda requires a comprehensive strategy and an integrated action plan. Looking ahead, Thailand must confront critical challenges, including reduced efficacy of antimicrobial drugs, difficulties in controlling infectious disease, risks in treating co-infections, environmental concerns, and increased severity of diseases caused by drug-resistant pathogens.

The main reason for these challenges is that Thailand's AMR management has historically been fragmented and needs coherence, along with limited implementation of the One Health approach. This lack of a specific national policy to address AMR further exacerbated the problem. In response, in 2016, the Thai Cabinet approved the National Strategic Plan on Antimicrobial Resistance (2017-2021), later extended to 2022. This plan became a national strategy under the One Health approach to combat AMR. The outcomes of the National Strategic Plan on Antimicrobial Resistance (2017-2022) have been successful in several areas. These include the establishment of a national governance mechanism to manage the strategic plan, the creation of multisectoral collaboration under the One Health approach to tackle AMR, and the achievement of critical objectives; for example, the consumption of antibacterial drugs in humans decreased by 24.8% (target: reduce by 20%), antimicrobial consumption in animals decreased by 36.0% (target: reduce by 30%), and Thailand's AMR management capacity improved from a score of 3.0 to 4.2 (out of 5), based on the Joint External Evaluation (JEE) for IHR, with a target of no less than 4.

However, challenges remain in addressing AMR, and continued efforts are necessary. As a result, the National Committee on AMR Policy, in its 1/2022 meeting of

November 21, 2022, approved the second National Action Plan on Antimicrobial Resistance (2023-2027), to ensure ongoing efforts in managing AMR in Thailand.

17) Infection Prevention and Control (IPC)

Thailand must develop a robust infection prevention and control (IPC) system by establishing a National Center for Infection Prevention and Control. This center would spearhead the implementation of action plans, act as a central agency for information exchange across networks, and support human resources, budgets, knowledge sharing, and experience exchange. It should also accelerate the creation of an IPC-AMR database that integrates and shares data between systems, to enable real-time analysis, monitoring, alerting, and dissemination of information within and across networks. This effort will be supported by digital information technology. The country also needs to enhance the capacity of healthcare professionals by ensuring they have the knowledge and understanding to perform their duties, thus reducing infection transmission. Continuous academic training should enable staff to apply their knowledge in actual settings and adapt to changing environments. Additionally, hospitals should work to raise awareness and educate patients and the public on infection prevention.

Budget allocation must be prioritized, with collaborations established among external agencies, private companies, and international organizations such as the World Health Organization (WHO). These collaborations can help reinforce the importance of IPC and serve as catalysts for securing the necessary financial support. Continuous and sustainable research efforts, and human resource development in IPC, including infectious disease physicians, infection control nurses (ICNs), and hospital epidemiologists, are also critical. Retaining skilled personnel in the system while expanding knowledge across a broader range of staff will ensure safer operations and reduce infections and outbreaks in hospitals.

18) National Laboratory System

Thailand must accelerate the development of human resources, focusing on building a skilled laboratory workforce capable of responding to emerging diseases. The country needs to improve and upgrade the infrastructure of standard laboratories by equipping small healthcare facilities with laboratories that can manage diagnostic reagents for high-priority diseases. Sufficient standardized temperature-controlled packaging for transporting samples to laboratories must also be provided. There are challenges in ensuring data security, preventing information leakage, and safeguarding laboratory data from theft. The integration of partner networks across the system is critical. A comprehensive directory of laboratory networks should be established, covering human health, animal health, and university networks, which must be regularly updated. Furthermore, mechanisms must be implemented to ensure that laboratories at all levels are accredited and have quality management systems. Efforts should also be directed toward enhancing laboratory management systems and increasing the budget for surveillance and preparedness for emerging and re-emerging diseases, focusing on laboratory diagnostics, equipment, and personnel. Additional funding is needed to accelerate the integration of electronic laboratory data via API (application programming interface) with the Ministry of Public Health's central data hub. There should also be

systems for alerts and information sharing between human and animal health laboratories, as well as communication, coordination, and collaboration between human and animal health sectors, to be promoted through the ASEAN Regional Public Health Laboratory Network (RPHLN).

19) Biosafety and Biosecurity

Thailand faces significant challenges in establishing an effective biosafety and biosecurity system. This includes improving communication, collaboration, and coordination in importing and exporting pathogens and animal toxins as governed by the Pathogens and Animal Toxins Act. Managing emerging infectious diseases, mainly through the 4M framework (Man, Material, Money, and Management), has been insufficient during outbreaks, leading to ineffective legal enforcement. Additionally, there is a need to revise and update legislation to address emerging disease threats and enhance biosafety and biosecurity guidelines in line with the 4th Edition of the Laboratory Biosafety Manual. Online learning (e-learning) and the use of technology should be expanded to improve programs like the online PAT Act platform.

There is also a need for standardized biosafety and biosecurity curricula, integrating efforts across agencies, and positioning Thailand as a model for neighboring countries, with robust biosafety and biosecurity systems backed by enforceable laws. Furthermore, expanding bio-risk management training to private laboratories and the animal health sector is essential. One of the critical future challenges for Thailand involves managing the import and export of pathogens and animal toxins in accordance with the Pathogens and Animal Toxins Act.

2. THE ROLE OF THE PUBLIC SECTOR, PRIVATE SECTOR, AND CIVIL SOCIETY IN DEVELOPING INTERNATIONAL HEALTH REGULATIONS (IHR) CAPACITIES

In the development of international health capabilities, various stakeholders play a crucial role in achieving these health goals. Such stakeholders include the government, private sector, and civil society. Their roles are as follows:

Government: The government plays a crucial role in developing international health competencies. Its primary responsibilities include:

1) Policy Development: The government formulates policies and regulations related to public health, healthcare infrastructure, disease prevention, and health promotion. It establishes guidelines and standards for healthcare delivery to ensure the population's well-being.
2) Resource Allocation: The government allocates resources and funding to support healthcare systems, infrastructure development, and research initiatives. It prioritizes health expenditures to ensure equitable access to healthcare services and reduce disparities.
3) Coordination and Collaboration: The government collaborates with international organizations, other governments, and stakeholders to address global health challenges. This includes participating in global health initiatives, sharing best practices, and contributing to the development of global health policies.

4) Public Health Promotion: The government is responsible for promoting public health and raising awareness of health risks and preventive measures. It implements public health campaigns, immunization programs, and initiatives to address social determinants of health.

Private Sector: The private sector, including pharmaceutical companies, healthcare providers, and medical technology firms, plays a vital role in international health competencies, including:

1) Healthcare Delivery: Private healthcare providers offer medical services, diagnostics, treatment, and specialized care, thus contributing to the development of the healthcare infrastructure. They bring expertise, resources, and innovation to the health sector, thus improving healthcare delivery.
2) Research and Development: Pharmaceutical companies and other private agencies invest in developing new drugs, treatments, and medical technologies. Their efforts advance scientific knowledge and innovation, which can lead to improved global health outcomes.
3) Health Investment: Private sector agencies invest in healthcare infrastructure, technology, and capacity building. They support developing and implementing health programs, contribute to medical personnel training, and provide funding for health initiatives.

Civil Society: Civil society, which includes non-governmental organizations (NGOs), community groups, and advocacy organizations, plays a crucial role in promoting international health competencies, including:

1) Advocacy and Awareness: Civil society organizations raise awareness of health issues, advocate for health-related policies, mobilize resources to address global health challenges, and ensure the inclusion and participation of marginalized communities and vulnerable populations.
2) Service Delivery and Support: NGOs and community-based organizations help deliver healthcare services, health education, and support programs in underserved areas, bridging gaps in access and healthcare delivery, particularly in resource-limited environments.
3) Monitoring and Accountability: Civil society organizations play a crucial role in monitoring government policies and programs, ensuring that commitments to public health are upheld. They contribute to transparency, equity, and the effective implementation of international health competencies.

Overall, the government, private sector, and civil society have complementary roles in developing international health competencies. Collaboration and coordination between these stakeholders are crucial to achieving public health goals and improving the country's health outcomes in alignment with global initiatives.

3. STRATEGIC POSITIONING FOR DEVELOPMENT

The strategic positioning for developing capabilities in line with International Health Regulations (IHR) is based on an analysis of the policy inputs for national development, current implementation of IHR, stakeholder needs, and present and future public health situations. From this analysis, the development needs were identified and assessed based on their importance to the mission of enhancing IHR capacities, the urgency of addressing Thailand's health challenges, the feasibility of implementing cost-effective solutions, the potential for meaningful change, and the benefits to public health improvement. Additionally, this analysis considered the alignment with the 20-Year National Strategy Plan for the country's development. The outcome was identifying the critical strategic needs essential to elevating Thailand's public health standards to meet global health regulations and improve the health of its citizens. These efforts are designed to support Thailand's stable, prosperous, and sustainable development based on a solid foundation of public health systems and good health management standards. The strategic positioning includes key aspects in various areas in line with IHR standards, as outlined in the following details:

1) Legal Instruments

The focus is on amending the Communicable Diseases Act, B.E. 2558 (2015) to strengthen its core provisions, enabling more effective surveillance, management, and response to public health emergencies in a timely manner. This includes enhancing regional enforcement through integration with local administrative organizations and increasing public knowledge and understanding among business operators and high-risk areas nationwide. The goal is to ensure high efficiency in legal enforcement and achieve significant outcomes by implementing the law. Additionally, lessons learned from successful enforcement will be shared through collaboration with all relevant sectors while seeking cooperation with neighboring countries to develop better cross-border regulations, in order to manage border entry and exit issues. The law will be reviewed, and new regulations or laws will be introduced as needed, with a focus on developing data collection methods that include gender-sensitive information. This will address the evolving challenges, especially in terms of gender equality and equity, and ensure that the legal framework supports the country's development needs.

2) Financing

The review of laws, regulations, and related guidelines is essential to support flexible, transparent, and efficient budget management for public health emergency surveillance and response at the national, regional, and local levels, ensuring timely responses to emergencies. It is also necessary to reassess the systems for monitoring budget expenditures and the use of funds from international organizations to ensure they are appropriate and cost-effective in managing emergencies. The budget proposals of all relevant agencies should be scrutinized to ensure that their activities align appropriately with International Health Regulations (IHR), allowing for better coordination and monitoring of IHR-related efforts. This includes reviewing investment plans and ensuring sufficient budget allocation for IHR operations. Additionally, financing mechanisms must be explored, incorporating digital technologies into health services, and ensuring adequate funding is provided to agencies with mandates to prepare for public health emergencies. This includes the personnel, research, equipment, and technology needed to manage such situations effectively.

3) IHR Coordination

The organizational structure and management system should be reviewed and adjusted as necessary to enhance coordination with the International Health Regulations (IHR) National Focal Points (NFPs) and support its operations. Efforts should continuously strengthen and maintain multilateral coordination mechanisms through developing and improving action plans, measures, and standard operating procedures (SOPs). Human resource capacity must be created and enhanced to ensure continuity of the core functions of the IHR NFP. Furthermore, reporting international public health emergencies should be reinforced in line with World Health Organization (WHO) requirements.

4) Human Resources

The focus is on assessing and improving human resource policies by learning from the COVID-19 pandemic. This includes reviewing hiring practices, onboarding processes for new staff, work processes, compensation, leave policies, continuous education and training, promotions, work environments, retention, termination, occupational health policies, and other vital responsibilities. It also involves learning about interconnected technical issues that impact work responsibilities, such as One Health, infection prevention, controls in healthcare facilities, field epidemiology, disease surveillance, laboratory work, antimicrobial resistance, international disease control points, and health service delivery. There is a need for proper budget allocation across human resources in the sectors of human health, animal health, wildlife, and environmental health. Efforts should be made to increase and retain skilled personnel to ensure sufficient staff across these sectors. This can be achieved through various strategies, including expanding clear career opportunities, continuous professional development, better incentives, and establishing support systems for mental health and psychosocial services. Maximizing the existing health workforce policy framework and creating performance or success indicators for developing a multidisciplinary workforce across human health, animal health, wildlife, and environmental health sectors is essential.

5) Risk Communication and Community Engagement

Establishing a public health risk communication agency is essential to ensure consistent messaging. This involves enhancing public health literacy, promoting prevention, and controlling risk factors threatening well-being, to achieve holistic physical, mental, intellectual, and social health. The goal is to create an environment that fosters well-being and supports the development and empowerment of human resources, ensuring the welfare of Thai families. Promoting the involvement of the government, private sector, local administrations, families, and communities in human resource development is crucial. This includes cultivating and developing skills outside the classroom and building a database system for human resource development. A modern health service system that supports well-being must be created, with communities serving as the foundation for promoting well-being in all areas. Additionally, education reform is necessary to respond to the changes of the 21st century, focusing on learners' skills and fostering a love for lifelong learning. The learning system should be restructured to develop 21st-century skills, transforming the role of teachers into "new-generation" educators. Enhancing the efficiency of educational management at all levels and types is essential, as is developing a lifelong

learning system that raises awareness among Thais about their roles, responsibilities, and Thailand's position in Southeast Asia and the global community. A foundation for digital learning platforms must be laid to support this effort, and an education system should be created to achieve excellence in international academic standards.

6) Health Emergency Management

The focus is on enhancing risk assessment and data management processes for public health emergencies at both local and national levels, particularly in high-risk areas and regions designated as key development targets. This is to ensure that all relevant agencies follow a unified standard. Additionally, there is a need to develop processes and objectives for learning from past incidents to improve operational practices, inform policy development, and facilitate knowledge exchange with countries that excel in these areas. A specialized national task force should be established under the relevant laws to serve as the central command for emergency management, and to integrate the work of various agencies in a coordinated manner, covering regulations, budgets, personnel, and legal authority. A comprehensive national protocol should be developed, covering preparedness, risk reduction, response, and recovery from public health emergencies. This also involves conducting emergency response drills at both local and national levels, building the capacity of personnel, and procuring technology to manage various emergencies, including emerging and re-emerging diseases, natural disasters, chemical hazards, and nuclear radiation threats. Laws related to emergency management should be revised to address legal gaps, streamline procedures, and ensure that operations align with the realities of the emergency. The promotion of knowledge creation, innovation, and research in emergencies is crucial, as is the dissemination of findings, best practices, and knowledge to stakeholders in the emergency management system, ultimately leading to policy recommendations.

7) Linking Public Health

Integration of collaboration between public health agencies and security agencies is essential. A shared database should be established for both sectors to facilitate the development of guidelines or policy recommendations among the relevant agencies. Additionally, training programs should be organized to enhance the capabilities of public health and security personnel, fostering a better understanding of their roles and responsibilities during public health emergencies.

8) Health Services Provision

The focus is on developing a comprehensive Business Continuity Plan (BCP) that includes effective planning and management of inventory and supply chains across all levels of healthcare facilities. This will ensure preparedness and the ability to respond during emergencies. Additionally, the development of national-level guidelines or protocols for providing healthcare services in emergencies is essential to ensure timely access to health services. Promoting the creation and development of knowledge and necessary innovations in digital health for communities, mainly targeting all age groups and vulnerable populations, is also key. Technology will improve access to healthcare services, making it more efficient and inclusive for everyone.

9) Surveillance

The focus is on developing a centralized national database platform (National Platform) for detecting and tracking early warning signals related to public health and health security. This platform will integrate data from various sectors, such as laboratory

and epidemiological data, in a "One Big Data" format. Artificial intelligence (AI) will be utilized to analyze the data, strengthening agency data exchange and reporting systems. Efforts will also focus on building the capacity of citizens and networks to report diseases in a timely manner, enhancing the country's ability to respond to future public health and health security challenges with high resilience and adaptability. The system will be equipped with cutting-edge AI and digital technologies to respond to real-time crises. Additionally, personnel skills, both at the policy and operational levels, will be enhanced to guide national development and effectively address local issues. The goal is to increase the number of skilled data analysts across various agencies and levels, and improve the capacity for advanced data analysis. The "Event-based Surveillance" system will also be upgraded using flexible digital technology, allowing for the efficient reporting of emerging infectious diseases and enabling comprehensive multidimensional data analysis, including spatial analysis and data visualization across different areas.

10) Zoonotic Diseases

The focus is on developing a unified One Health management system at the central and regional levels, ensuring nationwide consistency while addressing local challenges. This involves integrating operations, personnel, multidisciplinary teams, and budget allocation across sectors. Key initiatives include:

- Strengthen and coordinate multisectoral collaboration at the national level by establishing One Health coordination units within the Department of Disease Control, the Department of Livestock Development, and the Department of National Parks, Wildlife, and Plant Conservation. Each sector will be allocated appropriate human and financial resources, ensuring regular coordination of One Health activities within and between sectors.
- Expand the One Health Steering Committee to include other relevant sectors, clearly defining the roles and responsibilities of the Committee and One Health coordination units.
- Establish regional One Health units and strengthen provincial Natural Resources and Environment Offices to serve as wildlife coordination points for One Health efforts at the provincial level.
- Develop guidelines for sharing expertise and human resources across sectors in response to urgent needs (e.g., in laboratories, epidemiology, risk assessment, and more).

The aim is to enhance the management of zoonotic diseases through national-level mechanisms, building the capacity of organizations and multidisciplinary teams, and implementing a tracking system to monitor, assess, and improve the effectiveness of One Health operations, under the framework "One Health, One Team, One Goal." Training programs on One Health for communities will be developed, along with health communication strategies, to increase community participation in disease surveillance, controls, and prevention. The roles of health and livestock volunteers will be expanded, and knowledge and technology for surveillance systems for humans, animals, and wildlife will be advanced. Efforts will also be made to strengthen international disease surveillance and enhance the capability, sensitivity, and accuracy of disease detection, sampling, diagnostics, reporting, and data management systems.

An early warning system for zoonotic diseases will be created to provide timely, accurate information to the public, ensuring that people receive up-to-date and accurate health information on zoonotic disease threats.

11) Food Safety

The focus is on developing an effective foodborne disease and contamination surveillance system that meets international standards. This includes implementing a modern food risk assessment system, an efficient emergency response system for foodborne disease outbreaks, and establishing a comprehensive, accurate, and up-to-date information and communication system.

12) Immunization

The goal is to accelerate vaccine coverage to meet standard targets, ensuring that basic vaccines are administered to at least 90% of all target groups. For the first and second doses of the measles-mumps-rubella (MMR) vaccine, the coverage target is set at ≥ 95%. Maintaining the cold chain system standards is essential, and it involves improving personnel skills and establishing a robust, continuous assessment system to ensure quality control. The cold chain must remain effective, and adequate vaccine stock should be available to support disease prevention and control efforts. An integrated system involving all stakeholders, both within and outside the public health system, should be developed to address critical national challenges such as vaccine hesitancy, accessibility issues, and other needs. The aim is to reduce disparities in vaccine services, particularly for specific populations, mobile groups, and vulnerable populations. Additionally, there is a need to develop technologies for managing data systems and creating a national database that facilitates vaccine delivery to the public. This includes updating immunization records, digitizing individual vaccination records, improving data for migrant populations and border areas, and integrating behavioral and social driver (BeSD) tools for vaccination efforts. The country must be prepared with a vaccine management system capable of handling public health crises and responding to emergencies. National surveys and internal assessments will help improve vaccine management to meet international standards. Efforts should also focus on building and maintaining capacity to provide immunization services, ensuring enough skilled immunization professionals at every level. Continuous development and training for staff are crucial to enhancing their expertise and knowledge in immunization.

13) Antimicrobial Resistance (AMR)

Develop the capacity of Thailand's antimicrobial resistance management system to meet international standards.

14) nfection Prevention and Control (IPC)

Reform the national IPC (Infection Prevention and Control) system and network to meet international standards by establishing effective monitoring, oversight, and surveillance systems for hospital-acquired infections and informing policy-making, planning, supervision, and assessment. A national infection prevention and control center will be established to develop operational standards, promote and support knowledge creation, and foster innovation in IPC practices. The capacity of IPC personnel will be strengthened, and collaborative networks for operational efficiency will be developed. Communication and public relations systems will be enhanced under the collaboration of the Ministry of Public Health, universities, hospital infection societies, hospital infection control nursing associations, and related agencies. In addition,

developing and integrating IPC databases will be prioritized, with modernized and integrated information technology systems and data centers. These systems will facilitate the efficient and timely use of information for effective management. Model IPC practitioners will be developed to serve as role models within hospitals, promoting collaborative efforts in preventing and controlling infections. Furthermore, efforts will be made to raise awareness and foster a sense of collective responsibility.

15) National Laboratory System

The focus is on developing a National Laboratory Strategic Plan that integrates the One Health approach and includes budget allocation. This plan will be accompanied by an annual action plan with activities based on recommendations, ensuring comprehensive and continuous implementation over a five-year period linked to the annual budgets of relevant agencies. The strategy will strengthen skilled human resources through academic training and clear strategies for retaining talent in molecular diagnostics, risk management systems, and biological laboratories. Establishing regional training centers and communities of practice will enhance epidemiology skills and competencies in biosecurity and laboratory systems for human and animal health. Efforts will be made to promote proficiency testing programs to ensure the quality of diagnostics is in line with international standards, and covers human, animal, and environmental health. This will include essential disease and health hazards. The guidelines for human and animal health laboratories will also be updated, focusing on standardizing referral and transport systems at the national level and supporting cross-border transport via air, sea, rail, and road.

16) Biosafety and Biosecurity

The focus is on accelerating the development of biosafety and biosecurity management systems to meet high operational standards and ensure good management practices. This aims to build confidence among the public, investors, and tourists, while aligning with international operational standards.

17) Chemical Events (CE)

Promote and support establishing a National Toxicology Center with the capacity to manage, treat, and refer patients affected by chemical exposure across all health regions. This center will operate with standardized procedures and integrated services, with toxicology specialists available at every center. Additionally, efforts will be made to enhance the capability of international chemical toxicology data-sharing systems. Resources, personnel, and competencies will be developed to effectively manage chemical events in various sectors, including training for handling emerging chemical threats. The process/system for chemical event surveillance and information sharing will be improved, ensuring effective coordination with all relevant agencies. Risk assessments and lessons learned from chemical events will be studied and analyzed to develop a national action plan for chemical event management, thus positioning Thailand as a leader in this field within Asia.

18) Radiation Emergencies (RE)

Establish international standard operating procedures for reporting and coordinating with the International Health Regulations (IHR) National Focal Points in the event of a radiation emergency, to ensure alignment with the Nuclear Energy for Peace Act, B.E. 2562 (2019). Develop national protocols and enhance the capacity of emergency response personnel through national-level drills, emphasizing collaboration

among relevant agencies. Additionally, formal agreements should be created to strengthen cooperation across all sectors involved in radiation management at the national level, linked with international efforts. Healthcare facilities must be equipped with the necessary capabilities to manage, treat, and refer patients affected by radiation emergencies in all health regions. Clear guidelines should be established for handling radiation emergency cases, and hospital staff should be trained to manage affected patients, including developing standards for necessary medical supplies in treating radiation injuries.

19) Points of Entry (PoE) and Border Health

Enhance the efficiency of public health protocols for preventing, detecting, and responding to public health emergencies at points of entry, including immigration offices, customs departments, the Ministry of Agriculture and Cooperatives, the Ministry of Transport, the Royal Thai Navy, the Department of Highways, the Department of Rail Transport, the Port Authority of Thailand, and Airports of Thailand. These protocols should align with the International Health Regulations (IHR) framework. Additionally, assess and improve personnel operational capacity and core competencies, ensuring they possess international-level skills. Specifically, personnel should be trained at border checkpoints to achieve surveillance capability level 5 across all indicators by 2030 (in 2022, the PoE scores were PoE1= 4, PoE2 = 4, and PoE3 = 3). Enhance the surveillance system based on existing indicators at international disease control checkpoints by implementing event-based surveillance strategies that feed into the national surveillance system. Improve operational procedures to establish a clear national standard, including processes, structures, staffing, and information systems, aligning with the country's development needs and crisis management requirements at points of entry. Strengthen coordination between neighboring countries at international border checkpoints to elevate Thailand's border health capabilities in line with national economic, social, security, and environmental development needs. This should also align with the missions of relevant agencies and the region's specific needs.

4. ASSESSMENT OF ORGANIZATIONAL CAPACITY AND THE ENVIRONMENT FOR DRIVING STRATEGIC POSITIONING

Thailand has conducted a current organizational analysis using the SWOT Analysis management tool to identify the capacity for operational management by analyzing the organization's strengths, weaknesses, opportunities, and threats. The analysis views internal strengths (Strengths) as critical factors that enable successful operations, and seeks to manage internal weaknesses (Weaknesses) that may hinder achievement. At the same time, it identifies external opportunities (Opportunities) that can support successful operations within the Department of Disease Control, and monitors external threats (Threats) that may prevent the organization from achieving its objectives. The results of this organizational analysis are as follows:

Strengths

Legal Instruments

S1 To ensure comprehensive legal support for public health operations, Public health surveillance and response are governed by multiple existing laws covering human health, animal health, environmental health, points of entry, radiation, and food safety.

S2 An assessment of Thai laws related to compliance with the International Health Regulations (IHR) reveal advancements in the Communicable Diseases Act, B.E. 2558 (2015), which supports IHR compliance in terms of disease surveillance, prevention, and control, as well as effective cross-sector management in areas such as animal health, the environment, and points of entry. Improvements have been made in operations and inter-sectoral collaboration, especially at the local level and disease control checkpoints. The Communicable Diseases Act, B.E. 2558 (2015), facilitates IHR compliance by establishing national and regional committees, setting disease surveillance and control policies, creating action plans, monitoring systems, and coordinating with other sectors through an information management system.

S3 Thailand has developed a National Action Plan for Disease Surveillance, Prevention, and Control (2016 – 2018), and has agreements with neighboring countries on controlling communicable and emerging infectious diseases. A national plan exists for cross-sector collaboration to prevent and control diseases during national emergencies.

S4 The decentralization policy empowers local government organizations, which has enhanced cooperation with local authorities. Clear responsibilities have been assigned at the national, provincial, district, and sub-district levels for disease surveillance, control, prevention, and response to emergencies within specific areas.

Financing

S5 Thailand has an efficient budgeting process based on activity planning, with mechanisms ensuring transparency and accountability in budgeting, regular monitoring of operational performance, and activity effectiveness. This helps to strengthen the core capacities of the International Health Regulations (IHR) and prepares for public health emergencies.

S6 The country receives additional financial support from development partners, which boosts IHR technical capacities beyond the regular annual budget. Thailand also has a long-term national development strategy and a medium-term economic and social development plan that provides a unified budget framework for all sectors. A central government fund is also available to provide emergency financial resources for responding to crises.

S7 During emergencies, Flexibility in budgeting and financial management rules (e.g., procurement regulations) is allowed. The government can access external loans and issue government bonds to meet resource needs. The establishment of the Center for COVID-19 Situation Administration (CCSA) has facilitated the budgeting and procurement of essential medical supplies for disease prevention and control during the pandemic.

IHR Coordination

S8 In 2007, the Cabinet granted the Ministry of Public Health authority to coordinate through the National International Health Regulations (IHR)

Committee to implement and develop IHR capacities in collaboration with other ministries.

S9 Thailand has a framework for monitoring and assessing IHR compliance using self-assessment annual reports (SPAR), joint external evaluations (JEEs), simulation exercises, and after-action reviews (AAR). These measures provide insight into the country's operational capacities and performance under the IHR framework.

Human Resources

S10 The Ministry of Public Health utilizes the MOPH GIS Dashboard to monitor health professionals. A national action plan has been developed to enhance field epidemiology capacity and strengthen Thailand's public health security, from 2023-2032.

S11 Thailand has a strong cadre of field epidemiologists. This offers various training programs, including FETP (Field Epidemiology Training Program), FETH (Field Epidemiology Training Program for Public Health Officer), and FEMT (Field Epidemiology and Management Training), which cater to medical personnel and public health officials at different levels. Additionally, the FETP-V program provides training for veterinarians to monitor zoonotic diseases through the One Health approach.

S12 Thailand has a network of disease surveillance teams known as the Communicable Disease Control Unit (CDCU), which operates at all levels under the Communicable Diseases Act, B.E. 2558 (2015). The CDCU has additional support from Village Health Volunteers (VHV), which is crucial in investigating and controlling the COVID-19 outbreak.

S13 Thailand has short-term training courses for medical personnel covering various modules on addressing public health issues, with guidance from health experts. Risk assessment is conducted at the Biodiversity-based Economy Development Office (BEDO), where several programs, including local preventive medicine, travel medicine, and traffic medicine, are offered. These programs have been integrated into outbreak investigation courses, surveillance studies, and positioning at Points of Entry (PoE).

S14 Thailand is one of the leading countries in the Global Health Security Agenda (GHSA) workforce and the ASEAN+3 Field Epidemiology Training Network. It has national and international field epidemiologist training units, and has supported field epidemiologists in a countrywide disease investigation while aiding national disease surveillance efforts. The country has training courses under its Field Epidemiology Training Program (FETP), which offer relevant certification (such as diplomas and degrees) for physicians and veterinarians, with additional compensation for physicians.

Risk Communication and Community Engagement

S15 Efforts are being made to carry out risk communication through various media and channels, both offline (such as TV, radio, and newspapers), and online (such as Line, Twitter, Facebook, and TikTok), with key messages targeting specific groups.

S16 A management system monitors communications and behavioral changes related to disease and health hazards in accordance with International Health Regulations.

S17 Two-way communication has been established with stakeholders and influencers to broadcast key messages in various languages, through a variety of channels and platforms, thus ensuring appropriate access to information. This includes both formal and informal communication channels, to systematically reach multiple target groups, such as migrant workers, vulnerable populations, and visually impaired individuals, allowing timely access to information.

S18 Incentive rewards have been created to motivate the public sector and public enterprises to communicate effectively through social media.

S19 There are efforts to strengthen capacity building for national, regional and local risk communication personnel, and risk communication capacity-building courses for employees, volunteers and influencers.

- There is participation at the regional and international levels in the development and implementation of the national risk communication strategy.
- Public health data management training is available, certified by the U.S. CDC and the Mekong Basin Disease Surveillance Foundation (MBDS).

Health Emergency Management

S20 Plans or systems for monitoring and assessment are in place for emergency and risk management, as well as regular emergency response drills and the use of Incident Management Systems (IMS). Total lessons learned are reviewed and improved annually.

S21 There is a national emergency operations center structure and infrastructure ready to respond to emergencies from communicable diseases and other health threats, and there are medical and public health guidelines and measures covering diseases and health threats, as well as resources and medical supplies, to support operations in public health emergencies.

S22 Regular emergency response drills and Incident Management Systems (IMS) are conducted to manage emergencies, and the total lessons learned are reviewed and improved annually.

S23 Medical and public health guidelines and measures, as well as resources and medical supplies, are available to support operations during emergencies.

Linking Public Health Agencies

S24 Public health and security agencies officially collaborate and coordinate with a committee coordination system, operating as a committee.

S25 A handbook/guideline for emergency management covers collaboration among public health agencies and security agencies. Security agencies implement this guideline at various levels in their emergency management operations.

Health Services Provision

S26 Thailand's disease surveillance system efficiently enables early detection and monitoring of potential health hazards. This allows for timely responses and implementation of the necessary measures to control and contain outbreaks. Health risks and emergencies are also regularly assessed, covering all hazards.

S27 The Thai government has demonstrated effective coordination and collaboration between sectors and agencies involved in public health emergencies, including close collaboration between the Ministry of Public Health, local agencies, and international partners, to facilitate a coordinated response to health hazards.

S28 Thailand has well-trained and skilled medical personnel, which includes doctors, nurses, and public health specialists. This enables the country to respond effectively to health emergencies and provides quality healthcare services to those affected.

S29 Established infrastructure: Thailand has a well-developed healthcare infrastructure, including hospitals, laboratories, and emergency response systems. This infrastructure aids in the rapid deployment of resources and the efficient management of health emergencies.

S30 Experience in managing outbreaks: Thailand has gained experience managing previous outbreaks, such as avian influenza and Severe Acute Respiratory Syndrome (SARS), strengthening the country's preparedness and response mechanisms for future health emergencies. There are efforts to collect data to analyze and monitor situations, both domestically and internationally in order to formulate public health policies and track the outcomes of these policies. A clear national incident command structure is operating under the Ministry of Public Health.

S31 Multiple social media platforms strategically communicate and engage with the public.

S32 Thailand has implemented response systems and enforced relevant laws during preparedness, response, and recovery phases. Efforts are made to rapidly develop and update national clinical practice guidelines based on newly published information. Business continuity plans are implemented at various healthcare levels to ensure minimal disruption to regular services, such as vaccination and chronic disease management, while maintaining acute patient care. There was also a strong response from the country's primary healthcare system, particularly through Village Health Volunteer mechanisms and a robust network of personnel working in infection prevention and control.

Chemical Events: CE

S33 Thailand has a multi-agency collaboration and guideline approach to chemical events in various forms, such as an integrated plan, joint drills with partners, and collaborative agreements. The country also has a national strategic plan for chemical management. and various laws for controlling

and managing chemicals and the chemical product industry throughout its life cycle, to maintain and support good health and protect the environment.

Radiation Emergencies: RE

S34 Thailand has various multi-agency collaboration and guideline approaches to radiation emergencies, such as an integrated plan, joint drills with partners, and collaborative agreements.

S35 Thailand has a National Nuclear and Radiological Emergency Plan 2021 – 2027, Operational Guidelines for Nuclear and Radiological Emergencies, and a Nuclear Security Response Action Plan, to serve as operational guidelines for relevant agencies.

Points of Entry (PoE) and Border Health

S36 There is a referral system available at the points of entry into the country for emergency medical teams and communicable diseases, and there is good coordination and collaboration between airport public health and emergency medical services under the Airports of Thailand (AOT), the national airport operator. There is also an emergency plan for points of entry integrated into the public health emergency plan, along with regular simulation exercises conducted in coordination with airport and seaport operators.

S37 Laboratory capacities (RT-PCR) have been established at Suvarnabhumi Airport to detect COVID-19 and monkeypox, along with a health screening system for travelers from countries with yellow fever outbreaks.

S38 The Subcommittee on Points of Entry, under the Permanent Secretary of the Ministry of Transport, is established as a national multi-sectoral body responsible for developing and implementing strategies for international travel-related measures. This activity is coordinated with and follows the recommendations of the International Health Regulations (IHR) Committee and the resolutions of the National Communicable Diseases Committee (in accordance with the Emergency Decree on Public Administration in Emergency Situations).

Surveillance

S39 Thailand has a network of Village Health Volunteers across all areas of the country, with a well-versed knowledge of local conditions along with training in early detection and warning of zoonotic diseases. They were recognized for their outstanding work in alerting authorities about avian influenza, and also for the precise structure of their organization, with personnel specialized in surveillance, investigation, and disease control, ensuring regular coordination and consistent transfer of guidelines to workers at all levels.There is also continuous development of personnel in disease surveillance which has been implemented down to the sub-district level. The results have seen a greater capacity for comprehensive disease surveillance, prevention, and control, thanks to the FETN (Field Epidemiology Training Network) training and the presence of CDCUs, which can investigate disease outbreaks at the sub-district level.

S40 There is continuous surveillance of important diseases, and the exchange of data analysis among relevant stakeholders contributed to forecasting avian influenza outbreaks and the timely response to disease outbreaks across related sectors. There is also an established, comprehensive database system for disease surveillance covering human, animal, and environmental health. which provides data for planning surveillance, prevention, and control measures. The system is also used to prioritize communicable diseases.

Zoonotic Disease

S41 There is integrated collaboration at all levels, enabling close coordination and seamless communication among organizations across various sectors.

S42 There is an integrated, systematic disease surveillance and investigation system for both animals and humans, with the ability to share data among agencies for certain diseases, and mechanisms in place for inter-agency collaboration to support effective and timely responses to epidemics. There is also a network of Village Health Volunteers and Livestock Volunteers working together to monitor zoonotic diseases in the community. Laboratory samples are shared among public and animal health laboratories, although this occurs intermittently.

S43 A memorandum of understanding (MOU) was agreed upon by relevant organizations, both public and private, for the control, prevention, and treatment of zoonotic diseases under the One Health approach. Such organizations include 7 ministries and 1 agency, along with educational institutions promoting the One Health approach within the education system. There is also a national preparedness plan for managing emerging zoonotic diseases.

S44 The Food and Agriculture Organization (FAO) monitors, assesses, and controls food safety throughout the food chain to meet national standards, with regulations and standards developed and implemented in collaboration with relevant agencies.

S45 Thailand complies with Sanitary and Phytosanitary (SPS) measures to prevent the import and export of animals and animal products that pose a risk of disease transmission. Several specific laws and agencies oversee and protect animal welfare, ensuring the production of livestock products support good welfare, along with regulations and measures related to live animal markets to reduce the risk of exposure to zoonotic pathogens, as well as a Rapid Alert System for Food and Feed (RASFF) to monitor the safety of food and meat products.

Food Safety

S46 Various agencies provide information on food safety, food surveillance, and waterborne diseases. There is also a national emergency alert system and a food safety traceability network for rapid response to risks. Risk assessment tools for food safety are also available based on international principles.

S47 Multiple agencies involved in food safety at both local and central levels are actively participating in the International Food Safety Authorities Network (INFOSAN) and the FAO/WHO food standards program (Codex). There are also accredited laboratory capabilities, and a mobile food surveillance system which can access various locations.

S48 New laws and regulations regarding food safety cover increasing risks and provide clear guidelines for surveillance and rapid response to food safety incidents, including related training programs.

Immunization

S49 Thailand has established a vaccination service plan targeting specific groups based on the country's immunization program, using operational standards set by the WHO. WHO's standard is to achieve ≥90% coverage for all target groups receiving basic vaccinations, except for the first and second doses of the measles-mumps-rubella vaccine, which aim for ≥95% coverage. Therefore, the plan ensures herd immunity to protect the community from disease.

S50 The Ministry of Public Health has implemented an accelerated vaccination coverage plan following the COVID-19 outbreak, along with campaigns to vaccinate against diseases that must be eradicated in high-risk areas and populations. This plan enables districts and provinces to set appropriate targets and operational steps based on local contexts.

S51 Thailand's immunization program has a solid internal operational network within the Ministry of Public Health, extending from district to sub-district levels, with personnel that are well-informed about local conditions through skill development in immunization operations. There are also external networks with clear roles and responsibilities, ensuring robust procurement and management of vaccines through a cold chain system. This allows local agencies to access vaccine delivery systems and put them to use quickly.

S52 Thailand's immunization program has established standards, manuals, and guidelines for operations that can serve as a reference source. Vaccine service units have also been established at the provincial, district, and sub-district levels, ensuring comprehensive service delivery.

Antimicrobial Resistance (AMR)

S53 Thailand has implemented the National Strategic Plan on Antimicrobial Resistance 2017-2022, with significant achievements to date as follows: The consumption of antibacterial drugs for humans has decreased by 24.8% (the target was 20%), while the consumption of antimicrobials for animals has decreased by 36.0% (the target was 30%). Thailand's AMR management system performance has improved from 3.0 to 4.2 points (out of 5, based on the JEE for IHR criteria, with a target of no less than 4 points), to the point that this progress has contributed to significant changes in the country, aligned with the International Health Regulations. The second National Action Plan on Antimicrobial Resistance 2023-2027 has also been developed to ensure the continuity of operational

mechanisms, operations progress, and monitoring and assessing efforts to address AMR in Thailand under the One Health approach.

Infection Prevention and Control

S54 The National Infection Control Committee has developed the first phase of the National Action Plan on Infection Prevention and Control (2019 – 2021), and has implemented this plan at both national and provincial levels, with systematic monitoring and assessment processes during the early phase (2019), mid-phase (2019 – 2020), and final phase (2020 – 2021).

S55 Health leaders at national and provincial levels prioritize the development of effective infection prevention and control systems in hospitals. Every hospital is staffed with specialized infection control nurses and has healthcare personnel, including doctors and nurses, with up-to-date knowledge and expertise in infection prevention and control.

S56 Thailand's healthcare sector continuously assesses hospitals through standards such as (HA) Hospital Accreditation, (AHA) Advanced HA, and (JCI) Joint Commission International, leading to improvements and increased support for infection prevention and control in hospitals. These assessments encourage hospitals to emphasize the importance of infection prevention and control within their environments.

S57 The Bamrasnaradura Infectious Diseases Institute has led the implementation of a strategic action plan for infection prevention and control in hospitals, producing guidelines to translate the action plan into practical operations, while ensuring unified infection prevention and control practices across the country.

S58 Strong networks of agencies and associations work on infection prevention and control in hospitals. The dedicated personnel, who have worked for many years, display perseverance, commitment, and enthusiasm.

S59 The subcommittee follows the WHO's guidelines, effectively responds to the strategic action plan, and successfully links it into a practical action plan.

National Laboratory System

S60 Thailand has a healthcare system with a network for transferring samples to reference or accredited laboratories in human and animal health sectors. There are also agencies responsible for laboratory standard certification, with mechanisms to issue ISO 15189 and 17025 certification through the Bureau of Laboratory Quality Standards. The system includes laboratory accreditation for emerging diseases such as COVID-19. National reference laboratories for human and animal health can also test for significant and emerging diseases using a wide range of testing capabilities and the countrywide expanded network of laboratories.

S61 Information technology is used to record the health data of the population (such as through the "Mor Prom" application).

Biosafety and Biosecurity

S62 A biosafety and biosecurity system is in place across all government sectors (including facilities for humans, animals, and agriculture).

- The Pathogens and Animal Toxins Act (first published in 1982 and amended in 2015), and other related laws are applied nationwide in human and animal health laboratories.
- The Department of Medical Sciences oversees biosafety and biosecurity.
- The national pathogen storage facilities are monitored, and the online PAT Act program provides an online registration system in both English and Thai for agencies and establishments working with specific pathogens and toxins.
- Public health laboratories collect monthly reports and submit annual reports to the Department of Medical Sciences, and laboratories must renew their licenses for handling specific pathogens and toxins yearly.
- There is coordination between the Department of Medical Sciences and the Customs Department to mitigate biosecurity risks in imports and exports.
- Imports and exports are controlled through an electronic licensing system.

S63 Training and practices in biosafety and biosecurity, which are conducted across all relevant sectors (including human, animal, and agricultural sectors).

- Biosafety and biosecurity training courses are available, which must be provided by agencies accredited by the Department of Medical Sciences.
- Thailand offers accessible biosafety and biosecurity training courses and platforms online to promote safe practices.
- Personnel and operators in relevant fields must undergo biosafety and biosecurity training courses from an accredited agency within 180 days of receiving certification or licensing, with retraining required at least every three years.
- The Bio Risk Management (BRM) toolkit was available in Thai in 2014.
- Countrywide training in biosecurity risk management is conducted regularly.

Weaknesses

Legal Instruments

W1 The Communicable Disease Act, B.E. 2558 (2015), currently in effect, cannot respond promptly to pandemic levels of public health emergencies. It relies on other laws to respond to such situations, resulting in delayed actions that are not timely enough to address the emergency. Additionally, the Emergency Decree on Public Administration in Emergency Situations was not designed to handle safety issues related to epidemics, making it difficult for the relevant agencies to implement appropriate measures in a timely manner.

W2 The law lacks flexibility in emergencies and does not facilitate the rapid and decisive actions required in public health responses. Personnel have inconsistent understandings and interpretations of the law, which creates obstacles in responding to emergencies or implementing timely measures. Too many related laws complicate operations and delay executing necessary actions.

Financing

W3 The current budget system does not allocate specific funding for activities related to the IHR, resulting in agencies outside the Ministry of Public Health lacking sufficient joint financing to carry out IHR-related operations. This makes it challenging to implement the IHR.

W4 The economic downturn has impacted the financial resources available to the public health system, which requires monitoring, prevention, control, treatment, and recovery efforts. Limited budgets have reduced the effectiveness of public healthcare.

W5 The process for obtaining financial support from central funds and external loans is complicated, requires greater flexibility, and takes a long time. This delays operations, preventing staff from swiftly responding to and adapting activities to the rapidly changing epidemic situation.

IHR Coordination

W6 The personnel structure of International Health Regulations coordination points has limitations. There is a shortage of staff possessing the necessary skills, and further expertise development is required. This hinders the ability to carry out the mission according to standards and respond swiftly to changes in disease outbreaks.

W7 There are no clear or up-to-date global operational guidelines, leading to inefficiency in task execution. Frequent staff changes cause mistakes due to inconsistent procedures, making it difficult to track progress effectively.

Human Resources

W8 Unclear career paths and limited incentives pose problems that have become more evident during the pandemic, and need to be addressed. High turnover rates, increased workloads, and limited staffing are major concerns that could hinder recruitment and expansion of epidemiological field work. Health personnel training across all sectors must focus on developing the capacities necessary to support IHR implementation.

W9 The transfer of primary care services and duties (including essential preventive services) from the Ministry of Public Health to healthcare facilities operated by local government agencies poses challenges, particularly in areas where local governments have limited capacity and resources.

W10 The emerging scientific methods, such as data science and forecasting, which may be necessary for the functions of future disease prevention, are not yet sufficiently modernized to meet current demands and changes.

W11 Unclear career paths, low wages, and limited incentives are some of the factors that undermine public health staff retention.

W12 Training health personnel on critical issues related to disease prevention duties and responsibilities, including a fundamental understanding of public health laws (especially as they relate to IHR), is necessary.

Risk Communication and Community Engagement

W13 There is a lack of integration between communication networks. No designated agency is responsible for public health risk communication within each Provincial Public Health Office and/or efforts to strengthen existing mechanisms to perform risk communication tasks, leading to an inability to effectively reach communities or vulnerable groups.

W14 There is no community-centered approach to risk communication for solving public health problems in tandem with communities due to regional differences in health hazards and diseases, along with varying populations, education levels, and communication channels. This resulted in ineffective problem-solving.

W15 Communication networks in local areas lack standardized training in risk communication for marginalized populations; this includes, but is not limited to, migrant workers and residents in border areas, as well as volunteers and personnel working in information centers (e.g., migrant worker volunteers). Additionally, communication is limited in various languages, resulting in a lack of communication skills to manage the region's health hazards effectively.

W16 Media and communication channels are not comprehensive or aligned with the needs of target groups, particularly marginalized populations; this includes, but is not limited to, migrant workers and residents in border areas, as well as volunteers and personnel working in information centers (e.g., migrant worker volunteers).

Health emergency management

W17 The plans or systems for monitoring and assessing still lack effectiveness and systematic connection, as well as a unified operation center for emergencies at the local level. This results in incomplete operational integration and joint emergency response drills among relevant agencies.

W18 There is a lack of modern technology and digital platforms for public health operations to respond to emergencies and monitor those operations.

Linking Public Health Agencies

W19 There is a lack of integration of confidential information between public health agencies and security agencies, leading to a lack of unified operations and delays in execution due to procedural steps.

W20 There is a lack of joint drills, particularly regarding information exchange between public health agencies and security agencies, which results in discrepancies when dealing with real situations. Personnel changes have also led to a lack of long-term cooperation from all sectors, especially from

private sector partners and the public, which limits the ability to ensure continuous and comprehensive operations.

Health Services Provision

W21 Thailand may face challenges in terms of financial, technical, and limited human resources, which could affect its ability to respond effectively to health emergencies and public health threats.

W22 The existing healthcare infrastructure in some areas of Thailand may be insufficient or inadequate to handle health emergencies or widespread outbreaks.

W23 Timely surveillance and early detection of health emergencies and public health threats are crucial for an effective response. Any gaps in Thailand's surveillance system may hinder its ability to identify and respond promptly.

W24 Effective coordination and collaboration among various sectors, such as public health and health care, as well as other relevant stakeholders, are essential for responding to health emergencies. Any challenges present in these areas could obstruct Thailand's response.

W25 Thailand, a country with active international travel and trade, may face challenges managing cross-border health emergencies and public health threats. Cooperation with neighboring countries and effective border control measures are critical.

W26 Incident command systems are not consistently followed, and standardized operational procedures may either not exist or have not been tested before emergencies occur. Legal and regulatory frameworks also have limitations in addressing epidemics and large-scale national emergencies.

W27 Private/public media agencies are not significantly involved, and there is a limited number of risk communication personnel, especially at the provincial level, resulting in the reporting system and health emergency surveillance plans being developed during, rather than before the incident.

W28 There is no centralized system for procurement of laboratory equipment, inventory management, or diagnostic information systems.

W29 Laboratory management, training, and workforce capacity are insufficient to handle new outbreaks or potential larger-scale disasters, and there is a shortage of related experts. Some medical personnel experience fear and hesitation due to being victims themselves. Inadequate training systems lead to overuse or misuse of personal protective equipment, while there is an uneven distribution of personnel across various fields. Mechanisms for pre-deployment workforce distribution and post-deployment performance assessment are both insufficient.

W30 Many local healthcare facilities at the provincial and sub-district level lack business continuity plans, and there are delays in policy projects and research studies related to public health emergency response.

Chemical Events: CE

W31 Thailand has limited human resources, budget, and primary healthcare capacity to respond to complex chemical emergencies requiring advanced technologies and expertise.

W32 The effectiveness of law enforcement for regulating chemical imports and the chemical product industry, as well as enforcing laws beyond those specified for chemical control, still need improvement.

Radiation Emergencies: RE

W33 Thailand has limited human resources, budget, and primary healthcare capacity for responding to complex radiation emergencies.

W34 The effectiveness of law enforcement for regulating the import of radiation-emitting materials is not consistently enforced across the country.

Points of Entry (PoE) and Border Health

W35 The operations system at international disease control checkpoints in Thailand lacks unity and clarity regarding structure, staffing, and information systems to meet the needs of the country's development and crisis management at each point of entry. Border disease control checkpoint officers also lack knowledge and experience in handling emergencies involving nuclear and chemical substances.

W36 The existing patient surveillance system lacks event-based surveillance strategies, which are essential for feeding into the national surveillance system. Using modern technology to enhance surveillance based on indicators that currently exist at points of entry disease control checkpoints is inefficient across the country.

W37 Despite having national standards applied at the community level, some points of entry have not been developed or adapted to consistently meet international standards, particularly in food and water safety, waste management, and vector control.

W38 Operations are inconsistent due to changes in practices and regulations based on individual interpretations. The training systems for health officers at border checkpoints are unstable, outdated, and not responsive to changing circumstances, especially regarding using contactless technology to improve hygiene and handle the growing number of travelers.

W39 Thailand lacks a more robust potential-improving system to respond to unintentional or intentional chemical and nuclear radiation incidents within an all-hazard approach. There is also an incomplete scope for agreements with local healthcare facilities to isolate and treat imported animals affected by such incidents and provide necessary support.

W40 Current operations rely on generalized travel guidelines that do not align with specific risks according to (a) the World Health Organization's technical guidance for a risk-based approach to international travel, and (b) Articles 2 and 43 of the International Health Regulations (2005).

Surveillance

W41 Implementing modern technology to enable fast, comprehensive, and timely operations is not fully covered in all areas, especially in highland regions, remote regions, islands, and particular areas like the southern border provinces. This leads to delays in the warning systems and a lack of access for certain groups of people.

W42 Although data reporting systems start at the hospital level, with private hospitals having access, they still rely on manual data input, causing disease and data reporting delays. The reported data also lacks completeness and sometimes contains excessive information, affecting the data quality. There is also a lack of consistent analysis.

W43 There is not enough personnel to establish comprehensive surveillance structures at the local level, particularly in the livestock and wildlife sectors, which leads to inadequate surveillance coverage from agencies outside the Ministry of Public Health, which may result in underreporting and delays in disease reporting.

W44 Staff's lack of understanding of the PDPA affects the development of the disease reporting system. Limited technological knowledge among personnel also poses a challenge to building an effective reporting system.

W45 There is a lack of funds budgeted for disease surveillance due to insufficient personnel and motivation to carry out the work.

Zoonotic Disease

W46 Personnel responsible for zoonotic diseases frequently change their roles, leading to a lack of continuity in operations. There is also a shortage of skilled workers, limited expertise in certain activities, and insufficient potential for improvement. There is also a lack of practical skills to implement the One Health approach in certain areas, which weakens the effectiveness of partner network collaborations at the regional level.

W47 The process of communicating laboratory results takes a long time due to the approval steps, and some information is classified, which restricts data sharing and reduces the effectiveness of disease control efforts.

W48 Some Non-Health agencies lack awareness of the One Health approach, leading to insufficient collaboration. As a result, efforts to control zoonotic diseases are less effective.

W49 No system is in place to collect and integrate data on key infectious diseases. This lack of reference data hinders local network partner collaborations and reduces operational efficiency.

Food Safety

W50 The collection and integration of food safety data across the food chain is not yet systematic. As outlined in the Codex standards, and risk analysis for assessing, managing, and communicating food safety risks is not fully implemented in some areas of the food chain.

W51 Participation and coordination with other network partners working on food safety throughout the food chain are inefficient due to overlapping

responsibilities and gaps in duties. There is also a lack of connection between the mechanism and network of the national rapid alert system and the food safety traceability network.

W52 There is an insufficient number of specialized laboratory staff to handle the volume of work and the development of new analysis methods, which are necessary to address emerging issues and meet new demands. Personnel also lack specific knowledge of evolving food safety concerns, such as chemical toxins, plant toxins, and animal toxins.

W53 There is a lack of continuity in plans to enhance staff potential and update information for law enforcement. There is also a lack of regular emergency response drills and post-incident reviews to handle food safety emergencies.

Immunization

W54 The operational standards of the immunization program in Thailand lack a comprehensive data system for tracking vaccine coverage across both under and not under the Ministry of Public Health's networks. The lack of integration of individual vaccination service data from private sectors and networks outside of the Ministry of Public Health results in incomplete data that may not reflect the actual situation.

W55 While provinces follow the Ministry of Public Health's accelerated vaccine coverage plan, the central and regional authorities still lack comprehensive monitoring and assessment.

W56 Vaccine management planning is insufficient within the Ministry of Public Health's agency networks, leading to either vaccine shortages or surpluses that impact the efficiency of the immunization program.

W57 The existing manuals and guidelines for immunization do not cover all vaccines in Thailand's immunization program, which leaves some network units without adequate reference materials or operational guidelines.

W58 The reporting of individual vaccination services is still lacking from private healthcare providers, educational institutions, and the Bangkok Metropolitan area. As a result, the vaccine coverage data from these service providers is missing, which leads to discrepancies in the reported vaccine coverage.

Antimicrobial Resistance (AMR)

W59 Antimicrobial resistance is a highly complex issue requiring evidence-based policy formulation decision-making. The program, which was a key mechanism for providing academic support to drive the National Strategic Plan on Antimicrobial Resistance, under the strategic collaboration of the Thai government and the WHO on antimicrobial resistance (called the (CCS-AMR) Country-Cooperation Strategy on AMR program), has ended. This has caused a discontinuity in Thailand's efforts to advance its AMR response, in alignment with the International Health Regulations, which leads to gaps in the development process.

Infection Prevention and Control

W60 There is a lack of an agency with direct responsibility, resulting in a lack of continuity and independence in the operation of networks to implement strategic action plans countrywide. The allocation of budgets for infection prevention and control operations is also insufficient.

W61 Hospital infection Control Nurses (ICN) are crucial personnel. Despite being present in every hospital, they do not receive the attention they deserve. In some facilities, their numbers are inadequate relative to the workload, and some staff lack proper knowledge, including putting that knowledge into practice.

W62 The incentive system lacks clear career advancement paths. The development plan for IPC personnel is also not sufficiently clear, which leads to a small workforce facing heavy workloads, resulting in fatigue, and placing reporting tasks at the bottom of their priorities.

W63 There is a heavy load of data but a lack of unity regarding infection prevention and control. There is insufficient integration of data to filter national information, and communication with the public is poor. The system for reporting and communicating surveillance data on communicable diseases (hospital-acquired infections) is also not comprehensive across all sectors.

National Laboratory System

W64 Medical personnel have limited skills in responding to emerging diseases. Thailand currently lacks regional training centers for training operational staff.

W65 Some veterinary laboratories in the network have not participated in proficiency testing plans for disease diagnostics. Small healthcare facilities in the region have limited capacity to detect important diseases.

Biosafety and Biosecurity

W66 A biosafety and biosecurity system is in place across all government sectors (including facilities for humans, animals, and agriculture).

- Managing emerging infectious diseases, mainly through the 4M framework (Man, Material, Money, and Management), has been insufficient during outbreaks, leading to ineffective legal enforcement.
- Effective implementation of biosafety and biosecurity systems, including communication, collaboration, and coordination, is still required; and the laws must be revised accordingly.
- Thailand lacks consistency in biosafety and biosecurity courses (no collaborative integration of different agencies).

W67 Training and practices in biosafety and biosecurity, which are conducted across all relevant sectors (including human, animal, and agricultural sectors).

- Training on biosafety risk management does not sufficiently cover private laboratories and animal health sectors.
- Agencies providing training and practices on biosafety and biosecurity do not cover all sectors.

Opportunities

Legal Instruments

O1 The International Health Regulations present an opportunity for relevant agencies to develop personnel and allocate budget resources to enhance public health operations within the country's legal framework, making it more aligned with international standards.

O2 The COVID-19 pandemic has prompted all sectors to review outdated laws hindering operational effectiveness.

Financing

O3 The COVID-19 pandemic has raised awareness of health hazards among all sectors, the public, and international tourists. This has led to greater collaboration with relevant agencies to follow Thailand's public health measures, creating an opportunity to educate the public on healthcare practices.

O4 The emergence of new diseases worldwide has heightened awareness of prevention, leading to increased public demand for support. This has become a factor in receiving resources, equipment, materials, supplies, and vaccines from international organizations, which help reduce the country's public health costs.

O5 Technological advancements have reduced the budget and travel expenses for meeting setups while improving public access to healthcare services through telemedicine.

IHR Coordination

O6 The Global Health Security Agenda (GHSA) supports implementation of the International Health Regulations to achieve common goals related to global health security by strengthening health systems, potential for preparedness and response to public health emergencies, diseases, and health hazards at national and regional levels. This implementation can help enhance laboratory capabilities, biosafety, biosecurity, improving surveillance systems, and promoting the development of effective communication and data-sharing mechanisms, in order to prevent and control disease outbreaks and health hazards.

Human Resources

O7 Advances in digital technology facilitate the training of healthcare personnel across all necessary sectors, focusing on developing the skills needed to support the implementation of IHR.

O8 The transfer of primary care services and duties (including essential preventive services) from Ministry of Public Health facilities operated by local government agencies, presents an opportunity to develop services that better meet each local area's specific needs and context.

Risk Communication and Community Engagement

O9 Thailand has developed a National Action Plan for Disease Surveillance, Prevention, and Control (2016 – 2018), and has agreements with neighboring countries on controlling communicable and emerging infectious diseases. A national plan exists for cross-sector collaboration to prevent and control diseases during national emergencies.

O10 The decentralization policy empowers local government organizations, resulting in enhanced cooperation with local authorities. Clear responsibilities have been assigned at the national, provincial, district, and sub-district levels for disease surveillance, control, prevention, and response to emergencies within specific areas.

Health emergency management

O11 Signing bilateral and multilateral cooperation agreements presents opportunities for support in obtaining essential resources for managing emergencies from domestic and private sectors, and international partner countries.

O12 There has been an increased understanding and participation in public health emergency management by non-health-related agencies, especially following the COVID-19 pandemic.

Linking Public Health Agencies

O13 Collaboration with international public health organizations and support of essential resources received from international organizations, especially the WHO and partner countries, contributed to the development of the national public health system, elevating it to meet international standards.

Health Services Provision

O14 It is crucial that member countries promptly report health emergencies. Any delay in reporting can hinder early detection and response, potentially leading to cross-border spread of disease. Additionally, potential challenges can arise while sharing accurate and timely information among countries due to factors such as political barriers or limited resources.

O15 Effective coordination and collaboration among countries and international organizations are essential in responding to health emergencies. However, challenges can arise due to differences in governance structures, communication barriers, levels of capacity, and resources. Ensuring smooth coordination and cooperation, especially during large-scale or cross-border emergencies, can be complex.

O16 Limited capacity and resources to effectively respond to health emergencies, including inadequate healthcare infrastructure, shortages of medical personnel, insufficient laboratory facilities, and limited access to necessary equipment and medical supplies, can all hinder a quick and efficient public health response.

O17 Early detection and monitoring of health emergencies are vital for swift response and containment. However, challenges exist in establishing

effective surveillance systems, particularly in areas with limited resources, limited laboratory capacity, insufficient disease surveillance networks, and a lack of trained personnel, hindering early detection and response efforts.

O18 Compliance with international health regulations can be challenging. Some member countries may face difficulties in implementing necessary measures for various reasons, such as political factors, lack of resources, or cultural barriers. As a result, enforcing compliance can be complicated, and addressing non-compliance effectively may pose challenges.

O19 Public health infrastructure and preparedness: Many countries face challenges in building and maintaining vital public health infrastructure and preparedness, such as creating effective emergency response plans, training medical personnel, and conducting regular simulations and drills. Insufficient investment in public health infrastructure can hinder the ability to respond to health emergencies quickly and effectively.

Chemical Events: CE

O20 Technological advancements can be used to regulate and track the use of chemicals that impact health, while also being adapted for inspection, control, and tracking of chemicals and the chemical product industry.

O21 There are opportunities for international collaboration with key trading partner countries, particularly investors who have established businesses in Thailand and received investment incentives. This presents an opportunity to set conditions for chemical management that adhere to good practice standards.

Radiation Emergencies: RE

O22 Technological advancements can be used to regulate and track the use of radiation that impacts health.

O23 Participation in international nuclear and radiation networks and agreements regarding the regulation of nuclear and radiation use, the management of radiation emergencies and nuclear security help ensure safety and build confidence within the country's society and economic sector.

Points of Entry (PoE) and Border Health

O24 The International Health Regulations have added requirements for border checkpoints to participate in border health activities in communities near the checkpoints. There are multilateral agreements with neighboring countries regarding cross-border health collaboration at border checkpoints, along with ASEAN health charters. This presents opportunities for establishing cooperation mechanisms between public health services and relevant stakeholders at points of entry, at both national and regional levels.

O25 The international agreement on high-speed rail connecting China, Laos, Thailand, and Vietnam presents opportunities to develop specific practices, regulations, and training.

O26 International collaboration in public health with neighboring countries and trade partners presents opportunities for ongoing training, and regular practical training for public health personnel at points of entry.

O27 The growth of the economy driven by tourism, marked by an increasing number of tourists crossing borders, along with the shift toward safe tourism following the COVID-19 pandemic, presents opportunities to establish laboratory capacities (RT-PCR) for testing COVID-19, monkeypox, or other communicable diseases at necessary and appropriate entry points, as well as opportunities for updating necessary practices, regulations, and training for public health personnel at border checkpoints.

Surveillance

O28 Advances in geo-informatics and digital technology can be used as tools for rapid surveillance and accessible alert systems, providing opportunities for notifications in remote areas and specific locations.

O29 In Thailand, the Ministry of Public Health and local partner organizations have interconnected public health systems in terms of operations, equipment, data, and budgets for alerts during emergencies, which leads to the transfer of public health responsibilities and increased accessibility to public health services.

O30 The government encourages transparency in data, fostering connections and information exchange among relevant sectors, including the public sector.

Zoonotic Disease

O31 Executives and policymakers have shown interest and have implemented effective policies for managing zoonotic diseases within the One Health framework; this involves public health, livestock, local government organizations, and various levels of administration.

O32 International agencies and organizations are interested in funding and providing budgets for zoonotic disease management within Thailand's One Health framework. This presents opportunities for research funding and the transfer of knowledge and technology, which leads to the creation of new knowledge.

O33 There is a strategic policy in place to support a master plan under the 20-Year National Strategy, along with the integration of the One Health approach into strategic plans for managing various diseases, while continuously reviewing and updating these plans to ensure that implementation measures are appropriate for the current situation.

Food Safety

O34 Modern technologies are available to support integration and participation in food safety, which also simplifies risk communication to stakeholders and consumers. Advanced technologies and tools for managing food safety data also present significant opportunities for integrating and enhancing work operations.

O35 Thailand encourages the coordination of the One Health approach, with government policies supporting food safety in line with national policies. This creates opportunities for data exchange among relevant agencies.

O36 Consumers have confidence in the emergency response mechanisms for food safety provided by government agencies, presenting opportunities to develop modern and rapid communication channels and raise awareness among consumers in a timely manner during incidents.

Immunization

O37 There is a National Vaccine Security Act to implement policies, with a subcommittee for immunization providing guidance. The public also accepts vaccine services within the immunization program, which presents opportunities to promote maintaining high vaccine coverage.

O38 Vaccine services for target groups under the Ministry of Public Health's immunization program are included in the benefit package of the National Health Security Office (NHSO), which allows citizens to access these services free of charge.

O39 The clear legal roles and authority of network agencies ensure systematic processes for vaccine procurement and management, with a quality cold chain system that maintains vaccine integrity from the source to final distribution points.

O40 There is a group of academic experts specializing in immunization enhancement, well regarded both nationally and internationally, who can provide academic consultation in developing standards, manuals, and guidelines.

O41 Funding and academic support agencies, such as WHO, can assist with operations in specific areas and populations.

Antimicrobial Resistance (AMR)

O42 Antimicrobial resistance (AMR) is recognized as a global and ASEAN-level policy issue, with world leaders making joint political declarations to address AMR. Additionally, AMR is included as one of the indicators for Sustainable Development Goals (SDGs). Global mechanisms, such as the Quadripartite Alliance (including WHO, FAO, WOAH, and UNEP), among others, support the advancement of global AMR policies and the implementation of the National Action Plan on AMR for various countries.

Infection Prevention and Control

O43 The COVID-19 pandemic has led society to emphasize infection prevention and control operations in hospitals, resulting in increased use of IPC equipment. Technological advancements have also further enhanced and supported these operations.

O44 Some topics can be implemented in action plan development using the capacity assessment results according to International Health Regulations to support global policies.

O45 The HA assessment standards present an essential opportunity for all hospitals to meet these criteria. This standard serves as a stimulus for focusing on infection prevention and control operations to make them faster and more efficient.

O46 The relevant agencies, such as organizations, associations, and professional groups, play an essential role in promoting infection prevention and control efforts, while the government provides accurate and up-to-date information to the public through various media and communication channels.

National Laboratory System

O47 The advances in technology, information systems, and digital technology enable rapid and timely diagnosis and confirmation of emerging diseases in humans and animals, including data processing, analysis, and display, using information technology.

O48 The international network of reference laboratories supports new knowledge and resources for national laboratories while providing an opportunity for mutual learning and development to raise the standards of Thailand's laboratory systems.

Biosafety and Biosecurity

O49 Currently, neighboring countries do not have clear biosafety and biosecurity laws, presenting an opportunity for Thailand to serve as a model for them by having a biosafety and biosecurity system under the Pathogens and Animal Toxins Act.

O50 The growing trend in economic development related to imports and exports presents an opportunity for the Pathogens and Animal Toxins Act to assist in screening imported and exported goods.

O51 The global and domestic emphasis on promoting health, along with increased public confidence in safety, creates an opportunity to further develop Thailand's biosafety operations.

O52 International standards require laboratories to comply with biosafety and biosecurity systems, providing an opportunity for the Pathogens and Animal Toxins Act to assist laboratories in achieving international standards.

O53 Advances in digital technology, along with national development strategies for the next normal, present an opportunity to use technology to develop and improve the online PAT Act program.

Threats

Legal Instruments

T1 Implementation of international and regional laws and regulations has different operational contexts, which lead to inconsistencies in interpretation and actions that align with Thailand’s needs.

T2 There are limitations in integrating work with international agencies, which result from adaptation to updates in the International Health Regulations and improving collaboration systems with relevant sectors in member

countries and neighboring countries, which Thailand needs to develop. Thailand has yet to adapt its information exchange and resource management system for effective ongoing joint operations.

T3 Mechanisms for managing rapidly changing or uncertain situations, especially concerning the outbreak of communicable diseases, including new emerging pathogens, have impacted coordination and collaboration among various sectors. This has led to support actions made by various sectors being inconsistent with the core competencies outlined in IHR as specified in the National Action Plan.

Financing

T4 The country's lockdown due to the COVID-19 pandemic caused delays in supporting and delivering healthcare resources from outside the country, which led to shortages in essential supplies needed for disease prevention, such as face masks, which were insufficient in meeting public needs.

IHR Coordination

T5 Personnel changes responsible for operations in international organizations have resulted in new staff having limited perspectives, making it difficult to continue operations seamlessly. This lack of broader viewpoints and ideas hinders improvements in operational practices.

T6 The World Health Organization revised the International Health Regulations because not all member countries could fully implement them. Some countries may lack the capacity to detect, assess, and respond to public health incidents of international concern, leading to delays in identifying and responding to outbreaks, which could result in the cross-border spread of disease.

Human Resources

T7 There is a limited number of field epidemiology experts, which places a heavy workload on mentors. In contrast, the budget for supporting the training of epidemiology specialists is insufficient for running the projects. Career pathways for epidemiologists are unclear, particularly at the regional and local levels, as few positions are available. This has led to an uneven distribution of epidemiologists across the country.

T8 The lack of unity and cooperation in joint health management with local administrative organizations has resulted in underutilizing human resources, thus limiting their full potential.

Risk Communication and Community Engagement

T9 Mechanisms for managing rapidly changing or uncertain situations, especially concerning the outbreak of communicable disease, including emerging novel pathogens, have impacted coordination, communication, and collaboration among various sectors. This has led to support actions made by various sectors being inconsistent with the core competencies outlined in IHR as specified in the National Action Plan.

T10 The spread of fake news on social media and information operations (IO) has led to misunderstandings among the public regarding national emergencies. There were also cyberattacks on database systems to access confidential information exchanged between public health and security agencies.

Health emergency management

T11 The dynamic and rapidly evolving nature of situations, which are continuous and unpredictable, often leads to operations not aligning with pre-established plans. This is especially true for regulations in normal circumstances that are unsuitable for effective operations during emergencies, such as financial, personnel, and procurement regulations, among others.

Linking Public Health Agencies

T12 Political obstacles, security issues, and the influence of major powers have created limitations in international joint drills.

T13 The spread of fake news on social media and information operations (IO) has led to misunderstandings among the public regarding national emergencies. There were also cyberattacks on database systems to access confidential information exchanged between public health and security agencies.

Health Services Provision

T14 Commitment and support from government personnel and policymakers play a crucial role in driving reform efforts. Implementing changes and allocating sufficient resources can be challenging without strong political will.

T15 Adequate resources and funding, including funding for infrastructure, equipment, training, and personnel, are essential for effective emergency management reform. Insufficient funding may hinder reform efforts and impacts the overall response to public health emergencies.

T16 Effective coordination and collaboration among various stakeholders, including government agencies, healthcare providers, community organizations, and international partners, are vital for successful reform. Clear communication and coordination mechanisms are necessary for a robust and effective response.

T17 Access to accurate, up-to-date information and advanced technology can significantly enhance emergency management reform. Data-driven decision-making, surveillance systems, and technological tools for communication and data-sharing are key components of an effective reform strategy.

T18 Public engagement and education on emergency management protocols and measures are crucial. Public awareness campaigns, communication strategies, and community engagement can help ensure coordinated responses and adherence to guidelines during public health emergencies.

T19 Enhancing the potential of healthcare personnel, emergency responders, and other relevant staff is essential for effective emergency management reform. Training programs, simulation exercises, and continuous professional development are necessary to strengthen skills and knowledge for managing public health emergencies.

T20 A robust legal and policy framework supporting emergency management reform is essential; this includes clear guidelines, protocols, and laws that regulate emergency response, public health intervention, and the protection of public health during emergencies.

Chemical Events: CE

T21 Chemical smuggling or incomplete information processes from establishments have led to a lack of fundamental information for planning and response during crises in Thailand. Additionally, the integration of various chemical management laws is necessary to enhance inspection, control, and monitoring of chemicals and the chemical product industry.

Radiation Emergencies: RE

T22 The improper use of radiation, including the smuggling of radioactive source materials, along with the incomplete information processes of concerned establishments, have led to a lack of fundamental information for planning and response during crises in Thailand.

Points of Entry (PoE) and Border Health

T23 Economic and social inequality, and political threats that result in illegal immigration, make it impossible to monitor and prevent disease, have created problems in controlling important international infectious diseases such as the Nipah Virus and Avian Influenza.

T24 Rapidly changing technological advances and complexities in economic and social development have resulted in a lack of knowledge and experience in screening travelers (traveling by high-speed trains and airplanes).

Surveillance

T25 Inequality in development in terms of access to technology and access to urgent and important information in some areas have affected the timeliness of zoonotic disease warnings.

T26 The development of disease reporting systems, both domestic and international, has not been given importance, resulting in a lack of funding sources for disease reporting system development, as well as a lack of language skills development that would enable personnel to speak multiple languages.

T27 There is still little cooperation in disease reporting from relevant agencies, as seen from the low rate of disease reporting in some private agencies, including policies and personnel who do not know the importance of epidemiological disease reporting.

T28 There are too many agencies related to public health surveillance, and there is still a lack of appropriate linkages in the population registration database, resulting in the inability to analyze Thai death data.

T29 The public lacks knowledge and understanding of the role and duty of reporting diseases that need to be monitored, including a lack of awareness of the importance of reporting. Therefore, when the public encounters a disease that needs to be reported, they do not notify the authorities.

Zoonotic Disease

T30 The budget allocation system for zoonotic disease management does not meet the threat of zoonotic disease outbreaks, and is inadequate for the current and projected workloads of concerned agencies.

T31 When a novel zoonotic disease occurs, the public lacks adequate knowledge and understanding, which leads to carelessness in daily life, such as eating undercooked pork.

T32 When a novel zoonotic disease occurs, some agencies resist certain activities necessary for epidemic control, such as eliminating epidemics by burying and destroying animals, and the zoonotic disease management system, which has too many steps and takes too much time, cannot be implemented quickly enough. In addition, government agencies have changed their policy priorities, which may result in a lack of focus on zoonotic disease management.

Food Safety

T33 The food safety situation is rapidly changing, and uncertainty about emerging diseases is increasing.

T34 Fake news shared through online food safety communities causes consumers to be confused and receive incorrect information, resulting in health risks.

Immunization

T35 Some groups in specific areas do not accept vaccines due to many factors, such as incorrect beliefs and attitudes about vaccination. This results in vaccination coverage not meeting the standard criteria. In addition, there is no database of mobile population groups, such as migrant workers and ethnic groups, resulting in a lack of data on coverage in this population group.

T36 The COVID-19 outbreak has caused the postponement of vaccination campaigns for diseases that need to be eradicated in risk areas. The situation has also affected the plan to build widespread immunity against disease, with reduced service frequency, officers being conscripted to work in response to the outbreak, and people being anxious about taking their children to the hospital, resulting in reduced vaccination coverage.

T37 The public lacks confidence in the service system due to frequent changes in personnel and a lack of knowledge and skills in providing vaccines, resulting in lower vaccination rates. In addition, some remote areas that lack

resources, such as a power system, often experience cold chain breakdowns, which can damage vaccines.

T38 The economic crisis and the Coronavirus outbreak are budgeting challenges in allocating resources for developing standards, manuals, and guidelines, which are currently quite limited. This results in insufficient demand and does not cover all agencies that need such resources.

T39 Sensitive areas, such as southern border provinces, and certain population groups, such as mobile populations, ethnic groups, and vulnerable groups, are still unable to access health services, resulting in a risk of outbreaks of vaccine-preventable infectious diseases.

Antimicrobial Resistance (AMR)

T40 The emergence and spread of novel diseases, such as COVID-19, have slowed implementation of the National Strategic Plan on Antimicrobial Resistance in Thailand.

Infection Prevention and Control

T41 Lack of clarity at the policy level and the lack of importance given to IPC work. The education system lacks clarity for university students in promoting or creating knowledge that can be applied in real situations. When actual events occur, operations are not as good as expected. The political and administrative systems have inconsistent policies, causing the implementation of various policies to be disrupted and discontinuous, which is a significant obstacle to realizing long-term positive results.

T42 The problem of hospital-acquired infections is a national problem that directly affects the lives and safety of patients/service recipients, personnel, and hospitals. Society and the public, including IPC personnel, are unaware of the importance of disease prevention and control. The culture is accustomed to treatment rather than prevention, and it is difficult to change this attitude.

T43 The spread of COVID-19, an emerging infectious disease, has resulted in increased workloads, and social media has helped spread important news, but there is still a lack of caution in disseminating distorted information.

T44 Lack of funding for innovation for Thai researchers for creating innovations in infection prevention and control in hospitals.

National Laboratory System

T45 The outbreak of emerging diseases and threats from environmental factors affect laboratory operations, especially the resource limitations in personnel, budgeting, and knowledge of small regional laboratories, and such limitations also threaten the ability to diagnose important diseases and emerging diseases, resulting in the inability to control the disease in a timely manner.

T46 The transportation regulations of international organizations are still unable to support the need for Thailand to transfer and transport infectious samples or specimens within the country. This is related to uncontrollable factors, in

addition to the operations of the government sector, which has different regulations and policies, resulting in impacts on the transportation of infectious samples and specimens, especially in terms of transportation by air.

Biosafety and Biosecurity

T47 Cybersecurity in using the National Biosafety Warehouse Inspection Program and the online PAT Act program.

T48 Delays in updating manuals to align with the Laboratory Biosafety Manual (4th edition) are not yet covered nationwide.

T49 Illegal practices, ignorance of country practices, and illegal actions in handling pathogens and animal toxins by establishments investing in Thailand, result in increased infectious waste from laboratories, creating health and environmental problems.

5. DEVELOPMENT DIRECTION ACCORDING TO STRATEGIC POTENTIAL AND EXTERNAL ENVIRONMENT (TOWS MATRIX)

Thailand has divided its development direction according to potential into 4 groups: policy development, law, resource management, and implementation according to International Health Regulations that are consistent with the context of Thailand and in line with international standards, thus increasing the efficiency of operations and provision of public health services according to International Health Regulations, in all dimensions, to be highly efficient and of maximum benefit to the development of public health. For the next phase, creating academic material, knowledge, technology, innovation, and database systems, is necessary to support development according to International Health Regulations, as is developing implementation of International Health Regulations to support the driving of economic, social, security, and environmental development of Thailand toward becoming a developed country. The TOW's Matrix has been used to determine the direction of development of competence according to International Health Regulations, resulting in a Proactive Direction (Strengths and Opportunities: SO), Preventive Direction (Strengths and Threats: ST), Corrective Direction (Weaknesses and Opportunities: WO), and Defensive Direction (Weaknesses and Threats: WT) for all 4 groups, as detailed in the following table:

Proactive Direction (Strengths and Opportunities: SO)	Preventive Direction (Strengths and Threats: ST)
1) Enhance risk communication and strengthen community engagement in public health risk management. 2) Develop emergency health crisis management to be standardized, rapid, timely, and comprehensive throughout the country. 3) Raise quality health service provision to support the health needs and development that benefit public health. 4) Strengthen the country's capacity for integrated surveillance, warnings, and health risk management, linking and analyzing data and databases to be highly efficient and universal. 5) Promote the creation of knowledge and innovation in food safety, to support development in accordance with International Health Regulations and food security for the population. 6) Raise the standards for preventing and controlling hospital infections, and manage hospital infection management information efficiently by using technology and knowledge. 7) Develop a national laboratory system throughout the country with high capacity to support diagnosis and surveillance of human, animal, and environmental health, with national laboratory network standards that are recognized internationally. 8) Develop a system for monitoring and managing chemical incidents and radiological emergencies to meet standards, thus building confidence among citizens, investors, and tourists. 9) Promote and support international health emergency operations when a health emergency occurs. 10) Strengthening development in accordance with International Health Regulations in line with national development strategies.	1) Strengthen unity and efficiency domestically in coordination with International Health Regulations, to be aligned in terms of both policy and field operations. 2) Increase the country's capacity to manage zoonotic diseases to meet the standards, create safety for workers and citizens, and protect citizens and animals. 3) Increase the efficiency of protection for people of all ages, to receive comprehensive immunization in a timely manner, consistent with the country's health situation, and in accordance with international standards. 4) Develop a system for managing antimicrobial resistance, infection prevention, and control, to enhance the safety of health system service providers and recipients. 5) Develop a biosafety and biosecurity management system with high management standards. 6) Enhance the country's capability in providing entry and exit channels, including airports, seaports, and borders, to manage public health risks in accordance with international standards within the context of national development.

Corrective Direction (Weaknesses and Opportunities: WO)	Defensive Direction (Weaknesses and Threats: WT)
1) Develop legal instruments that are up to date, effectively enforced throughout the country, and which allow people and communities to participate effectively in implementation. 2) Adjust the budget management system to ensure continuous, sufficient, cost-effective development toward meeting International Health Regulations. 3) Adjust the management system and human resource development in the development system to be both effective and to support the country's health needs according to International Health Regulations. 4) Increase efficiency in the linking of public health agencies and security agencies to have a highly effective, integrated joint operations system along with continuous development.	- N/A -

The potential development direction will then be used to determine strategic directions, strategies and measures for implementation.

CHAPTER 4
NATIONAL ACTION PLAN FOR HEALTH SECURITY (NAPHS) 2023 – 2027

To be complete in accordance with International Health Regulations, the direction of Thailand's development consists of vision, mission, ultimate development goals, action plans, objectives and strategies, measures, and practices as follows:

Vision

"To meet Thai health standards and global health regulation standards in order to enhance the health of the Thai people, and support national development to be stable, prosperous, and sustainable."

The Vision is defined as follows:

Thailand's Health Standards and International Health Regulation Standards mean that Thailand implements health security protocols according to international standards and has succeeded in solving problems and closing existing gaps in the development of national health care in all 19 areas according to International Health Regulations, with continually improved assessment results and broad development that result in best practices or innovations or new standards of procedures that are beneficial to the development of the country's health system. This includes success in creating integrated cooperation agreements among network partners, along with operational standards for those responsible for preventing, detecting, and controlling disease and health hazards to meet the standards of compliance with International Health Regulations. Thailand will expand cooperation to develop operational capabilities with international organizations, which have the potential to support global development, especially in neighboring countries, to help develop and meet global health criteria.

Strengthening the Well-Being of Thai People means that Thais have better health literacy, are aware of the health hazards arising from hygiene issues, and live in an environment conducive to good health. Thailand has successfully protected people from public health emergencies. It has continuously decreased illness and death due to poor hygiene, infectious disease (emerging infectious diseases), zoonotic disease, food safety, chemicals, and radiation throughout the country.

Supporting National Development for Stability, Prosperity, and Sustainability means network organizations from the government, private, civil society, and public sectors have roles in jointly promoting, implementing, monitoring, supervising, and assessing, to enhance Thailand's capabilities and manage target areas for national development, to achieve health security with guidelines for protecting people, society, the economy, environment, and security in line with International Health Regulations.

The country's health development system also plays an essential role in fostering and driving economic development with competitiveness, thus building confidence in investment, trade, exports, travel, and tourism. The social aspect aims to create a healthy society, reduce illness and death from disease and health hazards resulting

from public health emergencies, and reduce inequality of access to the public health system. The security aspect focuses on enhancing capacity to cope with and control the spread of disease on a large scale. The environmental element aims to create a healthy ecosystem that is conducive to good public health and manage a sustainable health environment.

Mission

1) To promote policy-oriented cooperations and actions in all aspects toward further development of policies, laws, and resource management, in accordance with the International Health Regulations and standards applicable to Thailand.

2) To strengthen the efficiency of public health operations and services in accordance with all aspects of International Health Regulations, thus ensuring high effectiveness and maximum benefit to the development of public health.

3) To encourage and support the creation of academic studies, knowledge, technology, innovation, and database systems to facilitate development in accordance with current and future International Health Regulations, while encouraging policy development aligned with global health conditions and national public health needs.

4) To foster robust cooperation and continuous commitment among all sectors of partner organizations toward the development of operations, in accordance with International Health Regulations, while driving the development of Thailand's economy, society, stability, and environment toward becoming a developed nation.

Core Values

"**Uniting the power of** networks, **jointly creating** a national health system that is **internationally recognized**, **for the people** and **the country.**"

The Ultimate Goal of the 5-year development action plan (2023-2027)

1) People possess up-to-date health literacy regarding the hazards caused by poor hygiene by 70 percent.
2) Illness and death rates decrease throughout the country.
   - The rate of illness and death from emerging infectious diseases
     - The illness rate decreases by 30 percent.
     - The death rate decreases by 50 percent.
   - The rate of illness and death from zoonotic diseases
     - The illness rate decreases by 30 percent.
     - The death rate decreases by 50 percent.
   - The rate of illness from substandard food security decreases by 30 percent.
   - The results of managing a chemical emergency crisis decrease by 100 percent (where the extent of the spread from the source is no more than 5 kilometers, the problem can be controlled within 3 hours, and there are no deaths from the spread).

- The results of managing a radiological emergency crisis decrease by 100 percent (where the extent of the spread from the source is no more than the international standard, the problem can be controlled within 3 hours, and there are no deaths from the spread).

3) The Target areas for health management and the development of an environment conducive to good health in accordance with national development goals, under International Health Regulations, achieve the target of 100 percent (where target areas cover the eastern economic corridor, special economic zones, and areas at risk from health problems).
4) Investors, tourists, and the public are 85 percent confident in the country's health management.
5) The Average score for the development of competencies under International Health Regulations is 4.75 (in 2022, Thailand received an average score of 4.25 (from 56 indicators).

Strategic Issues

The Department of Disease Control will develop the key issues or main agendas for development under the framework of the action plan, with strategic methods to achieve the highest results as specified in the vision, consist of 5 action plans as follows:

1) To establish policies, laws, resource management, and support systems to develop highly effective national capacity and comply with International Health Regulations.

2) To improve the efficiency of health service provision in accordance with International Health Regulations in all aspects to be highly effective and of maximum benefit to improving public health.

3) To develop a surveillance system of health hazards for disease control that supports national health development in accordance with current and future International Health Regulations.

4) To develop a high-performance public health safety and biosecurity system that meets international standards.

5) To implement International Health Regulations while driving the development of Thailand's economy, society, stability, and environment toward becoming a developed nation.

Each action plan consists of objectives, goals, indicators, target values, strategies, measures, plans and projects as follows:

ACTION PLAN 1:
TO ESTABLISH POLICIES, LAWS, RESOURCE MANAGEMENT, AND SUPPORT SYSTEMS TO DEVELOP HIGHLY EFFECTIVE NATIONAL CAPACITY AND COMPLY WITH INTERNATIONAL HEALTH REGULATIONS

1. Objectives

1) To improve, review, develop, issue, and enforce regulations and laws related to the management of communicable diseases, controls, and effective supervision of laboratory standards, with the ability to use them as tools for the monitoring, management, and prompt response to public health emergencies and related situations and changes, and to enhance the efficiency of law enforcement in the area through integration with partner organizations and local administrative organizations.

2) To manage and develop health system personnel to comply with health regulations consistent with the country's health needs.

3) To establish a coordination system and development policies for Thailand in accordance with international health criteria in the same direction throughout the country, and to integrate operations effectively in both normal and emergency situations.

4) To establish a national budget management system in line with the development of national capacity in accordance with International Health Regulations, as well as operations for public health emergencies that are agile, flexible, rapid, and able to respond and cope with emergencies with high standards and efficiency.

5) To effectively communicate risks and create community participation in developing the country's operational standards and public health operations in accordance with international health criteria.

2. Objectives, Indicators, and Target Values

Strategic Objectives (Goals)	Indicators (Responsible Persons)	Past Performance	Target Values				
			2023	2024	2025	2026	2027
1) Legal instruments have been reviewed/improved/ developed to be current and sufficient to support and facilitate the effective and efficient implementation of obligations.	P.1.1 Legal Instruments: Legal instruments scores	5	5	5	5	5	5
	A number of laws, regulations, and criteria related to the prevention and control of communicable diseases have been developed or improved	-	1	1	1	1	1
2) Relevant personnel have knowledge and understanding and can enforce the laws on communicable disease correctly and effectively.	Percentage of personnel who have knowledge and understanding and can effectively enforce communicable disease laws	N/A	50%	60%	70%	80%	90%
3) Provide manuals/ guidelines/public relations media regarding laws on communicable diseases that are up to date, appropriate,	Number of manuals/ guidelines/public relations media regarding laws on communicable diseases	-	1	1	1	1	1

Strategic Objectives (Goals)	Indicators (Responsible Persons)	Past Performance	Target Values				
			2023	2024	2025	2026	2027
and meet the needs of relevant personnel and the public.							
4) Develop data collection guidelines incorporating gender-disaggregated data (including gender-sensitive data on relevant projects), to support the design of policies and financial mechanisms that promote gender equality and equity.	P.1.2 Gender Equality in health emergencies: Gender equality scores during health emergencies:	4	5	5	5	5	5
	Number of agencies producing gender-disaggregated data	N/A	50	60	70	80	90
5) States Parties ensure adequate financing is available for IHR implementation through the national budget or otherwise.	P.2.1. Financial resources for IHR implementation: Budget scores for IHR implementation	4	5	5	5	5	5
	Percentage of projects receiving funding for IHR implementation through the national budget or otherwise	N/A	50%	60%	70%	80%	90%
6) Country mechanisms have access to financial resources for normal IHR capacity operations, and timely and distributed financial resources are available for public health emergency preparedness and response.	P.2.2. Financial resources for public health emergency response: Budget scores for public health emergency response	4	5	5	5	5	5
	Provide systems/ channels/mechanisms for agencies to access budget resources effectively	N/A	At least 1 system	At least 1 system	At least 1 system	At least 1 system	At least 1 system
7) Multilateral/ interdisciplinary approaches to working with national partners to support effective early warning, intervention, and response systems, to ensure effective implementation of IHR, with a coordinated and sustainable use of resources, and the operations of a national IHR Coordinator who is always accessible. States parties shall provide the WHO with the contact information of their national IHR Coordinators, keeping it up to date, to facilitate planning	P.3.1 National IHR Focal Point functions: IHR Focal Point functions scores	4	5	5	5	5	5
	Number of situation analysis reports, risks, and policy recommendations between the Health Regulations Focal Points and World Health Organization, the executive, and relevant multilateral partners	N/A	52 copies	52 copies	52 copies	52 copies	52 copies
	P.3.2 Multisectoral coordination mechanisms: Developing multisectoral coordination mechanisms scores	5	5	5	5	5	5

Strategic Objectives (Goals)	Indicators (Responsible Persons)	Past Performance	Target Values				
			2023	2024	2025	2026	2027
and capacity-building efforts through high-level support measures to effectively implement IHR.	Develop and improve manuals and guidelines on coordination, preparedness, and response to emergencies among relevant multilateral partners	N/A	1 guide line	1 guide line	1 guide line	1 guide line	1 guide line
	P.3.3 Strategic planning for IHR, preparedness, or health security: Strategic planning for IHR, preparedness, or health security scores	5	5	5	5	5	5
	Percentage of projects under the Action Plan to develop core competencies in accordance with the implementation of International Health Regulations that have achieved development	N/A	75%	80%	85%	90%	95%
8) Provide health personnel with the skills and competence sufficient to manage the public health system and respond to public health emergencies at all levels with sustainable efficiency and effectiveness in accordance with International Health Regulations.	D.3.1 Multisectoral workforce strategy: Multisectoral workforce strategy scores	4	5	5	5	5	5
	D.3.2 Human resources for the implementation of IHR: Human resources scores for implementation of IHR	4	5	5	5	5	5
	D.3.3 Workforce training: Human resources training scores	4	5	5	5	5	5
	D.3.4 Workforce surge during a public health event: Human resources management during the implementation of health services by issue scores	5	5	5	5	5	5
9) Public health personnel are safe, and not at risk while providing health services to service recipients.	Average percentage of public health personnel safety during service provision (safety not less than 80%)	N/A	80%	85%	90%	95%	99%
10) Provide risk communication and community engagement systems in emergency response.	R.5.1 RCCE systems for emergencies: Risk communication and community engagement systems in emergency response scores	5	5	5	5	5	5

Strategic Objectives (Goals)	Indicators (Responsible Persons)	Past Performance	Target Values				
			2023	2024	2025	2026	2027
11) Risk communication performance	R.5.2 Risk communication: Risk communication performance scores	5	5	5	5	5	5
12) Communities participate in determining guidelines for health literacy development and risk communication with people at the center.	R.5.3 Community engagement: Community participation in determining guidelines for health literacy and risk communication scores	4	5	5	5	5	5
13) Establish a public health risk communication unit within each provincial public health office, and/or strengthen existing provincial public relations mechanisms to communicate risks.	Percentage of provincial networks participating in risk communication and building community awareness	N/A	80%	85%	90%	95%	100%

3. Strategies and Measures

Strategy 1: Develop legal instruments that are up to date, effective in enforcement throughout the country, and allow people and communities to participate effectively in implementation.

Measures and Guidelines

1) Review and improve the Communicable Diseases Act, B.E. 2558 (2015), and related laws in all sectors and at all levels, emphasizing the essential content to enable timely surveillance, detection, assessment, reporting, management, and response to public health emergencies, and to enforce them equally and without discrimination.

2) Enhance spatial efficiency in law enforcement through integration with local administrative organizations, as well as Identify the lessons learned from successes through the participation of all sectors. Develop cooperation with neighboring countries to establish international practices for cross-border crossings that will lead to effective management of the problems in entering and exiting the country, to enhance correct knowledge and understanding among the public, business operators, and key risk areas nationwide toward becoming primary target areas with high efficiency in law enforcement.

3) Develop a data collection approach that includes data collection on gender sensitivity to accommodate changes and challenges, especially in gender equality and equity, and to adjust approaches to accommodate the needs of national development, policy development, and financial mechanisms.

4) Establish a working group to consider improving specific public health laws to have the authority and duty to manage sustainable crises, along with the determination of authority, duties, and responsibilities. Create a roadmap for the operations of relevant agencies, and a manual for detecting, assessing, informing, reporting, and responding to risks.

5) Issue regulations, ministerial announcements, and subordinate laws supporting the primary law to solve public health problems, create health security, and promote the well-being of the Thai people.

6) Promote and support relevant agencies to disseminate public relations in various formats, such as public relations media and online media, which are easily accessible and comprehensive for the public, so that the public gains knowledge and is aware of disease prevention and legal regulations based on the principle of "We are as strong as our weakest link."

7) Organize an assessment of the results of all relevant laws based on IHR to develop policy proposals that are consistent with the current situation, by promoting and supporting all sectors and relevant agencies in participating in the assessment of IHR laws.

8) Create a curriculum to develop knowledge on all relevant laws on IHR, targeting groups at each level, such as children, youth, the general public, government agencies, private sectors, and network partners. Promote and support the organization of teaching/meetings/training/practicing in the curriculum according to the target groups mentioned above.

Strategy 2: Adjust the budget management system to ensure continuous, sufficient, cost-effective development toward meeting International Health Regulations.

Measures and Guidelines

1) Review relevant laws, regulations, rules, and other elated matters supporting budget management to ensure flexibility, transparency, and efficiency in monitoring and responding to public health emergencies at the national, regional, and local levels in time for emergency situations. Also, the system for monitoring budget expenditures and support from international organizations should be reviewed to ensure appropriateness and value in implementing emergency management measures.

2) Examine budget requests from all relevant agencies to ensure appropriate IHR-related activities, better coordination, and monitoring of IHR works. This includes reviewing investment plans and budget allocations for operations, in accordance with IHR, to ensure they are sufficient and efficient.

3) Procure funds using digital technology for health works, and allocate budget resources to agencies whose mission is to adequately prepare for public health emergencies in terms of personnel, research, equipment, and various technologies.

4) Create networks and coordinate with domestic and international organizations to effectively request emergency budget support for public health monitoring, prevention, control, treatment, and rehabilitation.

5) Create tools, channels, and management systems for emergency public health budgets by using digital technology for health works, and experimenting with budget systems in collaboration with other agencies, such as activities related to One Health, zoonotic diseases, public health events caused by climate change, and migrant worker health.

6) Develop IHR policy proposals as national policies to provide budget support and set indicators for the Ministry of Public Health, assigning key responsible persons at the district and provincial levels.

7) Improve the self-assessment reporting tool of states parties to the International Health Regulations, B.E. 2548 (2005), to align with the current situation by promoting and supporting all sectors and relevant agencies in assessing IHR budgets, to develop a digital reporting platform.

8) Develop a self-assessment reporting tool for states parties to the International Health Regulations, B.E. 2548 (2005), in the form of a digital reporting platform. This tool will enable comparisons of cost-effectiveness at the national, health region, provincial, ASEAN, Asian, and global levels, with the goal of becoming number one in ASEAN within 20 years.

9) Organize a contest/award for agencies with outstanding performance in using IHR budgets cost-effectively, benefiting the Thai population, the world, and good health, and creating health security in the future.

10) Develop and create value from the COVID-19 experience, including the After-Action Review (AAR) results, which focus on the emergency response financial aspects and identify potential areas for improvement. The AAR will provide reference information for future public health emergency responses and should consider the following:

- The Budget Bureau and the Office of the National Economic and Social Development Council should review the budget preparation process for emergency response.
- The Comptroller General Department should review regulations to provide financial flexibility for emergency response and develop guidelines for faster access to emergency funds.
- The Ministry of Public Health should review the use of emergency funds and the cost-effectiveness of implementing emergency management measures (e.g., lockdowns and quarantine measures, community risk communication campaigns). In addition, relevant agencies (e.g., The State Audit Office of the Kingdom of Thailand) should review the system for monitoring budget expenditures and accountability during emergency response

11) Ensure that any IHR-related activities included in the budget requests of all relevant agencies are appropriately identified as such, to enable better coordination and monitoring of IHR works.

12) Update investment plans to incorporate emerging needs:

- By organizing consultative meetings among stakeholders from multiple sectors to define the required competency levels.
- Resulting in concrete, multi-sectoral funding procurement, according to the IHR (International Health Regulations) that need to be maintained post-COVID-19.
- Ensuring concrete actions and an operational plan aligned with the competency levels of each sector.

Strategy 3: Strengthen unity and efficiency domestically in coordination with International Health Regulations, to be aligned in terms of both policy and field operations.

Measures and Guidelines

1) Review and improve the organizational structure of International Health Regulations Focal Points (IHR NFP) as appropriate, and organize the management system, and build the capacity of permanent/new human resources under the IHR NFP structure, to maintain continuity of the implementation of the main functions, and review and improve the supervision and structure of the multisectoral coordination mechanism between technical areas, such as technical issues on food safety, to improve coordination.

2) Continue to strengthen and maintain multisectoral coordination mechanisms by developing and improving action plans, measures, and operating standards, and developing and strengthening the capacity of human resources to maintain the continuity of implementation of the main functions of the International Health Regulations Focal Points, as well as strengthening the reporting of public health emergencies of international concern in accordance with the requirements of the World Health Organization.

3) Strengthen the reporting of public health emergencies of international concern in accordance with World Health Organization requirements.

- Promote provincial and area public health offices to play a role in reporting local emergencies.
- Develop and review procedures for reporting public health emergencies that cover national public health emergencies to increase practitioners' capacity.
- Establish a nation-wide central platform for reporting public health emergencies in the form of an intelligent platform.

4) Develop and improve the standards and frameworks for monitoring IHR implementation at the multilateral and regional levels to identify Thailand's IHR implementation capabilities, and develop a central electronic database for monitoring and assessing administrators and network partners for easy and rapid access.

5) Develop operational guidelines to promote preparedness and response to public health emergencies related to mass gatherings.

6) Develop communication, information-sharing mechanisms, and electronic information systems that effectively prevent and control the spread of disease and health hazards to be on a par with countries that have performed above the standard, such as Japan, Singapore, and South Korea.

7) Develop a mechanism for implementing International Health Regulations in Thailand to support changes, amendments, and improvements to the World Health Organization's revised International Health Regulations, which will be published in 2024.

8) Continue strengthening and maintaining multilateral coordination mechanisms through guidelines, procedures, and operating standards that are updated according to the current situation and ongoing changes.

9) Review and adjust plans, measures, and operating standards to enhance preparedness and response to public health emergencies related to mass gatherings.

10) Link development, promotion, and support of coordination in and reporting of public health emergencies to assist neighboring countries and/or international partners in developing a joint coordination and reporting system in accordance with International Health Regulations.

Strategy 4: Adjust the management system and human resource development in the development system according to International Health Regulations, to be effective and support the country's health needs.

Measures and Guidelines

1) Assess and improve human resource policies based on lessons learned from the COVID-19 outbreak, review hiring practices, new staff care, work processes, compensation, leave, continuing education training, promotion, work environment, retention, and termination.

2) Develop a national health workforce development plan for people, animals, and the environment, to develop the potential of health personnel in covering all areas of the country, enhance standard health service provision, and implement occupational health policies and other core duties. Learn about other technical issues related to and having an impact on the work in their roles, including:

- One Health
- Infection prevention and control in healthcare facilities
- Field epidemiology
- Disease surveillance
- Laboratory work
- Antimicrobial resistance
- International disease control points and health service delivery

3) Appropriate budget allocation for the workforce, human health, animal health, wildlife, and environmental health sectors. Increase and maintain a sufficient number of competent personnel for health, animal health, wildlife, and environmental health personnel through various strategies, which are not limited to clear career opportunities and continuous professional development. Better motivation, and the provision of mental health and psychosocial support and services.

4) Maximize the existing health workforce policy base and create performance indicators or achievements for multisectoral workforce development in human, animal, wildlife, and environmental health sectors.

5) Training in non-communicable preventive medicine to help cope with the increasing trends in non-communicable diseases in the future, and increase the production of non-physician health professionals, such as medical technicians and pharmacists.

6) Promote career advancement and motivation by increasing compensation or civil service recruitment to create job security. Develop the potential of health personnel to know and understand relevant issues by training in law, science, and IHR, to increase the number of expert lecturers in field epidemiology training courses, and promote opportunities for expert lecturers to study abroad.

7) Integrate primary health services to support changes in service units and continuously link health data. Create a plan to develop a sufficient workforce to meet all professions' needs to support future changes in disease occurrence.

8) Develop and enhance the health capabilities of all multidisciplinary professions to improve public health care. Create cooperation in health services among service units under the Ministry of Public Health and other agencies in the government and private sectors.

9) Develop a health professional tracking system via the MOPH GIS Dashboard by linking the database with agencies that provide personnel in various professions.

10) Develop the Field Epidemiology Training Program (FETP) to support epidemiology operations to cover all areas in Thailand. Develop a Field Epidemiology Training Program for veterinarians (FETP-V) in line with the One Health approach by increasing the production of FETP-V each year, to support outbreaks of zoonotic diseases.

11) Push the Communicable Disease Control Unit (CDCU) to use its authority and duties to control outbreaks of communicable diseases under the Communicable Diseases Act, B.E. 2558 (2015), in a timely manner. Develop the potential of public health volunteers in investigating and controlling COVID-19 by training them to investigate other groups of diseases. Increase training programs and provide some programs with strong networks at the national level, by providing financial support and consulting, such as the FEMT (Field Epidemiology and Management Training) and FETH (Field Epidemiology Training Program for Public Health Officer) training programs.

12) Support a budget for personnel development in multidisciplinary personnel to be sufficient for widespread demand, support the advancement in multidisciplinary positions of personnel in the public health system, develop a Big Data database tracking system for health personnel that links databases among agencies in terms of people, animals, and the environment, and strengthen the motivation of public health personnel to remain and cope with future risks.

13) Establish a center for disease control personnel development, create a platform for collecting data on public health personnel, both humans and animals, to prepare for future diseases and health hazards, and integrate cooperation from all sectors in terms of human resources to support and respond to public health emergencies.

14) Establish strategic human resources practices, including planning and organizing personnel development to cover all professions.

15) Create AI doctors who can assess symptoms, provide treatment, and advise on basic self-care. These doctors should be accessible to populations in all areas, and should lower costs as well.

Strategy 5: Enhance risk communication and strengthen community engagement in public health risk management.

Measures and Guidelines

1) Develop a mechanism to drive health literacy in accordance with International Health Regulations. Develop guidelines, manuals, and standards for building disease and health hazard literacy among communication personnel in accordance with International Health Regulations.

2) Establish a public health risk communication unit to ensure consistent communication by strengthening health literacy, prevention, and control of risk factors for the public, to ensure good health.

3) Strengthen the health of the Thai people, covering physical, mental, intellectual, and social aspects, by:

- Building health literacy.
- Preventing and controlling risk factors that threaten health.
- Creating an environment conducive to good health.
- Developing a modern health service system that supports the creation of good health.
- Promoting communities as a base for creating good health in all areas.

4) Reform the learning process to respond to changes in the 21st century, focusing on learners having learning skills and the desire to continually learn, by:

- Modifying the learning system to support the development of skills for the 21st century.
- Transforming the traditional role of "teachers" into state-of-the-art teachers.
- Increasing the efficiency of the education management system at all levels and types.
- Developing a lifelong learning system.
- Creating awareness for the Thai people of the role, responsibility, and positioning of Thailand in the Southeast Asian region and the global community.
- Laying the foundation for a learning system using a digital platform.
- Creating an education system for international academic excellence.

5) Create an environment conducive to the development and strengthening of human resource potential, by:

- Supporting the well-being of Thai families.
- Promoting the role of participation of the government sector, private sector, local administrative organizations, families, and communities in human resource development.
- Cultivating and developing skills outside the classroom.
- Developing a database system for human resource development.

6) Integrate and prepare networks to communicate risks and create health literacy in accordance with International Health Regulations for groups of people nationwide, focusing on people as the center, and communication that reaches specific target groups, such as people in marginal areas, (not limited to migrant workers), people living in border areas, volunteers, and personnel working in service center information (e.g., migrant worker volunteers), as well as engaging citizens in spatial communication.

7) Integrate provincial public health offices into local public health risk communication teams, using people as the center (People-Centric), to develop effective communication skills in managing diseases and health hazards in the area.

8) Design and develop communication channels that are accurate, fast, and appropriate for the target groups and local contexts, especially marginalized groups (not limited to migrant workers), people living in border areas, volunteers, and personnel working in information service centers (e.g., migrant worker volunteers).

9) Manage information systematically and efficiently to control diseases and health hazards in a timely manner. Develop a risk communication operations system to support future risks related to fake news, with the participation of all sectors and local people.

10) Develop and enhance the potential of personnel in all networks in disease and health hazard communication issues in accordance with International Health Regulations so that they can communicate and create knowledge correctly and appropriately according to the context of the area.

11) Develop and improve information and risk communication monitoring and surveillance system using digital technology to be reliable and acceptable. Design and develop new communication channels and media formats that respond to the community's way of life with digital technology.

12) Create a people-centered approach to co-design solutions for public health challenges with the community. Promote community participation as an active partner in emergency response and involvement in planning, designing, and implementing interventions. Provide a system to collect and analyze community opinions, social behaviors, and infodemic insights from public health information at national, intermediate, and primary levels, as well as health response levels. Use evidence from systematic data analysis to develop continuous community engagement in health emergency response.

13) Support and develop public health risk communication prototypes and create new forms of knowledge that reach and influence target groups, for communication that reaches target groups in the local context. Develop a digital platform for information management, and surveillance systems that enable media and channels to reach specific groups of people,who can create, access, and adjust existing knowledge, leading to changes in health behavior.

14) Create a community to drive the creation of health literacy to improve health literacy and reduce health inequality.

15) Establish a prototype training institute, Health Literacy Center in Thailand, to be a center that opens up opportunities for lifelong learning for health professionals, policymakers, educators, and researchers to come and learn and develop their potential in knowledge creation and risk communication, in accordance with International Health Regulations.

16) Develop a Portal for Free e-learning that helps all groups of people gain knowledge, and support and create health knowledge and risk communication independently.

17) Create a communication network with government and private agencies outside of the healthcare field to strengthen all sectors.

18) Develop information management with advanced technology (artificial intelligence and machine learning, virtual and augmented reality, and blockchain), to track and monitor news and risk communication quickly and accurately. This will create guidelines and policies on knowledge coverage for all target groups.

19) Create an environment and learning ecosystem in the virtual world, such as an Ecosystem via Metaverse for Health Literacy, to reduce limitations and increase the ability to use technology to create a borderless learning environment.

20) Develop a platform for linking Personal Health Literacy Profiles (PHLP) as a source of information that can link knowledge and risk communication tools from Big Data management for people and communities.

National Action Plan for Health Security (NAPHS)
Action Plan 1: To develop policies, laws, resource management, and support systems that develop highly effective national capacity and comply with International Health Regulations.

Projects/Key Activities of Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million baht)					Notes
				2023	2024	2025	2026	2027	
Project 1: Develop legal instruments and strengthen the capacity of personnel in the area of communicable disease prevention and control in accordance with International Health Regulations.									
1) Review, develop, and improve communicable disease prevention and control laws.	Number of laws related to communicable disease prevention and controls that have been reviewed, developed, and improved.	Ministry of Public Health (Department of Disease Control and related departments/ divisions)	4.8 (Department/ Division budgets)	0.8	1.6	0.8	0.8	0.8	
2) Develop the potential of relevant personnel to know, understand, and enforce communicable disease laws.	Number of target groups have received development of their potential in communicable disease laws.	Ministry of Public Health (Department of Disease Control and related departments/ divisions)	4 (Department/ Division budgets)	0.8	0.8	0.8	0.8	0.8	
3) Create/develop/improve manuals/guidelines/public relations media on communicable disease laws.	Number of manuals/ guidelines/public relations media regarding laws on communicable diseases.	Ministry of Public Health (Department of Disease Control and related departments/ divisions)	1 (Department/ Division budgets)	0.2	0.2	0.2	0.2	0.2	
Project 2: Develop a system for monitoring and assessing operations to reduce gender inequality in society.									
1) Develop a system for compiling/collecting gender-classified data for service recipients according to the mission of all agencies, as well as gender-classified data for personnel under the agencies and administrators at various levels, and officers in various lines of work of the agencies.	Number of agencies producing gender-disaggregated data.	Ministry of Social Development and Human Security (Department of Women's Affairs and Family Development/ all relevant agencies)	N/A	N/A	N/A	N/A	N/A	N/A	

Projects/Key Activities of Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million baht)					Notes
				2023	2024	2025	2026	2027	
2) Monitoring and evaluation to assess accessibility to public services.									
3) A survey project on the needs and expectations of service recipients (categorized by gender), to enhance the service quality of agencies.		Department of Medical Services Ministry of Public Health							
Project 3: Develop budgeting management systems for public health in accordance with International Health Regulations.									
1) Develop and improve all budgeting management systems across all levels and sectors related to the government, such as preparing budget requests, setting support criteria, and monitoring expenditures.	Guidelines/manuals for all government-related budgeting management systems across all levels and sectors.	Ministry of Public Health (Department of Disease Control)	2	0.4	0.4	0.4	0.4	0.4	
2) Improve the self-assessment reporting tool for states parties to the International Health Regulations of B.E. 2548 (2005) to align with the current situation, by promoting and supporting all sectors and relevant agencies in assessing IHR budgets and developing a digital reporting platform.	Reporting programs	Ministry of Public Health (Department of Disease Control)	20	4	4	4	4	4	
3) Prepare cost and expense allocations to establish a scope of the expenses required to support future pandemic preparedness and response, including setting guidelines on securing funds for public health emergencies in general.	One guideline for securing funds during public health emergencies.	Ministry of Public Health - Department of Disease Control Co-responsible with related academic divisions/Finance Division under the Ministry of Public Health	5	1	1	1	1	1	

Projects/Key Activities of Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million baht)					Notes
				2023	2024	2025	2026	2027	
4) Improve the finance system for public health emergencies.	One system	Ministry of Public Health - Department of Disease Control - Office of the Permanent Secretary, Ministry of Public Health Ministry of Finance - Comptroller General's Department - Office of the Permanent Secretary Ministry of Finance By the Public Debt Management Office Office of the Prime Minister - Bureau of the Budget - The State Audit Office of the Kingdom of Thailand	10	2	2	2	2	2	
5) Develop an operational system and finance database for public health emergencies.	One public health emergency financial management database.	Ministry of Public Health - Department of Disease Control - Office of the Permanent Secretary, Ministry of Public Health - Ministry of Digital Economy and Society - Comptroller General's Department - Bureau of the Budget	10	2	2	2	2	2	

Projects/Key Activities of Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million baht)					Notes
				2023	2024	2025	2026	2027	
6) Continuous development of personnel in budgeting, finance, accounting, and procurement for public health emergencies.	Development of personnel in budgeting, finance, accounting, and procurement for public health emergencies through five training cohorts.	Ministry of Public Health - Department of Disease Control - Office of the Permanent Secretary Ministry of Finance By the Public Debt Management Office - Comptroller General's Department - Bureau of the Budget	25	5	5	5	5	5	
7) On-site budget monitoring across all government-related levels and sectors.	Conduct on-site visits to regional target areas, remote areas, and isolated areas.	Ministry of Public Health (Department of Disease Control and related divisions)	20	4	4	4	4	4	
8) Develop the potential of personnel in government agencies and private agencies in utilizing the budget reporting program as related to IHR. This includes organizing meetings, training, and workshops in courses tailored to the above-mentioned target groups.	(1) The target groups who receive training development are as follows: - Provincial Public Health Office (PPHO)/Regional Hospitals (RH)/General Hospitals (GH)/ Subdistrict Health Promoting Hospitals (SHPH) - health regions 1-12 - Government/private sectors - Related divisions (2) Successful implementation of the program with accuracy and completeness.	Ministry of Public Health - Ministry of Social Development and Human Security - Ministry of Foreign Affairs - Ministry of Justice - Ministry of Education	10	2	2	2	2	2	

Projects/Key Activities of Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million baht)					Notes
				2023	2024	2025	2026	2027	
9) Preparing budget request processes. - Review budget preparation processes to cope with emergencies. - Review budget expenditures, emergency incidents, cost-effectiveness of emergency measures, cross-sector activities, and technical issues. - Monitor and assess budget utilization during emergencies.	Budget preparation guidelines and operations manuals.	- Ministry of Public Health - Bureau of the Budget - Comptroller General's Department - Ministry of Finance - National Economic and Social Development Council - The State Audit Office - Other ministries and networks	5	-	5	-	-	-	
10) Prepare an action plan to respond to future public health emergencies. - Review the Action Plan. - Determine an appropriate budget for budget allocations.	A suitable Action Plan corresponding to the situation in each area.	- Ministry of Public Health - Related agencies	5	1	1	1	1	1	
Project 4: Develop the infrastructure for and management of the International Health Regulations National Focal Points.									
1) Develop and revise the International Health Regulations National Focal Point (IHR NFP) infrastructure to support Thailand's health security system.	One infrastructure for the International Health Regulations National Focal Points.	Bureau of Epidemiology	10.25	0.25	5	5	-	-	
2) Develop and improve operational guidelines for the IHR NFP.	Ten copies of operational guidelines or SOPs.	Bureau of Epidemiology	2.5	0.5	0.5	0.5	0.5	0.5	
3) Review, improve, and monitor the infrastructure for coordination mechanisms under the IHR. - Develop multilateral IHS coordination mechanisms (with a focus on food safety) toward effective and sustainable coordination.	One infrastructure for the monitoring and coordination mechanisms related to food safety.		0.4	-	0.2	0.2	-	-	

Projects/Key Activities of Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million baht)					Notes
				2023	2024	2025	2026	2027	
4) Develop operating plans, standards manuals, and operational standards, to prepare for and respond to public health emergencies related to mass gatherings.	One manual		1.05	-	0.35	0.7	-	-	
5) Develop and improve frameworks for monitoring IHR operations at multilateral and local levels, to understand the operational capacity of IHR in Thailand.	Percentage of implementation in accordance with the NAPHS.		1.65	0.25	0.35	0.35	0.35	0.35	
Project 5: Develop the potential of personnel for coordination under the IHR.									
1) Strengthen the skills of IHR coordinator personnel. - Via coaching systems and trainers. - Promote learning from best practices, both domestically and internationally. - Provide training development for necessary capacities.	30 personnel with developed potential in various fields each year.		17.5	0.5	2	5	5	5	
Project 6: Develop database systems for national-level data integration.									
1) Integrate central data for policy formulation, including data on disease, health hazards, animals, and the environment.	One central database and five reports on situation analysis, risk analysis, and policy recommendations from the IHR NFP and the World Health Organization, executives, and relevant multilateral parties		40.15	0.15	10	10	10	10	

Projects/Key Activities of Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million baht)					Notes
				2023	2024	2025	2026	2027	
2) Develop mechanisms in accordance with the revised IHR to support the changes, amendments, and improvements of the IHR.	Improved IHR mechanisms published for relevant multilateral parties.		1.05	0.1	0.2	0.25	0.25	0.25	
Project 7: Develop personnel in field epidemiology (FETP, FETH, FEMT).									
1) Review the criteria for the training courses, course details, and activities of each course. 2) Review the relevant committees and working groups for each course. 3) Prepare development plans, course training manuals, and project frameworks for each course. 4) Hold committee meetings to determine the criteria and choose applicants for training in each course. 5) Carry out the training courses. 6) Prepare reports and assessments of those who pass the training courses.	Thailand has a sufficient number of field epidemiologists to meet the country's needs at all levels.	- Ministry of Public Health (Department of Disease Control) - Department of Livestock Development	37.5 Bureau of the Budget	7.5	7.5	7.5	7.5	7.5	
Project 8: Develop a Joint Investigation Team (JIT) for Dangerous Communicable Diseases.									
1) Review the course criteria and training activities. 2) Hold working group meetings for the project on developing a JIT for Dangerous Communicable Diseases. 3) Prepare a training development plan. 4) Carry out the training. 5) Create a registry of the personnel who pass the training.	Establish a JIT for Dangerous Communicable Diseases in every province.	Ministry of Public Health (Department of Disease Control)	2 Bureau of the Budget	-	1	-	1	-	

Projects/Key Activities of Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million baht)					Notes
				2023	2024	2025	2026	2027	
Project 9: Assessment of the Standards of Disease and Health Hazard Surveillance, Investigation, and Control Teams for the Year 2024 (SAT/JIT).									
1) Meet with the assessment team to clarify objectives and better understand the indicator details. 2) Hold a meeting with the assessment team to prepare for and summarize the assessment results of the Situation Awareness Teams (SAT), JITs, and District-level Disease and Health Hazard Surveillance, Investigation, and Control Teams. 3) Conduct on-site visits to assess the standards of the SATs, JITs, and District-level Disease and Health Hazard Surveillance, Investigation, and Control Teams. 4) Summarize the assessment results.	Report on standard assessment results.	Ministry of Public Health (Department of Disease Control)	2 Bureau of the Budget	0.4	0.4	0.4	0.4	0.4	
Project 10: Develop the potential and skills of Communicable Disease Control Unit (CDCU) staff.									
1) Organize training for the CDCUs. 2) Ensure CDCU courses meet standards.	The CDCUs have developed the necessary skills and capacities to investigate diseases according to the standards. They are well-prepared to respond effectively to public health emergencies in their area.	Ministry of Public Health (Department of Disease Control)	4 Bureau of the Budget	0.8	0.8	0.8	0.8	0.8	

Projects/Key Activities of Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million baht)					Notes
				2023	2024	2025	2026	2027	
Project 11: Develop staffing database systems in field epidemiology (FETP, FETH, FEMT).									
1) Review the problems, obstacles, and database of those who pass each training course. 2) Hold planning meetings with working groups on the implementation of the project to develop a database system for field epidemiology personnel and related agencies. 3) Carry out the database system development plan.	Establish an epidemiological staffing database reporting program linked to multiple sectoral databases.	Ministry of Public Health (Department of Disease Control), Office of the Permanent Secretary, Ministry of Public Health, Ministry of Agriculture and Cooperatives, Office of the Civil Service Commission	2.5 Bureau of the Budget	0.5	0.5	0.5	0.5	0.5	
Project 12: Systematically manage information to ensure speed and efficiency in controlling diseases and health hazards in a timely manner.									
1) Develop guidelines and standards to enhance disease and health hazard literacy for communication personnel in accordance with the IHR (to establish risk communication practices during emergencies).	Achieve a level of success in developing guidelines and standards in accordance with the IHR for communication personnel to enhance disease and health hazard literacy.	- Office of the Permanent Secretary, Ministry of Public Health (Division of Public Health Emergency Management) - Department of Disease Control (Bureau of Risk Communication and Health Behavior Development) - The Government Public Relations Department	0.8 Budget support	-	-	0.4	0.4	-	
2) Develop the potential for communication during crises.	Training: The target group consists of the Public Relations Departments from 76 provinces. Indicators: Percentage of agencies under the Government Public	The Government Public Relations Department	11.2 PRD	-	5.6	5.6	-	-	

Projects/Key Activities of Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million baht)					Notes
				2023	2024	2025	2026	2027	
	Relations Department with risk communication mechanisms in place at the central and local levels.								
3) Develop the potential of communications during crises at the local level.	Percentage of local administrative organizations utilizing communication mechanisms to raise community awareness and preparedness for medical and public health matters, to support emergencies and public disasters.	- Department of Local Administration - Department of Disaster Prevention and Mitigation, Ministry of Interior - Department of Disease Control (Bureau of Risk Communication and Health Behavior Development) - Office of the Permanent Secretary, Ministry of Public Health (Division of Public Health Emergency Management)	2.5 Bureau of the Budget	0.5	0.5	0.5	0.5	0.5	
4) Develop integrated mechanisms and enhance the readiness of partner networks for risk communication and health literacy according to the IHR.	Achieve a level of success in developing integrated mechanisms that enhance the readiness of partner networks in risk communication and health literacy according to the IHR, specifically for marginalized populations.	- Department of Disease Control (Bureau of Risk Communication and Health Behavior Development) - Department of Health Service Support (Health Education Division/Primary Health Care Division) - Ministry of Interior (Department of Local Administration)	5 Budget support	-	-	2.5	2.5	-	

Projects/Key Activities of Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million baht)					Notes
				2023	2024	2025	2026	2027	
5) Develop the potential of public relations networks under the Ministry of Public Health.	Conduct trainings of target groups at the central and local levels. Indicators: - Percentage of public relations personnel networks that participated in the project. - Percentage of satisfaction from Public Relations personnel networks that participated in the project.	Office of the Permanent Secretary, Ministry of Public Health (Public Relations Division)	5.7 Ministry of Public Health	0.5	1.3	1.3	1.3	1.3	
Project 13: Develop information management and surveillance systems in digital form.									
1) Develop information management systems with advanced technologies.	Achieve a percentage of success in developing information management and surveillance systems of fake news regarding diseases and health hazards using advanced technologies, in accordance with the IHR.	Ministry of Digital Economy and Society/Ministry of Public Health Department of Disease Control (Bureau of Risk Communication and Health Behavior Development) The Government Public Relations Department	2.5 Bureau of the Budget	0.5	0.5	0.5	0.5	0.5	

ACTION PLAN 2:
TO IMPROVE THE EFFICIENCY OF HEALTH SERVICE PROVISION IN ACCORDANCE WITH THE IHR IN ALL ASPECTS, TO BE HIGHLY EFFECTIVE AND OF MAXIMUM BENEFIT TO THE DEVELOPMENT OF PUBLIC HEALTH.

1. Objectives

1) To strengthen the country's capacity in managing health emergencies, including preparedness, emergency crisis management, and the integration of relevant agencies, to ensure unified, timely responses at the national and international levels. This includes a comprehensive management system covering operational procedures, budgeting, personnel, legal compliance, and adherence to international best practices.

2) To enhance the effectiveness of coordination between public health agencies and security agencies.

3) To develop health services that continuously evolve to meet changing needs, deliver tangible benefits to the population, and effectively address public health demands and issues.

2. Objectives, Indicators, and Target Values

Development Targets	Indicators (Responsible Person)	Past Performance	Target Values (C.E.)				
			2023	2024	2025	2026	2027
1) The management of national health emergencies meets IHR-based standards, with the population receiving comprehensive and safe services.	R.1.1 Emergency risk and readiness assessment: Scores for emergency risk assessment and response preparedness.	4	5	5	5	5	5
	R.1.2 Public Health Emergency Operations Center (PHIOC): Assessment scores for the Public Health Emergency Operations Center.	4	5	5	5	5	5
	R.1.3 Management of health emergency response: Assessment scores for the management of health emergency response.	4	5	5	5	5	5
	R.1.4 Activation and coordination of health personnel in public health emergencies: Assessment scores for initial procedures and coordination of health personnel during public health emergencies.	4	5	5	5	5	5
	R.1.5 Emergency logistics and supply chain management: Assessment score for logistics and supply	4	5	5	5	5	5

Development Targets	Indicators (Responsible Person)	Past Performance	Target Values (C.E.)				
			2023	2024	2025	2026	2027
	chain management during emergencies.						
	R.1.6 Research, development, and innovation for IHR and preparedness and risk management: Assessment scores for development, improvement, and innovations for the IHR, as well as preparedness and risk management.	4	5	5	5	5	5
2) Develop comprehensive emergency care and patient referral systems that meet standard practices, are effective, accessible, and equitable.	Percentage of the population that can access emergency care systems.	26.11%	Not lower than 26.5%	Not lower than 27%	Not lower than 28%	Not lower than 29%	Not lower than 30%
	Percentage of success outcomes in developing emergency care systems and public health emergency management.	N/A	65%	75%	80%	90%	100%
3) The ability to prioritize systems and public health emergency management processes is in place, to enhance preparedness in responding to public health incidents, including all-hazard emergencies as outlined by the IHR. This also includes developing risk response plans to manage and address emergencies.	Level of success in developing capacities according to the IHR while achieving the set criteria and targets.	Level 4 across all six indicators	Level 5 in no less than two indicators	Level 5 in no less than three indicators	Level 5 in no less than four indicators	Level 5 in no less than five indicators	Level 5 in six indicators
4) Develop risk assessments of data management issues during public health emergencies at the provincial and national levels, especially in high-risk areas, to establish a unified standard.	- Percentage of provinces that have conducted risk assessments of data management issues during public health emergencies at the local level, for at least three diseases or health hazards. - Percentage of national-level risk assessment coverage for data management issues during public health emergencies, for at least three diseases or health hazards.	N/A	At least three diseases or health hazards.	At least three diseases or health hazards.	At least three diseases or health hazards.	At least three diseases or health hazards.	At least three diseases or health hazards.

Development Targets	Indicators (Responsible Person)	Past Performance	Target Values (C.E.)				
			2023	2024	2025	2026	2027
5) Management of public health emergencies based on the 2P2R principles, and development of preparedness plans for diseases or health hazards identified through risk assessment.	Number of preparedness plans for diseases or health hazards included in the risk assessment.	N/A	At least three preparedness plans for diseases or health hazards identified through risk assessment.	At least three preparedness plans for diseases or health hazards identified through risk assessment.	At least three preparedness plans for diseases or health hazards identified through risk assessment.	At least three preparedness plans for diseases or health hazards identified through risk assessment.	At least three preparedness plans for diseases or health hazards identified through risk assessment.
6) Conduct annual drills for preparedness plans to support the management of public health emergencies at the district and national levels.	Number of drills conducted for preparedness plans to support the management of public health emergencies at the district or national levels.	One drill/year	Conduct drills for preparedness plans to support the management of public health emergencies at the district or national levels at least once annually.	Conduct drills for preparedness plans to support the management of public health emergencies at the district or national levels at least once annually.	Conduct drills for preparedness plans to support the management of public health emergencies at the district or national levels at least once annually.	Conduct drills for preparedness plans to support the management of public health emergencies at the district or national levels at least once annually.	Conduct drills for preparedness plans to support the management of public health emergencies at the district or national levels at least once annually.
7) Establish a national task force under the relevant laws to serve as a central command center during emergencies and coordinating body for related agencies to ensure alignment with regulations, budgets, personnel, and legal authorities.	- Percentage of national task forces established a according to the criteria for upgrading the Emergency Operations Center to Level 4: Severe Public Disaster as outlined in the National Disaster Prevention and Mitigation Plan, B.E. 2564-2570 (2021-2027).	N/A	100%	100%	100%	100%	100%
8) Promote the creation and development of knowledge, innovation, and research outputs related to emergencies, and relay such findings, knowledge, and sets of practices to network partners in the emergency crisis system to encourage policy recommendations, thus	increasing the amount of knowledge, innovations, and research outputs related to emergencies, and the relay of knowledge each year.	N/A	One topic	One topic	One topic	One topic	One topic

Development Targets	Indicators (Responsible Person)	Past Performance	Target Values (C.E.)				
			2023	2024	2025	2026	2027
9) Integration of public health and security agencies.	R.2.1 Public health and security authorities (e.g., law enforcement, border control, customs) linked during a suspected or confirmed biological, chemical, or radiological incident: Assessment scores on the integration of public health and security agencies (e.g., law enforcement, border control, customs) during suspected or confirmed biological, chemical, or radiological incidents.	4	5	5	5	5	5
10) The country responds swiftly across multiple sectors to suspected or confirmed incidents from credible sources, including the ability to integrate public health and law enforcement to provide timely international assistance.	Achieve a level of success in the country's response to international public health emergencies according to global standards.	N/A	1	2	3	4	5
11) The integration of collaborative efforts among public health and security agencies is robust, with an efficient database connecting both sectors.	Level of success in integrating collaboration between public health and security agencies.	N/A	1	2	3	4	5
12) Public health and security personnel understand their roles and responsibilities during emergencies.	- Percentage of public health and security personnel trained in their roles and responsibilities during emergencies.	N/A	40%	50%	60%	70%	80%
13) Health services and case management meet the standards according to the IHR criteria.	R.3.1 Case management: Assessment scores for case management.	5	5	5	5	5	5
(2) The public receives health services that meet the standards and provide maximum benefit during emergencies.	R.3.2 Utilization of essential health services: Assessment scores for essential health service utilization.	4	5	5	5	5	5
(3) Ensure the continuity of essential health services during emergencies.	R.3.3 Continuity of Essential Health Services (EHS): Assessment scores for the continuity of essential health services.	4	5	5	5	5	5

Development Targets	Indicators (Responsible Person)	Past Performance	Target Values (C.E.)				
			2023	2024	2025	2026	2027
(4) Effective planning and management of resources and supply chains in healthcare facilities, at all levels.	Assessment scores for the development of healthcare facilities at all levels that have implemented a Business Continuity Plan (BCP), covering the planning and management of resources and supply chains.	N/A	3	4	5	5	5
(5) National regulations and guidelines exist for providing health services during emergencies, to ensure timely access to health services.	Percentage of success outcomes in implementing the development plan according to the regulations on providing health services during emergencies in healthcare facilities at all levels.	N/A	60%	80%	100%	100%	100%
(6) The knowledge and innovation in health services are in place, which covers all age groups during emergencies, especially for vulnerable groups, to improve their access to health services.	Number of essential knowledge and innovations in health services during emergencies, in digital format, for broadcasting to the community to improve their access to health services.	N/A	3	4	5	5	5
14) The efficiency and standard of operations in demonstrating case management procedures for hazard incidents related to the IHR.	Percentage of success outcomes in the operations plan for demonstrating the use of case management procedures for hazard incidents related to the IHR.	N/A	80%	85%	90%	95%	100%
15) The organization's Business Continuity Plan (BCP) is effective.	Percentage of success outcomes in developing an effective planning and management system, for storage and supply chains in healthcare facilities at all levels.	N/A	80%	85%	90%	95%	100%
16) There are national regulations or guidelines for providing health services during emergencies, to ensure timely access to health services.	Percentage of success outcomes in developing national procedures according to the regulations or national guidelines, for providing health services during emergencies to ensure timely access to health services.	N/A	80%	85%	90%	95%	100%

3. Strategies and Measures

Strategy 1: Develop emergency health crisis management to be standardized, rapid, timely, and comprehensive, throughout the country.

Measures and Guidelines

1) Assess risk factors and identify threats in areas vulnerable to health emergencies across the country. Form an integrated improvement and development plan. Organize annual drills in regions at high risk for health emergencies, such as crowded communities, coastal and island areas, industrial sites, and locations that frequently experience emergencies. Put an integrated emergency response plan into practice, involving all sectors, for responding to public health emergencies. Develop cooperation with medical and health networks across all organizations, involving both public health and other sectors.

2) Develop a risk assessment system and data management for emergency management at national and local levels, especially in high-risk areas and areas targeted for national development. This establishes a consistent set of practices for the relevant agencies. Develop a system to extract lessons learned for knowledge management using the risk assessments, which enables policy recommendations and knowledge exchange with countries that excel in specific fields.

3) Establish national guidelines for preparedness covering emergency crisis assessments, national emergency response drills, capacity building for related personnel, and technology procurement to support various emergency crises, such as emerging diseases, recurring diseases, natural disasters, chemical hazards, nuclear radiation hazards, and more.

4) Promote the creation and development of knowledge, innovation, and research results related to emergencies. Relay the findings, knowledge, and sets of practices to network partners in the emergency crisis system to develop policy recommendations.

5) Revise and improve emergency management laws to reduce legal loopholes. Allocate operations budgets and streamline procedures to align with emergency situations.

6) Develop an emergency health management system that aligns with the national strategies of the Ministry of Public Health and National Institute for Emergency Medicine:

- Develop operations for emergency management by conducting a Gap Analysis of the Emergency Medical Act, B.E. 2551 (2008), Section 28 (1), to enhance the capabilities of emergency command operations countrywide in triaging emergencies and providing services to patients based on the urgency of their emergency medical needs.
- Enhance the capabilities of networks countrywide to manage emergencies arising from epidemics and emerging diseases.
- Enhance access to timely and comprehensive health care during emergencies, ensuring that the population receives services equitably.
- Respond to public health emergencies rapidly by using policies and legal mechanisms to identify emergencies, quickly approve funding, streamline procurement management, and recruit staff.

7) Develop plans and systems for monitoring and assessment to ensure effectiveness and systematic connectivity, by:

- Creating Standard Operating Procedures (SOPs) and management strategies for mobilizing resources at the national and international levels, including conducting regular drills using such SOPs.
- Creating a coordination protocols and data recording system for EMTs on a national centralized platform, with annual orientation and review sessions on platform usage.
- Conduct annual surveys and maintain a registry of experts in significant diseases and health hazards.

8) Support local Emergency Operations Centers to operate in a unified, systematic manner in integrating emergency response drills with relevant agencies (in both health and non-health networks). Implement modern technologies and appropriate digital platforms to respond to public health emergencies and monitor the execution of all missions. Improve financial and procurement regulations to support public health emergencies.

9) Develop a support plan with monitoring and evaluation as specified, to ensure sustainable funding after a pandemic. Prepare work and budget plans and integrate them into the annual operating plans of relevant agencies, such as the Department of Disaster Prevention and Mitigation, the Department of Medical Services, NIEM, among others.

10) Develop Emergency Operations Centers (EOCs) to prepare for emergencies and manage risks, by:

- Implementing digital information systems to manage national and international public health EOC operations.
- Establishing national task forces as central commands for emergency crises, and coordinating bodies for related agencies, to ensure alignment in procedures, budgeting, personnel, and legal compliance.

11) Develop an All-Hazards Plan (AHP), Hazard-Specific Plans (HSPs), a Surge Capacity Plan for medical and public health resources, a BCP, and an Incident Action Plan (IAP). Conduct drills for the IAP and utilize the Incident Management System (IMS) to prepare responses to emergencies caused by communicable diseases and all health hazards. Enhance preparedness for events resulting from CBRNE incidents within the existing health emergency management system. This involves the formal participation of experts and various institutions related to these issues, and the compilation of medicines, medical supplies, and medical equipment repositories from various institutions.

12) Create and improve guidelines and measures related to medical and public health resources to support operations during emergencies. Establish collaborative networks with the private and public sectors by integrating drills among the public, private organizations, and relevant private sectors concerning public health emergencies. Enhance national and international disease surveillance and monitoring systems for health hazards. Create a public health emergency alert system, including establishing collaboration with telecommunications service providers.

13) Integrate collaboration with the Ministry of Education to include knowledge and preparedness for diseases and health hazards in public health emergencies into the primary education curriculum. Create tools for self-management to prevent accidents from the daily activities of young children (such as drowning). Develop self-rescue skills and adjust attitudes toward risk awareness related to public health emergencies based on environmental contexts. Establish a policy requiring children to know how to swim to attend school.

14) Enhance monitoring of the preparedness measures implemented at the local level. Strengthen interministerial collaboration. Increase the number of training sessions and drills to prepare for disasters at the local level across the country.

15) Create innovations for public health emergency alerts accessible to all age groups through various platforms, such as LINE, SMS, email, among others. Promote knowledge and preparedness for responding to diseases and health hazards during emergencies in primary education curricula.

16) Establish a formal framework for public health emergency research, including financial and operational mechanisms. Prioritize operational research on health emergency risk management and related fields. Assess and prepare strategic documentation for rapid Institutional Review Board (IRB) approval during public health emergencies.

Strategy 2: Increase the efficiency in linking public health agencies and security agencies to develop a highly effective integrated joint operations system and ensure continuous development.

Measures and Guidelines

1) Strengthen the integration and cooperation between public health and security agencies by establishing a database connecting both sectors, to facilitate developing practices and policy recommendations for relevant agencies.

2) Accelerate development of a seamless and highly efficient multi-agency linking system. Enhance the potential of public health and security personnel to understand their roles and responsibilities during emergencies and align with leading national operational standards.

3) Identify the stakeholders involved in public health emergency response operations, such as prevention, detection, and response actions across various government agencies (public health, animal health, security, agriculture, chemicals, radiation). Assess the risks of significant biological, chemical, and radiological incidents nationwide.

4) Develop a connected database system that shares information on risks and health threats with relevant agencies. Train personnel in collaborative risk assessment through application of the database system. Share information on health threats and conduct joint trainings for public health, security, and other relevant agencies.

5) Establish a classified information-sharing system for both public health and security agencies to ensure unified and coordinated operations. Ensure swift and timely responses to incidents in collaboration with relevant agencies.

6) Conduct joint health-related security incident response training, focusing on exchanging information between public health and security agencies to minimize discrepancies during real-life situations and changes in personnel. Foster long-term collaboration by developing emergency security response guidelines that are accessible and ready for use by all sectors, especially private partners and the public. Ensure continuous and comprehensive involvement.

7) Enhance continuity in emergency health response operations by developing an operations manual aligned with standard procedures, to be reviewed every 2 years. Strengthen the expertise of personnel responding to disasters by developing specialized training programs and implementing a coaching system based on the best practices of other countries. Seek regional and global collaboration to conduct joint exercises on international health emergency responses.

8) Develop mechanisms to monitor, detect, and manage the spread of fake news on social media. Conduct information operations (IO) to reduce public confusion and panic when national emergencies occur. Create a plan to prevent and respond to cyberattacks targeting confidential databases shared by public health and security agencies.

9) Promote formal, ongoing collaboration and coordination among public health and security agencies in all relevant organizations, and at all operational levels. Include integrated health emergency response plans and annual budgets in the operations/government plans of every such organization.

10) Develop a manual/guideline for emergency management that covers collaboration among public health and security agencies. Review the manual every 1-2 years, and test procedures through Tabletop Exercises (TTXs) and Field Training Exercises (FTXs).

11) Coordination between public health and security agencies is carried out in the form of a committee, with regular reviews and meetings to ensure updates. Such collaboration is promoted by security agencies at various levels of emergency management. Integrated mechanisms have been established between public health and security agencies in enforcing interconnected border control (customs) laws during suspected or confirmed biological, chemical or radiological incidents, in line with international best practices.

12) Develop a plan to procure the necessary resource support from international organizations and partner country networks, to enhance the country's public health system and ensure it meets international standards.

13) Create documentation for the joint program/training plans at national and international levels on public health, animal health, and security agencies to determine the training direction and compile an all-hazards knowledge base. Establish a system for sharing and reporting risk assessment information at all levels. Assess the exchange of health hazard databases among agencies to ensure efficiency and timeliness.

14) Develop a centralized website to support emergency responses, accessible and usable by all relevant agencies, to respond to health, animal health, and security emergencies, with legal mechanisms to ensure unified enforcement.

15) Establish a full-time emergency response agency that integrates the works of all units, serving as the single agency responsible for responding to emergencies at all levels (national, provincial, district, and sub-district).

16) Enhance the emergency and health hazard response system at national and international levels. Establish a dedicated central agency for 24/7 national and international emergency and health hazard monitoring, by:

- Developing specialized expertise and specialists for every threat.
- Establishing a database of experts for each health hazard.
- Developing an international emergency response team.
- Establishing a central agency as the command center for responding to health emergencies.

17) Create an innovation database of experts, with a centralized platform for reporting and presenting the information needed to respond to emergencies. All relevant agencies should be able to access this.

Strategy 3: Raise the quality of health service provision to support and develop the requirements that benefit public health.

Measures and Guidelines

1) Review and develop comprehensive national medical practice guidelines for diseases and health hazards, which are essential for providing and accessing emergency health services in a timely manner. Impart knowledge to medical personnel on clinical guidelines for diseases and health hazards through the regular education system. Provide ongoing reviews of such knowledge to personnel.

2) Develop a Business Continuity Plan (BCP) that covers effective planning management of storage and supply chains at all health facility levels, by strengthening production and maintaining a centralized emergency backup storage system. Update legal regulations to facilitate importation of the essential equipment and tools needed for responding to health emergencies. Establish a system for selecting, procuring, and stocking medications according to the clinical guidelines, to ensure that backup medications are available.

3) Promote the creation and development of necessary digital knowledge and innovations in communities, covering all age groups, especially vulnerable groups, by using technology to provide better access to medical care.

4) Promote health literacy and provide health services, medical treatment, and mental health support for migrant workers, refugees, and frontline medical personnel. Establish human resource management systems to enhance healthcare personnel capacity.

5) Strengthen the Public Health Economics Division, and accredit health insurance systems and reimbursement plans for struggling migrants and undocumented laborers.

6) Strengthen all levels of service units to prepare them in providing comprehensive, equitable, and safe public services, by formulating policies, planning, reviewing, assessing, and continuously improving the potential of such units.

7) Develop systems and mechanisms for managing individual diseases and cases, incorporating standard operating procedures for routine work, and including them in annual operating plans and budgets. Ensure regular reviews and testing. Strengthen government, private sector, expert, and public networks, by fostering continuous academic collaboration, conducting joint research, and strengthening medical service provider and pre-hospital emergency medical service networks, (including private sectors, foundations, and volunteer organizations).

8) Establish a network of academic experts and working personnel to continuously review and update disease and health hazard management, covering all health hazards. Strengthen emergency response operation centers by training staff and relevant personnel on their roles and responsibilities. Develop Operating Procedures (SOPs) as guidelines, and conduct regular practice drills.

9) Develop a continuity plan for health service units at all levels (primary, secondary, and tertiary) by incorporating it into annual government operating plans and budgets. Ensure continuous monitoring and evaluation.

10) Establish collaboration or agreements with medical supply manufacturers to serve as sources of reserve equipment. Utilize mechanisms to promote domestic business investment in manufacturing the tools and equipment necessary for responding to health emergencies. Enhance logistics capabilities for essential medical supplies, including cold chain management and transportation, by collaborating with manufacturers and transporters at the sub-regional level.

11) Develop a digital platform for Personal Health Information (PHI) to ensure continuity in health services, by converting hospital data into personal health information for the public.

12) Establish a 24/7 emergency response operations unit capable of handling all types of domestic and international emergencies. Equip this unit with mechanisms or backup systems to enhance its potential in supporting service unit response to emergencies or health crises.

13) Strengthen the capacity of emergency preparedness, ensure service continuity, and strengthen medical personnel, by:

- Strengthening primary care facilities through the Three Doctors system, to maintain essential health services and respond to the public health needs of the population during public health disruptions.
- Reviewing and enhancing logistics capabilities for essential medical supplies, including storage, cold chain management, and transportation, with a focus on sub-regional health facilities and developing the potential of local production.

14) Develop applications to communicate critical information to at-risk populations and respond to emergencies. Create tools to detect and communicate health emergencies, such as smart streetlights equipped with environmental sensors to detect various hazards (e.g., rising water levels, strong winds, high temperatures, toxic gases), 180-degree real-time cameras with speakers and colored lights, and emergency management teams to communicate information (e.g., safe evacuation routes) to the public.

15) Develop analytical maps to identify hazardous locations, the number of affected individuals, and necessary responses. This aids in managing emergencies through all four stages: prevention, preparedness, response, and recovery. In-depth GIS modeling helps public health leaders create predictive data and assessments, which can lead to more effective emergency preparedness and targeted recovery strategies.

National Action Plan for Health Security (NAPHS)
Action Plan 2: To improve the efficiency of health service provision according to the IHR in all aspects, promoting high effectiveness and maximum benefit to public health development.

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 1: Medical and public health Emergency Operations Center for managing all disease and health hazard incidents.									
1) Establish a working group according to the Incident Command System. 2) Manage the medical and public health EOC for all diseases and health hazards, monitoring, communication, direction, and response to incidents. 3) Manage the working group to plan for preparedness and assign tasks for operating the medical and public health EOC, for all diseases and health hazards.	1) Measures and directives for medical and public health EOCs. 2) Summary of medical and public health EOC operations.	Division of Public Health Emergency Management	15,708,000 (Ministry of Public Health)	3,141,600	3,141,600	3,141,600	3,141,600	3,141,600	
Project 2: Develop risk communication and public relations networks for medical and public health emergencies.									
1) Develop risk communication and public relations networks at health district and provincial levels. 2) Create courses on risk communication and public relations during emergencies. 3) Develop the potential of partner network agencies using courses on risk communication and public relations during emergencies.	- There are risk communication and public relations networks to handle emergencies in real time at all levels. - There are courses on risk communication and public relations during emergencies.	Division of Public Health Emergency Management	3 (Ministry of Public Health)	0.6	0.6	0.6	0.6	0.6	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
4) Study and develop risk communication and public relations practices during emergencies to serve as a learning center.									
Project 3: Promote the public's adaptation to sustainable preparedness for public health emergencies.									
1) Conduct workshops to strengthen and integrate public community network skills in sanitation, hygiene, and environmental health management, to further reduce health risks in disasters. 2) Conduct on-site visits to create collaborative mechanisms for assessing health risks and developing community plans, toward public health emergency preparedness. 3) Support demonstration projects to address sanitation, hygiene, and environmental health issues in the public sector to reduce the health risks of public health emergencies.	Percentage of public health sector agencies promoting sanitation, hygiene, and environmental health management to prepare the public and communities for public health emergencies. 30%	Department of Health (Division of Health Emergency Management, Department of Health)	2,578.00 (Ministry of Public Health)	-	2,578.00	-	-	-	
Project 4: Develop an ambulance safety system.									
1) Activities for screening the number of hospitals under the Office of the Permanent Secretary, Ministry of Public Health. 2) Activities for awarding certificates of appreciation to	1. Conduct an assessment of the use of manuals, ambulance standards, and operational processes by the Ministry of Public Health, across	Division of Public Health Emergency Management	439,700 Ministry of Public Health	87,940	87,940	87,940	87,940	87,940	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
model provinces that meet ambulance safety standards set by the Ministry of Public Health across 12 health regions. 3) Activities for assessing the use of manuals, ambulance standards, and operational processes for safe patient transfers. 4) Activities to prepare for the assessment of the use of ambulance standard manuals, ambulances, and operational processes for safe patient transfers. 5) Preparatory activities for evaluation of the use of the standard ambulance manual and work processes for safe patient transfer. 6) Activities to review documents resulting from the assessment of the use of manuals, ambulance standards, and operational processes to ensure safe patient transfers across 76 provinces. 7) Activities for summarizing project results.	76 provinces, to ensure safe patient transfers. 2. Provide reports on the project's operational results.								

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 5: Develop a road safety system for the Ministry of Public Health for fiscal years 2023 – 2027.									
	1) Implement operating plans for preventing and reducing road accident injuries and fatalities at the central and regional levels of the Ministry of Public Health. 2) Implement operational processes to drive the post-accident response plan (in medical and public health aspects) at the provincial level. 3) Collect data on injuries and fatalities from road accidents at the local level. 4) Provide reports on the operational results of developing road safety systems according to the post-accident response plan at the provincial level.	Division of Public Health Emergency Management	764,150 (Ministry of Public Health)	152,830	152,830	152,830	152,830	152,830	
Project 6: Develop a national emergency medical system to ensure that all emergency patients can access services and receive emergency operations that meet international quality standards throughout the emergency operation chain, both inside and outside of healthcare facilities, ensuring equitable and comprehensive service provision across all areas and target groups in normal and disaster situations.									
1) Develop a management plan for an emergency medical system that supports national disasters and crises, including preparedness for emerging and recurring diseases. Develop a Business	1) There is a management plan for an emergency medical system that supports national disasters and crises, including preparedness for	- NIEM - Ministry of Public Health - Ministry of Interior	12.5 Bureau of the Budget	2.5	2.5	2.5	2.5	2.5	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Continuity Plan (BCP) for crisis preparedness in the emergency medical system. 2) Promote and develop emergency medical standards covering all areas (practitioners, operations units, and healthcare facilities). - Manage practitioners to ensure that an adequate number of appropriately skilled personnel are distributed across all areas. - Develop operations units to meet standards, ensuring they are sufficient and distributed equitably across all regions. - Enhance operations units to maintain quality and support emergency operations throughout the service chain. 3) Manage emergency operating systems to meet standards, provide high quality, and seamlessly integrate inside and outside healthcare facilities effectively and equitably during normal and disaster situations. - Enhance the capacity of command units to integrate with the national Emergency Call Number and connect with higher-level operations units and advisors.	emerging and recurring diseases, and to develop a BCP for crisis preparedness in the emergency medical system. 2) Percentage of practitioner production and development according to the workforce demand plan (70%). 3) Number of provinces with medical operations units distributed to cover standardized operations in all areas (all provinces). 4) Percentage of operations units certified for quality according to the specified criteria (TEMSA) (70%). 5) Number of provinces with a classification of emergency level below the required level (in all provinces).								

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
- Promote and support the management of emergency operating systems for all operations units to ensure that they are standardized, comprehensive, and equitable *in every area.* - Connect and enhance the quality of emergency operations outside, within, and between healthcare facilities, ensuring that all emergency patients receive timely, safe, and specialized treatment in normal and disaster situations.									
Project 7: Develop integrated management mechanisms for medical and public health emergency management.									
1) Organize government meetings to prepare for implementation of the project, to develop integrated management mechanisms for medical and public health emergency management. 2) Establish an Incident Command System (ICS) structure for medical and public health emergencies. 3) Create documentation of compiled information on the ICS for medical and public health emergencies. 4) Conduct workshops for training and practicing medical and public health emergency management at	1) Conduct training drills for medical and public health management under the Incident Command System. 2) There is an updated manual for medical and public health EOCs (revised version). 3) Conduct ongoing development of the EOC.	Division of Public Health Emergency Management	4,076,000 Ministry of Public Health	815,200	815,200	815,200	815,200	815,200	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
the provincial level (with funds transferred to local areas). 5) Conduct workshops to train and practice medical and public health management under the medical and public health EOCs ICS. 6) Conduct workshops to train and improve personnel in developing EOCs (using the EOC Assessment Tool) for central public health agencies. 7) Conduct trainings in the ICS 100 course to enhance personnel potential . 8) Improve the medical and public health EOC manual. 9) Assess the central EOC (using the EOC Assessment Tool). 10) Conduct workshops to train personnel in developing EOCs (using the EOC Assessment Tool) at the health district and provincial levels. 11) Provide locations for local areas to conduct EOC assessments (using the EOC Assessment Tool). 12) Conduct on-site visits to monitor EOC operations at the health district and provincial levels (using the EOC Assessment Tool).									

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 8: Emergency Support Functions (ESF)									
1) Emergency Support Function (ESF)	Provide an Emergency Support Function (ESF) 8 plan: Medical and Public Health Division.	Division of Public Health Emergency Management	0.5 Ministry of Public Health	0.1	0.1	0.1	0.1	0.1	
Project 9: Develop a resource management system to support the management of medical and public health emergencies.									
1) Define and categorize emergency resources. 2) Create guidelines for managing medical and public health resources during emergencies. 3) Disseminate guidelines among relevant agencies on managing medical and public health resources during emergencies. 4) Survey platforms are used to collect resource data from partner agencies and healthcare facilities nationwide. 5) Analyze surveyed platforms to identify data linkage points for a centralized platform accessible and usable by everyone. 6) Link data to the national central platform. 7) Disseminate the data on the emergency medical and public health resource platform among relevant agencies.	A central digital platform for exchanging and linking medical and public health resource data for resource management during national emergencies.	Division of Public Health Emergency Management	0.475 (Ministry of Public Health)	0.95	0.095	0.095	0.095	0.095	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 10: Develop a disaster surveillance system to prepare for and support effective decision-making, for medical and public health emergency management.									
1) Develop an information system for surveillance, situation assessment, reporting, and warnings, linking all medical and public health operations for effective emergency and disaster planning and management. 2) Create and develop a curriculum on disaster surveillance in all five areas of medicine and public health, for medical and public health emergency management personnel. 3) Strengthen the capacity of the medical and public health disaster surveillance network to respond effectively to medical and public health emergency management mechanisms. 4) Strengthen research/development of knowledge and innovation for managing the risks of medical and public health disasters, based on the local context. 5) Monitor and study the assessment model of the local medical and public health disaster surveillance mechanism as a model for medical and public health disaster surveillance.	1) An efficient situation assessment and surveillance system. 2) A curriculum for medical and public health disaster surveillance. 3) A trained network for medical and public health disaster surveillance, following established guidelines. 4) Research, knowledge, and innovation in disaster risk management. 5) A model for medical and public health disaster surveillance operations.	Division of Public Health Emergency Management	10.5 (Ministry of Public Health)	2.1	2.1	2.1	2.1	2.1	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 11: Develop network cooperation and strengthen medical and public health disaster management in the ASEAN region and internationally.									
1) Organize an international meeting of the working group on medical and public health disaster management. 2) Organize an international cooperation network meeting to advance the Action Plan, toward implementing the ASEAN Leaders' Declaration on Disaster Health Management. 3) Organize a meeting to drive operations under the project to support and strengthen medical and public health disaster management in the ASEAN member countries' network. 4) Organize a meeting on integrating public health management at the ASEAN and international levels. 5) Hire foreign relations/language translation services. 6) Organize a meeting of International Committee on Medical and Public Health Disaster Management.	1) ASEAN and international committees, and working groups, on disaster management. 2) Standard Operating Procedures (SOPs) for the secretariat, to coordinate international cooperation in medical and public health management during disasters. 3) Register of coordinators and networks under the framework of international cooperation, for medical and public health management during disasters. 4) Framework for ASEAN-level coordination under the project supporting the strengthening of medical and public health disaster management in the ASEAN member countries' network. 5) Results/activities supporting the secretariat of the Regional Coordination Committee on Disaster Health Management.	Division of Public Health Emergency Management	4,125,540 (Ministry of Public Health)	825,018	825,018	825,018	825,018	825,018	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 12: An integrated and comprehensive medical and public health emergency management training plan, with network partners who develop maritime public health medical evacuation capabilities (for provinces in the Lower Gulf of Thailand).									
	1) Integration and coordination of medical practices and marine public health practices of the relevant integrated agencies. 2) Integrated training and coordination among relevant agencies and network partners, including data, resources, personnel, and guidelines for every agency involved in integrated medical and public health training.	Division of Public Health Emergency Management	3,443,080 (Ministry of Public Health)	688,616	688,616	688,616	688,616	688,616	
Project 13: Develop capabilities and practices for the integrated and comprehensive medical and public health emergency management plans with network partners.									
1) Six provinces in the Andaman Sea region: Ranong, Phang Nga, Phuket, Krabi, Trang, and Satun. 2) Ten provinces in the Upper Gulf of Thailand region: Prachuap Khiri Khan, Phetchaburi, Samut Songkhram, Samut Sakhon, Samut Prakan, Chonburi, Chachoengsao, Rayong, Chanthaburi, and Trat. 3) Ten provinces in the Upper Gulf of Thailand region: Prachuap Khiri Khan, Phetchaburi,	1) Integration and coordination guidelines for medical and maritime public health practices of relevant integrated agencies. 2) Integrated training and coordination among relevant agencies and network partners, encompassing data, resources, personnel, and guidelines for every agency's integrated medical and public health training.	Division of Public Health Emergency Management	3,443,080 (Ministry of Public Health)	688,616	688,616	688,616	688,616	688,616	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Samut Songkhram, Samut Sakhon, Samut Prakan, Chonburi, Chachoengsao, Rayong, Chanthaburi, and Trat. 4) Six provinces in the Lower Gulf of Thailand region: Chumphon, Surat Thani, Nakhon Si Thammarat, Songkhla, Pattani, and Narathiwat. 5) Six provinces in the Lower Gulf of Thailand region: Chumphon, Surat Thani, Nakhon Si Thammarat, Songkhla, Pattani, and Narathiwat.									
Project 14: Develop a network for emergency response plans.									
1) Conduct emergency response plan exercises with the network (within and outside the Ministry of Public Health).	1) Relevant personnel and the network participating in plan exercises are prepared to respond to public health emergencies annually.	Division of Disease Control in Emergency Situations	1 (Department of Disease Control and non-budgetary funds)	0.2	0.2	0.2	0.2	0.2	
Project 15: Strengthen public health emergency management (SMART PHEOC).									
1) Develop an EOC Assessment Tool.	Regional, provincial, and central Department of Disease Control units have been developed to ensure emergency response readiness according to international standards, following the basic data collection template for planning the	Division of Disease Control in Emergency Situations	1 Allocated from the Department of Disease Control and non-budgetary funds.	0.2	0.2	0.2	0.2	0.2	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
	development of Emergency Operations Centers (EOCs), for provincial and regional public health agencies (EOC Assessment Tool).								
Project 16: Develop and disseminate treatment guidelines for emerging and re-emerging infectious diseases.									
1) Review clinical practice guidelines for key emerging and re-emerging infectious diseases. - Dengue Hemorrhagic Fever - Tuberculosis - COVID-19 - Rabies - Influenza and Avian Influenza - Other emerging and re-emerging infectious diseases.	- Timely response guidelines for emerging and re-emerging infectious diseases. - Mortality rates from emerging and re-emerging infectious diseases do not exceed 10%.	Department of Medical Services Department of Disease Control Department of Medical Sciences	13 Operating Budget	2	2	3	3	3	
2) Transfer knowledge, clinical practice guidelines, diagnosis, treatment, and control of emerging and re-emerging infectious diseases.	- Personnel receive knowledge transfers exceeding 85%.		10 Operating budget	2	2	2	2	2	
Project 17: Prepare healthcare facilities at various levels for risks and health hazards.									
1) Develop a Business Continuity Plan (BCP) for healthcare facilities to respond to crises arising from diseases and health hazards.	- Healthcare facilities at all levels have a BCP to address diseases and health hazards based on their specific context. - Each health region has its own BCP. - The BCP covers all health hazards.	- Division of Public health Emergency Management - Department of Medical Services - Department of Disease Control	10 Operating Budget	2	2	2	2	2	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
		- Department of health Service Support							
2) Develop Hazard-Specific Plans (HSPs) covering all health hazards.	- Healthcare facilities at all levels have HSPs to address diseases and health hazards based on their specific context. - Each health district has its own HSP. - The HSP covers all health hazards.	- Division of Public health Emergency Management - Department of Medical Services - Department of Disease Control - Department of health Service Support	12 Operating budget	-	3	3	3	3	
3) Conduct training exercises on the Business Continuity Plan and incident response plan at various levels: - Healthcare facility level - Provincial level - Health region level - National level	- Regular and continuous VTX, TTX, CPX, or Drill exercises, are conducted at least once annually.	- Division of Public health Emergency Management - Department of Medical Services - Department of Disease Control - Department of health Service Support	16 Operating budget	-	4	4	4	4	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 18: Develop a resource and supply chain management system and a central reserve system for medicines and medical supplies during emergencies.									
1) Develop a database system for medicine and medical supply inventory at the healthcare facility level, linked to health districts nationwide.	- A nationwide database system for medicine and Medical supply inventory is in place.	- Division of Public health Emergency Management - Health Administration Division - Government Pharmaceutical Organization - Food and Drug Administration	14 Operating Budget	-	5	3	3	3	
2) Develop a reserve system for medicines and medical supplies, and emergency supply chain management.	- A reserve system for medicines and Medical supplies during emergencies is in place. - A system for supporting The supply chain during emergencies is in place.	Division of Public Health Emergency Management Health Administration Division Government Pharmaceutical Organization Food and Drug Administration	14 Operating Budget	-	5	3	3	3	
3) Support collaboration and establish Memoranda of Understanding (MOUs) with various agencies for research, development, innovation, and invention of medicines and other products, to respond to infectious disease emergencies and disasters.	- Memoranda of Understanding are signed. - Number of inventions and innovations to Support disaster response.	Department of Medical Services Department of Intellectual Property	20 Operating Budget	-	5	5	5	5	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 19: Develop the capacity of healthcare facilities to prepare for crises resulting from emergencies and disasters.									
1) Develop the capacity of hospital personnel to prepare for crises resulting from emergencies and disasters (Hospital Preparedness for Emergencies and Disasters, HOPE).	- Personnel/hospitals are developed to prepare for crises resulting from emergencies and disasters. - Regional Hospitals: 100% - General/Community Hospitals: 85%	Department of Medical Services Division of Public Health Emergency Management	12 Operating budget	-	3	3	3	3	
2) Develop a hospital capacity assessment tool for disasters and various emergencies using the Hospital Safety Index (HSI) Checklist.	- 90% of healthcare facilities conduct capacity assessments using the HSI.	Department of Medical Services Division of Public Health Emergency Management	8 Operating budget	-	2	2	2	2	
3) Develop the Hospital Incident Command System (HICS).	- 90% of healthcare facilities receive HICS training and knowledge transfer.	Department of Medical Services Division of Public Health Emergency Management Department of Disease Control	12 Operating budget	-	3	3	3	3	
Project 20: Develop a disease/case management system.									
1) Develop a consultation system for specialized patient care, linking specialists and healthcare facilities.	- A consultation system is in place for complex cases, linking specialists and providing referrals. - Disease-specific Mortality rates decrease.	- Department of Medical Services	4 Operating budget	-	1	1	1	1	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
2) Review the causes of death to inform research and adjust diagnosis, treatment, and disease control guidelines.	- Causes of death for treated patients are reviewed.	- Department of Medical Services	4 Operating budget	-	1	1	1	1	
3) Develop a network of experts for various diseases and health hazards.	- Collaboration among experts in academic institutions and practitioners. - An up-to-date expert database is available.	- Department of Medical Services - Division of Public health Emergency Management - Network of Medical Education Institutes	8 Operating budget	-	2	2	2	2	
Project 21: Develop a seamless emergency medical service system and referral network.									
1) Develop and strengthen command centers, ensuring clarity of roles and responsibilities, and develop Standard Operating Procedures (SOPs) for practice and training.	- Provincial command centers are developed and operate at an efficiency exceeding 95%.	- Department of Medical Services - Division of Public health Emergency Management - Institute for Emergency medicine	14 Operating budget	-	3	3	4	4	
2) Develop and strengthen the Emergency Operations Center (EOC), establishing SOPs for practice and training.	- The EOC has comprehensive SOPs covering all disaster operations.	- Department of Medical Services - Division of Public health Emergency Management	14 Operating budget	-	2	3	4	5	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
3) Develop financial mechanisms for the Division of Health Economics, including certification of the universal health coverage system and reimbursement processes for migrants, undocumented workers, and disaster victims with other healthcare rights.	- A flexible disbursement system covers all patients, regardless of Healthcare coverage. - A convenient disbursement system is in place. - A complete and non-redundant data transfer system is in place.	- Division of health Economics - National health Security Office - Institute for Emergency medicine - Social Security Office - Comptroller General's Department	12 Operating budget	-	3	3	3	3	
Project 22: Develop emergency medical teams at various levels, operating 24/7 and capable of responding to all disasters, domestically and internationally.									
1) Develop a Comprehensive Life Support system for medical treatment during normal and emergency situations.	- The comprehensive Life Support system is implemented in Healthcare facilities. - The mortality rate for critical level 1 emergency patients in emergency room,within 24 hours of admission, does not exceed 10%.	- Department of Medical Services - Division of Public health Emergency Management	12 Operating budget	-	3	3	3	3	
2) Develop Mini Medical Emergency Response Teams (Mini-MERTs) at the district level.	- Mini-MERTs are operational in every district.	- Department of Medical Services - Division of Public health Emergency Management - Provincial Public health Offices	20 Operating budget	-	5	5	5	5	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
3) Develop Medical Emergency Response Teams (MERTs).	- MERTs are operational in every province.	- Department of Medical Services - Division of Public health Emergency Management - Provincial Public health Offices	20 Operating budget	-	5	5	5	5	
4) Develop Thailand Emergency Medical Team (EMT) Type 2 in accordance with World Health Organization (WHO) standards.	- The Thailand EMT was certified as EMT Type 2 by the WHO in 2024.	- Department of Medical Services - Division of Public health Emergency Management - Department of health - Department of Disease Control - Department of health Service Support - National Institute for Emergency medicine - Thai Red Cross Society - Ministry of Defence - Ministry of Interior - Ministry of Foreign Affairs	50 Operating budget	-	20	10	10	10	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 23: A Digital Personal Health Record (PHR) platform for continuity of healthcare services during emergencies.									
1) Develop an emergency health information platform linked to personal health information.	- Citizens receive continuous care during emergencies.	- Department of Medical Services - Division of Public health Emergency Management - Information Technology and Communication Center, Office of The Permanent Secretary - Ministry of Digital Economy and Society	34 Operating budget	-	10	8	8	8	
Project 24: Develop information and Geographic Information Systems (GIS) for decision-making.									
1) Develop a GIS to create analytical maps identifying hazard locations, the number of people affected, and necessary responses.	- A nationally applicable Geographic Information system (GIS) is in place.	- Department of Medical Services - Division of Public health Emergency Management - Information Technology and Communication Center, Office of The Permanent Secretary	36 Operating budget	-	10	10	8	8	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
		- Ministry of Digital Economy and Society							
2) Creating in-depth GIS models can help public health leaders generate predictive data and assessments, leading to more effective targeted emergency preparedness and recovery strategies.	- Models are used for decision-making and situation resolution.	- Information Technology and Communication Center, Office of The Permanent Secretary - Ministry of Digital Economy and Society - Department of Medical Services - Division of Public health Emergency Management	20 Operating budget	-	5	5	5	5	
3) Develop information displays for executive decision-making during emergencies.	- An Information display system for decision-making is in place.	- Information Technology and Communication Center, Office of The Permanent Secretary - Ministry of Digital Economy and Society	20 Operating budget	-	5	5	5	5	

Project/Key Activities of the Project	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
		- Department of Medical Services - Division of Public health Emergency Management							

ACTION PLAN 3:
DEVELOP A SURVEILLANCE SYSTEM FOR DISEASE CONTROL AND HEALTH HAZARD MANAGEMENT TO SUPPORT NATIONAL HEALTH DEVELOPMENT AND IMPLEMENTATION OF INTERNATIONAL HEALTH REGULATIONS.

1. Objectives

1) To enhance surveillance, warning, and health risk management capabilities to be highly effective and aligned with international standards.

2) To increase the country's capacity to manage zoonotic diseases effectively and safely, in a sustainable manner.

3) To promote and support research and development, building knowledge and innovation in food safety to support development in accordance with International Health Regulations and the needs of the national public health system.

4) To strengthen the capacity of public health service provision, ensuring that people of all ages receive timely and comprehensive immunization, aligned with the national health situation and international standards.

2. Objectives, Indicators, and Target Values

Strategic Objectives (Goals)	Indicators (Responsible Person)	Past Performance	Target Value				
			2023	2024	2025	2026	2027
1) Strengthen the Early Warning System (EWS) to detect public health and health security events; ensure high flexibility, currency, and timeliness for crisis response using artificial intelligence.	D.2.1 Early warning surveillance function: Early warning surveillance performance score	4	5	5	5	5	5
	Percentage of progress in developing the One Big Data database linkage system, including AI data analysis	N/A	25	50	75	100	100
	The developed system supports the reporting of emerging infectious diseases	N/A	No	Yes	Yes	Yes	Yes
	Number of agencies participating in network-building workshops and continuing operations according to the development plan	4	6	7	8	9	10
	Percentage of provinces with citizen disease reporting capacity-building projects	N/A	30	40	70	80	90

Strategic Objectives (Goals)	Indicators (Responsible Person)	Past Performance	Target Value				
			2023	2024	2025	2026	2027
2) Reported data/events are accurate and timely. Improve interagency communication and collaboration at all levels for surveillance of important public health events, including strengthening data exchange and reporting systems, and develop citizen and network capacity for timely disease reporting.	D.2.2 Event verification and investigation: Event verification and investigation scores	5	5	5	5	5	5
	Percentage of progress in developing a flexible event-based surveillance system for efficient emerging infectious disease reporting and comprehensive multi-dimensional data analysis (e.g., spatial analysis, data visualization)	N/A	25 The system is developed by creating/ implementing a program to extract data from existing communication systems (e.g., LINE, telephone)	50 1) Pilot implementation with prepared provincial agencies 2) Evaluate implemented operations	75 1) Pilot implementation with prepared provincial agencies 2) Evaluate implemented operations	100 Improve and expand system implementation	100 Expand implementation nationwide
	Percentage of diseases meeting surveillance and investigation criteria reported to the event-based system and investigated within 24 hours	N/A	75	80	85	90	95
	Number of personnel in all relevant agencies trained annually in disease control guidelines	N/A	80	100	150	150	150
3) Enhance national and regional data analysis capacity, including epidemiological, clinical, laboratory, environmental monitoring, product safety and quality, and bioinformatics data. Develop core surveillance capacity in accordance with IHR, displaying and disseminating the data analysis results.	D.2.3 Analysis and information sharing: Analysis and information sharing score	5	5	5	5	5	5
	Percentage of data analyzed, shared, and linked with the relevant network agencies	N/A	50	55	60	65	70
	Percentage of relevant agencies with advanced data analysis capabilities	N/A	30	50	70	90	95
	Percentage of data analysis experts per agency	N/A	10	15	20	30	50

Strategic Objectives (Goals)	Indicators (Responsible Person)	Past Performance	Target Value				
			2023	2024	2025	2026	2027
	The developed system supports the reporting of emerging infectious diseases	No	No	Yes	Yes	Yes	Yes
4) Establish multi-sectoral, multidisciplinary mechanisms, policies, systems, and practices, to minimize zoonotic disease transmission.	P.5.1 Zoonotic Disease Surveillance: Zoonotic disease surveillance scores	4	4	4	5	5	5
	Joint review of the zoonotic disease surveillance system/integrated surveillance system exists	N/A	Yes	Yes	Yes	Yes	Yes
	P.5.2 Responding to Zoonotic Diseases: Zoonotic disease outbreak response scores	4	4	4	5	5	5
	Inter-sectoral collaboration exists for outbreak response (e.g., joint investigations, data sharing, risk assessment)	N/A	Yes	Yes	Yes	Yes	Yes
	Integrated, inter-sectoral zoonotic disease outbreak response plan exercises or reviews/evaluations are conducted						
	P.5.3 Sanitary Animal Production Practices: Sanitary animal production practices scores	5	4	4	5	5	5
	Percentage of at-risk personnel protected against the top 5 prioritized zoonotic diseases: Avian Influenza, Coronavirus, Nipah Virus, Rabies, and Ebola	50	70	80	90	100	100
5) Implement a surveillance and response system for foodborne illnesses and food contamination risks.	P.6.1 Surveillance of Foodborne Diseases and Contamination: Foodborne disease and contamination surveillance scores	4	4.3	4.5	5	5	5

Strategic Objectives (Goals)	Indicators (Responsible Person)	Past Performance	Target Value				
			2023	2024	2025	2026	2027
	Percentage of relevant agencies integrating surveillance data	N/A	85	90	95	100	100
	Percentage reduction in the population experiencing foodborne illnesses	N/A	80	85	90	95	100
	Success level in developing a foodborne and waterborne disease surveillance system integrating data across the food chain	N/A	Guidelines for inspecting and monitoring prioritized food safety risks are established.	Develop mechanisms for surveillance and data exchange with relevant agencies.	Develop an appropriate surveillance and data exchange system.	A suitable surveillance system integrating data across the entire food chain is in place.	A suitable surveillance system integrating data across the entire food chain, including timely and systematic data exchange, is in place.
6) A standardized food safety management system is in place to address future challenges and emergencies.	Level of success in conducting exercises and/or reviewing the Food Safety Emergency Response Plan (FSERP)	N/A	Update the FSERP.	Prepare for FSERP exercises.	Conduct FSERP exercises using simulations.	Review the FSERP after evaluating exercise performance.	Approve the reviewed FSERP.
7) A high-performance National Big Data central database system is in place, enabling network partners to collaborate, link data, and access information easily, conveniently, and quickly.	Success level in developing a quality, accurate, reliable, and up-to-date central database system for food safety	4	4	5	5	5	5
	Percentage of food safety data reports entered into the system	N/A	85	90	95	100	100
8) A standardized food safety management system is in place to address future challenges and emergencies. (Note: This appears to be a duplicate of point 6. Verify and remove if redundant.)	P.6.2 Response and Management of Food Safety Emergencies: Food safety emergency response and management score	4	5	5	5	5	5
	Percentage of relevant network partners participating in foodborne illness reduction activities according to their annual development plans	N/A	90	95	100	100	100

Strategic Objectives (Goals)	Indicators (Responsible Person)	Past Performance	Target Value				
			2023	2024	2025	2026	2027
9) The public receives comprehensive and timely immunization according to international standards, ensuring vaccination coverage meets the standard criteria* and protects against vaccine-preventable diseases.	P8.1 Vaccine Coverage (Measles) as part of the National Program: Measles vaccination coverage scores as part of the national program	3	4	5	5	5	5
	P8.3 Mass Vaccination for Epidemics of Vaccine-Preventable Diseases (VPDs): Polio vaccination campaign scores	5	5	5	5	5	5
10) Thailand has an efficient vaccine management system aligned with international standards, which supports disease prevention and control during normal situations and public health emergencies.	P8.2 National Vaccine Access and Delivery: National vaccine access and delivery system scores	5	5	5	5	5	5
	Percentage of health districts with standard vaccine reserves	N/A	50	65	80	95	100

3. Strategies and Measures

Strategy 1: Strengthen national integrated surveillance, warning, and health risk management capacity, linking and analyzing data and databases for high efficiency and international alignment.

Measures and Guidelines

1) Improve and develop operations under the Communicable Diseases Act B.E. 2558 (2015) and Ministry of Public Health announcements regarding surveillance and reporting data from healthcare facilities, by:

- Developing surveillance systems for dangerous communicable diseases, diseases requiring surveillance, and epidemic diseases.
- Developing action plans for disease surveillance, prevention, and control.
- Disseminating information and news related to the surveillance, prevention, and control of communicable and epidemic diseases.
- Supporting and assisting government and private agencies in implementing policies and plans for communicable disease surveillance, prevention, and control.

2) Improving and developing disease reporting systems from private healthcare providers by linking reporting systems through standardized reporting programs, methods, and data, reducing data redundancy, and implementing automated reporting.

3) Improve the reporting system for dangerous communicable diseases under the Communicable Diseases Act B.E. 2558 (2015). This includes

disseminating best practices to relevant agencies, continuously monitoring and evaluating disease reporting, and linking disease reporting data to create a current and automated reporting system integrated with all relevant agencies.

4) Establish an integrated disease reporting plan among network, public health, livestock, local administrative, service, and defense agencies. Develop a system to report patient numbers and unusual events based on established disease criteria and definitions. Analyze incoming data and trends to assess disease status and monitor outbreak potential.

5) Develop a national surveillance database system on the National Platform to detect and track early warning signals for public health and health security. Link multi-sectoral databases (e.g., laboratory and epidemiological data) within a One Big Data framework, incorporating artificial intelligence for data analysis.

6) Improve the event-based surveillance system using flexible digital technologies, to enable efficient reporting of emerging infectious diseases. Enhance data analysis capabilities across multiple dimensions, such as spatial analysis and geospatial data visualization.

7) Enhance personnel capacity at both policy and field operational levels, enabling effective development of national guidelines and context-specific operations addressing regional challenges. Increase the number of skilled data analysts across various agencies and levels, including enhancing advanced data analysis capabilities.

8) Develop a high-quality, efficient disease and health hazard warning and surveillance network to support climate change adaptation. Enhance and upgrade response systems for emerging and re-emerging diseases related to climate change, including comprehensive public health, environmental health, and preventive medicine systems. Monitor emerging and re-emerging diseases, conduct research on health promotion and disease prevention for all populations, and increase capacity to track, analyze, and assess trends in these diseases.

9) Strengthen capacity to prepare for future challenges and changes related to emerging diseases through flexible, up-to-date disease reporting systems responsive to critical situations. Expand the use of modern technologies for rapid, comprehensive, and timely operations, particularly in remote highland areas, islands, and specific regions like the southern border provinces. Improve information systems to effectively support disease reporting.

10) Develop the capacity of the Village Health Volunteer (VHV) network to reach all areas of the country. Create a village-level disease reporting manual for VHVs, and develop specialized skills in high-risk areas, ensuring that VHVs understand local conditions and can provide timely warnings of zoonotic diseases.

11) Continuously develop disease surveillance personnel, extending training to the sub-district level, to enhance surveillance, prevention, control, and investigation capacity. Increase the number of disease surveillance experts in relevant agencies, including the Ministry of Public Health, Department of Livestock Development, Local Administrative Organizations, Department of National Parks, Wildlife and Plant Conservation, and Ministry of Defence.

12) Exchange data analysis results for key national diseases (e.g., Rabies, Coronavirus, SARS, MERS, Avian Influenza) with relevant stakeholders. Develop a disease surveillance database encompassing human, animal, and environmental health, providing data for surveillance planning, prevention, and control efforts, which are used for prioritizing infectious diseases.

13) Increase investment and budget allocation to modernize data management, including developing information technology infrastructure, a comprehensive national database, and appropriate technologies for efficient data integration, analysis, and risk forecasting. Support policies and budgets for increased disease reporting from public and private healthcare facilities, as well as the animal health sector, integrating data (e.g., epidemiological and laboratory data) and supporting epidemic investigations.

14) Organize and establish national operational standards to evaluate and review disease surveillance systems, ensuring they are up-to-date and aligned with the national health situation and external environmental changes.

15) Establish a district-level spatial data integration system to develop an integrated communicable disease reporting system, incorporating District Public Health offices, Sub-district Health Promoting Hospitals, Local Administrative Organizations, the Department of Livestock Development, district-level Ministry of Defense units (where applicable), and other relevant entities.

16) Modernize data systems and develop foundational information systems for big data, utilizing appropriate technologies for integrated data analysis, including predictive modeling and risk factor analysis.

17) Promote legal enforcement of disease reporting regulations, including the Communicable Diseases Act B.E. 2558 (2015), the Animal Epidemics Act B.E. 2558 (2015), and the Occupational Disease Control Act.

18) Enhance public awareness and vigilance regarding emerging infectious diseases, and encourage prompt reporting of initial events. Establish public guidelines for mandatory initial disease reporting and provide technologies such as security cameras, thermal cameras, or other surveillance technologies capable of wide-area detection, to monitor sick individuals and animals. Develop and improve information systems using advanced technologies like remote sensing satellites.

19) Increase the use and adoption of digital technologies to improve event-based and indicator-based disease surveillance. Enhance reporting by simplifying systems and utilizing readily available technologies like mobile phones. Develop a mobile application for initial disease reporting to expand coverage, and include a warning system with alert notifications. Strengthen proactive surveillance by engaging Village Health Volunteers (VHVs), community leaders, and village leaders, in monitoring potential emerging infectious diseases.

20) Explore legal guidelines requiring individuals to report their own health status when experiencing unusual symptoms or symptoms that are consistent with emerging infectious disease surveillance definitions. Amend existing legislation to allow individuals convicted of illegal data extraction to contribute to the development of integrated disease reporting programs.

21) Enhance mechanisms for sharing surveillance data regionally and globally. Increase human resources to strengthen surveillance at the sub-regional, national, regional, and global levels by expanding district-level livestock personnel and assigning them to oversee and coordinate with Sub-district Health Promoting Hospital staff. Foster participation in the One Health multi-sectoral fund and related projects.

Strategy 2: Increase national capacity to manage zoonotic disease, ensuring standardized practices, worker and public safety, and the protection of humans and animals.

Measures and Guidelines

1) Review and revise the One Health management system at national and regional levels to ensure nationwide consistency, alignment with local contexts, and coordination of policies, operations, personnel, multidisciplinary expertise, and budgets, by:

- Strengthen and coordinate national-level multi-sectoral collaboration by establishing One Health coordination units within the Department of Disease Control, the Department of Livestock Development, and the Department of national Parks, Wildlife and Plant Conservation. Allocate appropriate human and financial resources to each sector, ensuring regular coordination of One Health activities within and between sectors.
- Expand the One Health Steering Committee to include other relevant sectors. Define the roles and responsibilities of the Steering Committee and One Health Coordinating Units.
- Establish regional One Health units and Strengthen Provincial Natural resources and Environment Offices to serve as Provincial Wildlife coordination points for One Health activities.
- Develop guidelines for inter-sectoral sharing of expertise and human resources to address urgent needs (e.g., laboratory, epidemiology, risk assessment).

2) Develop an integrated data sharing plan among agencies under the One Health approach. Create an action plan to address zoonotic disease outbreaks, prioritizing agencies responsible for human, animal, wildlife, and environmental health. Enhance network partners' preparedness for rabies and avian influenza outbreaks.

3) Develop surveillance and response capacities to reduce zoonotic disease transmission among operational personnel in relevant agencies under the One Health approach. Develop One Health knowledge resources to disseminate information and raise public awareness.

4) Develop and amend the Animal Epidemics Act B.E. 2558 (2015) to empower the appointment of a committee on zoonotic disease. This committee will establish and issue comprehensive policies to address animal epidemics, including zoonotic diseases.

5) Develop the capacity for systematic, timely, and accurate data linkage, utilizing technology and collaboration among relevant multidisciplinary agencies, under the One Health operational framework. Enhance the expertise of personnel managing zoonotic diseases by developing specialized curricula, implementing coaching and monitoring systems, and promoting learning from best practices, both domestically and internationally.

6) Enhance operational continuity for controlling zoonotic disease outbreaks by developing a standardized operations manual and conducting biennial reviews to ensure ongoing updates for personnel.

7) Develop an integrated data system that links disease surveillance and survey data across three agencies: the Department of National Parks, Wildlife and Plant Conservation; the Department of Livestock Development; and the Department of Disease Control. Utilize a trilateral digital platform to prepare for future risks from

cross-border zoonotic disease outbreaks, and monitor disease spread from seasonal migratory animals, focusing on managing key risk areas nationwide.

8) Increase incentives for personnel involved in zoonotic disease surveillance, control, and prevention, including veterinarians, public health volunteers, livestock volunteers, and local officials. Provide appropriate compensation, such as overtime pay and special allowances for those not engaged in private practice.

9) Formally strengthen and coordinate multi-sectoral collaboration at the national level by establishing One Health coordination units within the Department of Disease Control, the Department of Livestock Development, and the Department of National Parks, Wildlife and Plant Conservation. Provide adequate human and financial resources to each sector and facilitate regular coordination of One Health activities within and between sectors. Expand the One Health Steering Committee to include other relevant sectors, and to define the roles and responsibilities of the Steering Committee and One Health coordination units.

10) Establish domestic One Health units, and strengthen the capacity of Provincial Natural Resources and Environment Office staff, to serve as provincial focal points for wildlife and environmental issues related to One Health.

11) Implement s village-level plan covering zoonotic and emerging infectious disease, surveillance, and prevention, through interagency collaboration under the One Health framework. Develop a system for monitoring, evaluating, and linking the plan with budget allocations across all areas. Establish standardized protocols for responding to zoonotic disease outbreaks, encompassing endemic, emerging, and re-emerging diseases.

12) Develop a mobile application for public communication and health hazard alerts, enhancing coverage of disease surveillance, speed, and timeliness. Develop an integrated electronic zoonotic disease warning map encompassing human, animal, and environmental factors for use in high-risk areas, border regions, and tourist destinations.

13) Strengthen One Health networks across all public and private sectors, including health and non-health agencies (e.g., Local Administrative Organizations, Ministry of Education). Develop and integrate a One Health curriculum into educational programs, from primary school through to university levels.

14) Promote implementation of the Performance of Veterinary Services (PVS) pathway as a national agenda, to develop a comprehensive veterinary service system for zoonotic disease surveillance, prevention, and control.

15) Develop a joint response plan for animal disease outbreaks, including the Department of Livestock Development, Department of National Parks, Wildlife and Plant Conservation, and Department of Disease Control, to prevent the emergence of new, multi-species zoonotic diseases. Develop guidelines for the consumption of animal products from non-farm-raised animals.

16) Design mechanisms for private sector engagement in zoonotic disease prevention and control, such as amending tax laws, to allow deductions for contributions supporting these activities. Disseminate zoonotic disease prevention information through all online media channels and radio broadcasting to raise public awareness, particularly about rabies and avian influenza.

17) Restructure and appoint a National Emerging Infectious Disease Preparedness, Prevention, and Response Committee, with authority over zoonotic diseases, re-emerging diseases, endemic diseases, and animal epidemics. Establish a One Health Coordination Center under the National Communicable Disease

Committee, tasked with coordinating the controls on emerging, re-emerging, and endemic zoonotic diseases.

18) Integrate detailed zoonotic disease maps into popular navigation applications, to enable public and official monitoring of outbreaks and risk areas toward disease prevention.

19) Develop best practices for consuming animal products from non-farm-raised animals. Reducing, eliminating, or choosing meat from animals raised in higher-welfare systems can help prevent outbreaks and encourage industrial farms to adopt more humane and efficient animal care practices, thus promoting a safer and more sustainable food production system.

20) Enhance zoonotic disease knowledge management through a national framework, to strengthen the capacity of multidisciplinary organizations and agencies toward addressing zoonotic disease challenges. Establish a system to monitor and evaluate operational capacity and effectiveness, guided by the "One Health, One Team, One Goal" principle.

- Create community-level One Health training curricula and Health communication materials to increase community participation in disease surveillance, control, and prevention. Expand the responsibilities of public Health and livestock volunteers.

21) Develop knowledge and technologies for human, animal, and wildlife surveillance systems. Strengthen international disease surveillance, to enhance competence, sensitivity, and accuracy in disease detection, sample collection, diagnosis, and reporting. Develop a web-based system for storing and reporting disease surveillance data.

22) Create a warning system to provide information on zoonotic diseases, thus ensuring the public receives accurate and timely information.

Strategy 3: Promote the development of knowledge and innovation in food safety to support advancements under International Health Regulations, and ensure food security for the population.

Measures and Guidelines

1) Focus and prioritize risk monitoring and surveillance to identify effective risk management and prevention strategies for foodborne and waterborne diseases. Enhance integration of food safety surveillance and information sharing with relevant agencies under the One Health approach. Exchange food safety information among stakeholders and public and private sector agencies, to facilitate risk communication and emergency response. Regularly update emergency response plans, conduct simulations, and conduct after-action reviews for food safety emergencies.

2) Collection and linkage of food safety information throughout the food chain, along with risk analysis as specified by the Codex, are not yet fully implemented across all food chain activities. This lack of complete coverage hinders risk assessment, management, and communication. Furthermore, promoting participation and coordination with other food safety networks remain ineffective due to overlapping responsibilities and gaps in their missions.

3) Current laboratory staff expertise is insufficient for the workload and newly developed analytical methods. New analytical methods are needed to address emerging challenges. A plan must be developed to enhance staff expertise and ensure communication of up-to-date information for effective law enforcement.

4) Improve emergency response effectiveness through drills and exercises, including post-incident reviews (after-action reports), along with integration of the national urgent warning system and the food safety traceability network.

5) Enhance personnel expertise in evolving food safety threats, such as chemical, plant, and animal toxins. Focus on developing guidelines for prioritized risk inspection and surveillance, including robust data reporting and predictive risk assessment tools. These improvements will support field personnel and increase the effectiveness of food safety risk communication to stakeholders, thus enabling timely responses to emerging situations.

6) Develop an efficient food safety database system for the relevant agencies. Develop a plan/mechanism for monitoring, exchanging food safety information, and establishing a communication system for surveillance and implementation updates to stakeholders. Improve, develop, and create a surveillance database linkable to relevant food safety agencies. This database should provide situational awareness for effective policy recommendations. Develop an efficient system for sharing food safety information, such as INFOSAN, and a coordinated system for relaying information related to foodborne and waterborne illnesses, from agencies with food safety surveillance systems.

7) Promote and support the development of agency-specific emergency response plans/guidelines aligned with the national emergency response plan. Utilize lessons learned and risk analysis data, along with simulations, to improve these plans. Develop operational procedures for a food safety emergency management system that meets international standards.

8) Develop a public-facing application for tracing food safety. Promote and support all healthcare facilities by establishing cooperative agreements (farm-to-hospital) with farmer groups to supply safe/organic produce, including vegetables, fruits, meat, and eggs. These ingredients will be used to create healthy diets for patients.

9) Develop a comprehensive food safety knowledge base spanning the entire food chain. Develop an information exchange and warning system for food safety to enhance efficiency and align with higher international standards. Develop an AI-powered system for predicting food safety risks and supporting emergency response drills.

Strategy 4: Enhance protection by ensuring comprehensive and timely immunization for all age groups, in line with the national health situation and international standards.

Measures and Guidelines

1) Expedite and maintain basic vaccination coverage levels among all target populations, meeting the established criteria. Conduct eradication campaigns and targeted vaccination campaigns for at-risk groups, ensuring full compliance with the criteria and coverage across all demographics and target areas. Monitor and evaluate pilot programs for new vaccines to consider their potential inclusion in national immunization plans, utilizing a supervisory network aligned with immunization program standards.

2) Develop a system for evaluating basic and student vaccination coverage data in Thailand, incorporating vaccine procurement for target populations within the vaccine management system. Implement targeted planning to support Supplemental Immunization Activities (SIA), expanding identification and documentation of the unvaccinated and significantly under-vaccinated populations, particularly vulnerable,

hard-to-reach, and vaccine-hesitant groups. Employ a multi-sectoral strategy involving health and non-health partners, including the private sector, to address vaccine hesitancy and limited access in the southern border provinces. Prioritize locally driven, people-centered approaches to identify obstacles and develop innovative solutions.

3) Develop mechanisms to maintain standards for vaccine storage management and cold chain systems, ensuring standardized vaccine storage from origin to service delivery and recipients nationwide. Enhance personnel skills, implement continuous and rigorous performance evaluations, and promote value creation to maximize the benefits of vaccine services. This includes ensuring sufficient cold chain capacity and ongoing quality control to address existing and emerging disease threats.

4) Create a system integrating all stakeholders in the vaccine service delivery chain, including both public and private health networks, to address vaccine hesitancy, accessibility challenges, and other critical needs. This system aims to reduce inequalities in vaccine service provision for various populations and specific areas, including mobile and vulnerable populations.

5) Strengthen national preparedness by developing a robust vaccine system capable of handling public health crises and emergencies. Establish national survey and domestic assessment systems to enhance vaccine management, aligned with international standards, and ensuring readiness for emergencies and outbreaks of vaccine-preventable diseases.

6) Strengthen and maintain immunization service capacity by ensuring there are sufficient immunization specialists at all levels. Develop personnel skills and provide continuous professional development opportunities.

7) Develop technology for data management, creating a national database that facilitates public vaccination services. Improve immunization data and implement a digital record system for individual vaccination results, integrating data from private healthcare providers and networks outside the Ministry of Public Health. Link reporting systems using standardized reporting program standards, methods, and data. Develop a comprehensive database for migrant, foreign national, and ethnic populations.

8) Coordinate with relevant sectors to develop a robust vaccine security system, with sufficient vaccine procurement and supply capabilities, to address potential shortages. Establish an integrated vaccine management system encompassing purchasing, procurement, and reserves for both routine and outbreak situations. This system should ensure continuous vaccine availability without disrupting national vaccine management. Develop legislation supporting vaccine reserves, allowing for the disposal of expired vaccines without penalty, if an outbreak subsides or is controlled, and substantial stock remains.

9) Develop manuals and operational guidelines for the prevention and control of vaccine-preventable diseases, covering all diseases included in Thailand's national immunization plan. Implement the immunization plan at all levels, including villages and households, by promoting the development of village-level immunization plans. Train immunization personnel at the village level through the 3 Doctors mechanism (family doctors, sub-district health promoting hospital doctors, and Village Health Volunteers). Develop a system for monitoring and evaluating the plan, by linking it with budgetary allocations.

10) Increase access to basic vaccines to at least 90% of the population by creating an integrated system, involving all stakeholders in the vaccine service

delivery chain, both within and outside the public health system. This aims to address vaccine hesitancy, accessibility challenges, and other critical needs through public relations and promotional campaigns (emphasizing free access) targeting specific groups. Utilize incentives such as coupons or discounts for goods and services (e.g., electricity, fuel) after vaccination, and implement proactive outreach programs to households in areas with below-standard vaccination coverage.

11) Develop a national mechanism to improve population health and promote age-appropriate child development through national immunization programs. Integrate immunization education into school curricula to foster awareness and understanding of its importance, thus preparing future generations for responsible parenthood.

12) Link vaccination history data to individual records in the national population registration system. Develop an automated text message notification system to remind individuals of upcoming vaccination appointments.

National Action Plan for Health Security (NAPHS)
Action Plan 3: Developing a Surveillance System for Disease Control and Health Hazard Management to Support National Health Development and the Implementation of International Health Regulations

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 1: Improve the Event-Based Surveillance System									
Activities to integrate the Event-Based Surveillance System into a single system, using modern, flexible digital technology designed for interoperability across all ministries and levels.	Provide an event-based surveillance system that effectively supports the reporting and analysis of emerging infectious diseases, with coverage across all areas.	Division of Disease Control in Emergency Situation Department of Disease Control	3.9 Department of Disease Control	-	3	0.3	0.3	0.3	
Project 2: Enhance the surveillance capabilities of the Situation Awareness Teams.									
1) Activities to improve the surveillance capacities of Situation Awareness Teams for the personnel in the surveillance system, both within and outside the Ministry of Public Health.	The Situation Awareness Teams possess the capability to detect, analyze, and assess the risks of public health diseases and health hazards.	Division of Disease Control in Emergency Situation Department of Disease Control	5 Department of Disease Control	1	1	1	1	1	
Project 3: Develop response mechanisms for public health emergencies.									
1) Training for Communicable Disease Control Units (CDCUs) or Rapid Risk Assessment Teams. Note: This falls under the surveillance category.	Provide at least one communicable disease control unit per public health operations center.	Department of Health, Bangkok Metropolitan Administration	3.9 Bangkok Metropolitan Administration	0.78	0.78	0.78	0.78	0.78	
2) Epidemiological reporting centers.	These centers operate daily to receive reports, verify information, analyze data, and coordinate with relevant agencies.	Department of Health Bangkok Metropolitan Administration	1.5, Bangkok Metropolitan Administration	0.3	0.3	0.3	0.3	0.3	

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
3) Maintain epidemiological data center systems in the Bangkok Metropolitan Administration.	Provide one functional and maintained epidemiological data system.	Department of Health Bangkok Metropolitan Administration	3.5 Bangkok Metropolitan Administration	0.7	0.7	0.7	0.7	0.7	
4) Develop information systems for the epidemiological data center of the Bangkok Metropolitan Administration.	To ensure a secure system that can automatically receive reports of notifiable communicable diseases and outbreaks from healthcare facilities. The system should also include event surveillance logging capability linked to disease investigation records.	Department of Health Bangkok Metropolitan Administration	20 Under procurement		10	10			
Project 4: Support, enhance, and strengthen the capacity and resilience of disease surveillance, prevention, and control systems, and health hazard management for 2023.									
1) Develop a system to integrate and exchange data on dangerous communicable and notifiable diseases, by: (1) Enhancing digital reporting of epidemiological disease surveillance (D506) through APIs, with data cleansing for accuracy. (2) Allowing reporting units to verify, edit, add, and delete reports. (3) Providing data services through a dashboard, and returning data to reporting units via APIs.	To improve the epidemiological surveillance data system by establishing a centralized platform for data management, analysis, and presentation of disease situations.	Epidemiology Division (IT Operations)	18.6 Department of Disease Control	1.5	2.1	5	5	5	Integrate data from public health and non-public health sectors, including governme nt and private agencies.

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 5: Surveillance of dangerous communicable diseases, notifiable diseases, and Adverse Events Following Immunization (AEFI).									
1) Develop and strengthen surveillance systems for dangerous communicable diseases, notifiable diseases, and health emergencies posing public health risks. 2) Conduct laboratory surveillance of pathogens with a significant impact on public health for the detection of emerging diseases and mutations. 3) Review and assess surveillance systems of diseases and health threats that are major public health concerns. 4) Develop systems and reporting guidelines for diseases in university and private hospitals.	1) Develop a fully accessible and operational database for the surveillance of dangerous communicable diseases and notifiable diseases. 2) Ensure that university and private healthcare facilities have reporting guidelines for disease surveillance data, and can connect their surveillance information with the Department of Disease Control.	Epidemiology Division (Communicable Disease Surveillance System Development Unit)	12.89 Department of Disease Control	0.89	3	3	3	3	
Project 6: Develop epidemiology and academic products to strengthen disease and health hazard surveillance, and investigation for networks and the public.									
1) Develop and control the quality of academic products for disseminating information and intelligence on disease and health hazards. 2) Develop channels and disseminate disease and health hazard information, and intelligence to support risk communication (e.g., disease and health hazard forecasting), early warning systems, and public relations through public media.	To produce and disseminate key articles based on disease and health hazard information, and intelligence from epidemiological surveillance, to support risk communication during normal conditions and public health emergencies, providing early warnings to the public and promoting proactive public relations.	Epidemiology Division (Publication Unit)	5.19 Department of Disease Control	0.19	1	1	1	1	

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 7: Develop Joint Investigation Teams (JITs).									
1) Conduct activities for training, building, and enhancing the capacity of JITs under the Department of Disease Control, to monitor, investigate, and control diseases and health hazards according to the Communicable Diseases Act B.E. 2558 (2015).	1) Ensure that JITs at the central and regional levels of the Department of Disease Control can efficiently monitor, investigate, and control diseases and health hazards, and are prepared to respond to public health emergencies. 2) Enhance the capabilities, knowledge, skills, and practical training of JITs in monitoring, investigating, and controlling diseases and health hazards.	Epidemiology Division (Epidemiological Investigation and Network Development Unit)	26.36 Department of Disease Control	3.36	5.75	5.75	5.75	5.75	**For 2023:** Operational support for JIT: 2.67 + training budget: 0.69 **From 2024-2027:** Operational support for JIT: 5 + training budget: 0.75
Project 8: Develop the capacity of the Village Health Volunteer (VHVs) network for disease reporting and zoonotic disease alerts.									
	1) Develop a village-level disease reporting manual for VHVs. 2) Equip VHVs with enhanced skills in disease surveillance, prevention, and control.	Department of Disease Control	20 Department of Disease Control	-	0.5	0.5	0.5	0.5	
Project 9: Promote, develop, and support VHVs and community health networks in managing community health and enhancing health literacy for targeted populations.									
	Percentage of communities implementing appropriate health management for the population (target: 75%).	Department of Health Service Support	114 Department of Health Service Support	22.8	22.8	22.8	22.8	22.8	
Project 10: Strengthen preparedness for zoonotic diseases.									
1) Conduct workshops on surveillance and response to zoonotic diseases, including sharing operational experiences and best practices.	- Workshop reports featuring information exchange, best practices, and operational guidelines.	Department of Disease Control/ Department of Livestock Development/	8	-	2	2	2	2	

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
		Department of National Parks, Wildlife and Plant Conservation							
2) Assess and develop a preparedness plan for zoonotic disease surveillance and response.	- Preparedness plan has been developed.	- Department of Livestock Development/ Department of Disease Control	4	-	1	1	1	1	
3) Train personnel in risk assessment, disease forecasting, and data analysis.	- Number of personnel trained.	- Department of Livestock Development/Department of Disease Control	16	-	4	4	4	4	
4) Conduct integrated cross-sectoral joint simulations of zoonotic disease outbreak responses.	Number of simulations conducted or assessment results for integrated zoonotic outbreak response exercises.	Department of Disease Control/ Department of Livestock Development/ Department of National Parks, Wildlife and Plant Conservation	8	-	2	2	2	2	
5) Strengthen the network for surveillance, prevention, and control of zoonotic diseases, and develop related academic knowledge.	Number of workshops, official meetings, and academic conferences held.	Department of Disease Control/Universities/Other relevant agencies	12	-	3	3	3	3	
6) Establish and/or develop One Health Coordination Center operations for intersectoral data sharing at the provincial level.	Appointments to working groups were ordered and meetings held, with participation from responsible personnel from all relevant agency.	Department of Disease Control	20	-	5	5	5	5	
7) Assess One Health status at the provincial level.	Provincial One Health status assessment report.	Department of Disease Control	21	1	5	5	5	5	

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
8) Establish One Health coordination units within agencies.	Employ personnel, develop terms of reference (TORs), establish offices, and submit project evaluation reports and operational plans to the management team of the One Health Coordination Unit, including: 1) One Health Coordinating Unit for Animal Health (OHCU-AH) under the Department of Livestock Development, and/or 2) One Health Coordinating Unit for Wildlife Health (OHCU-WH) under the Department of National Parks, Wildlife and Plant Conservation. Activities include: - Establishment of a compensation system for One Health Coordination Center coordinators. - Regular working group meetings held. - Annual academic meetings or work plan discussions.	Department of Livestock Development/ Department of National Parks, Wildlife and Plant Conservation	40	-	10	10	10	10	
9) Build the capacity of village health volunteers to prepare for zoonotic diseases.	200 volunteers are trained annually.	Department of Disease Control/ Department of Health Service Support	4	-	1	1	1	1	
10) Procure vaccines, medical supplies, and personal protective equipment; conduct health check-ups; and maintain a registry of at-risk groups to	Ensure personnel are protected from diseases, A 40% reduction in zoonotic infection rates has been achieved.	Department of Disease Control/ Department of Livestock Development/	800	-	200	200	200	200	

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
prevent zoonotic infections or reduce the risk of transmission.		Department of National Parks, Wildlife and Plant Conservation							
11) Provide compensation for the destruction of at-risk animals for disease control.	100% compensation for animal destruction completed according to plan.	Department of Livestock Development	400	-	100	100	100	100	
12) Manage and resolve issues related to wildlife impacting humans, animals, and the environment, including controlling problematic animal populations.	Ensure that 100% of incidents are resolved and 100% population control of targeted animals is achieved.	Department of National Parks, Wildlife and Plant Conservation	12	-	4	4	4	4	
Project 11: Enhance the efficiency of surveillance and response to zoonotic diseases.									
1) Develop or improve surveillance and alert systems for zoonotic diseases across all relevant agencies.	Each relevant agency has one surveillance/alert system for zoonotic diseases. A digital system for integrated surveillance data exchange is in place.	Department of Livestock Development/ Department of Disease Control/ Department of National Parks, Wildlife and Plant Conservation/ Department of Local Administration	74.5 Government Budget	2	50	7.5	7.5	7.5	
2) Review and assess the integrated multisectoral response to zoonotic diseases.	Provide assessment results for integrated multisectoral response to zoonotic diseases.	Department of Disease Control/ Department of Livestock Development/ Department of National Parks, Wildlife and Plant Conservation/ Department of Local Administration	28	-	7	7	7	7	

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
3) Improve and update surveillance and response plans/SOPs for zoonotic diseases based on assessment results, to ensure they are effective and timely.	Surveillance and response plans/SOPs are updated at least every 2 years.	Department of Disease Control/ Department of Livestock Development/ Department of National Parks, Wildlife and Plant Conservation/ Department of Local Administration	4	-	1	1	1	1	
4) Assess the integrated multisectoral zoonotic disease surveillance system, identifying challenges and obstacles in disease reporting.	Provide an assessment report on the integrated multisectoral zoonotic disease surveillance system.	Department of Disease Control/ Department of Livestock Development/ Department of National Parks, Wildlife and Plant Conservation/ Department of Local Administration	4	-	1	1	1	1	
5) Develop data exchange systems among sectors at the local level using existing mechanisms, such as the Provincial Communicable Disease Committee, and promote local-level data sharing for disease surveillance, prevention, and control.	Data exchanges occur between local agencies, with reports such as meeting minutes or online system coordination records.	Department of Disease Control/ Department of Livestock Development/ Department of National Parks, Wildlife and Plant Conservation/ Department of Local Administration	8	-	2	2	2	2	

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
6) Promote understanding of essential zoonotic disease reporting among healthcare professionals, veterinarians, public health officials, and other relevant stakeholders.	Provide training reports on zoonotic disease reporting.	Department of Disease Control/ Department of Livestock Development/ Department of National Parks, Wildlife and Plant Conservation/ Department of Local Administration	4	-	1	1	1	1	
7) Conduct laboratory testing to detect zoonotic diseases in both animals and humans.	Ensure that 100% of samples from suspected cases in animals and humans are tested according to standards and in a timely manner.	Department of Disease Control/ Department of Livestock Development/ Department of National Parks, Wildlife and Plant Conservation/ Department of Local Administration	40	-	10	10	10	10	
8) Establish surveillance systems for problematic zoonotic diseases, including conducting risk assessments for transmission.	100% of suspected cases or events of suspected zoonotic infection in both animals and humans are reported and monitored.	Department of Disease Control/ Department of Livestock Development/ Department of National Parks, Wildlife and Plant Conservation/ Department of Local Administration	20	-	5	5	5	5	

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
9) Provide education and awareness on zoonotic diseases, self-protection, hygiene, and measures to reduce zoonotic transmission risks to the private sector, tourists, those who use or benefit from animals, and stakeholders involved with wildlife.	Conduct a minimum of two educational or public outreach activities, including promotional materials, per year.	Department of Disease Control/ Department of Livestock Development/ Department of National Parks, Wildlife and Plant Conservation/ Department of Local Administration	4	-	1	1	1	1	
Project 12: Enhance sanitation to prevent diseases from animal products.									
1) Raise awareness and ensure compliance with livestock farm standards to elevate to global food standards. - Conduct training, monitoring, and knowledge enhancement activities on livestock farm standards.	Provide reports on the assessment and monitoring of livestock farm standards implementation.	Department of Livestock Development/ Department of Local Administration	61.6	-	15.4	15.4	15.4	15.4	
- Assess livestock farms and slaughterhouses.	Assess 50 livestock farms or slaughterhouses per year.	Department of Livestock Development/ Department of Local Administration	10	-	2.5	2.5	2.5	2.5	
2) Raise awareness on sanitation of animal products among businesses and communities.	Conduct two public awareness activities on sanitation for businesses and communities per year.	Department of Livestock Development/ Department of Local Administration	8	-	2	2	2	2	

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 13: Assess zoonotic disease risks.									
1) Issue an official order to establish a Risk Assessment Committee. 2) Hold meetings to discuss and prioritize zoonotic diseases. 3) Gather data to support risk assessment (e.g., conduct fieldwork and literature reviews). 4) Analyze the situation, conduct joint risk assessments, and summarize the results. 5) Disseminate risk assessment findings through academic conferences that include policymakers and administrators.	- Official order for the Risk Assessment Committee. - Results of zoonotic disease prioritization. - Data collection projects conducted for risk assessment. - Risk assessment results. - Academic conference to disseminate the risk assessment and related research, held at least every 2 years.	Department of Livestock Development/Department of Disease Control/Department of National Parks, Wildlife and Plant Conservation	40 Government budget	-	10	10	10	10	
Project 14: Implement the International Food Safety Network (INFOSAN).									
1) Monitor international food safety information and reports through INFOSAN. 2) Coordinate with relevant agencies.	Provide a report on the status of monitoring food safety from foreign sources.	BESES (Bureau of Food Safety Extension and Support)	0.5 (Annual Budget)	0.1	0.1	0.1	0.1	0.1	
Project 15: Develop Thailand's food safety emergency response action plan.									
1) Develop an action plan to respond to food safety emergencies in Thailand. 2) Establish Standard Operating Procedures (SOPs) for managing emergencies related to food safety incidents. 3) Conduct meetings and simulations to practice the food safety emergency response plan for Thailand.	Ensure that all relevant sectors involved in food safety operations can effectively protect public health from food-related risks.	BESES (Bureau of Food Safety Extension and Support)	0.5 (Annual Budget)	0.1	0.1	0.1	0.1	0.1	

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 16: Conduct mobile food safety unit surveillance for Fiscal Year 2023.									
1) Develop an operational plan for the Ministry of Public Health's mobile food safety surveillance unit. 2) Analyze data and summarize the results of regional food safety surveillance.	Provide an annual food safety situation report.	BESES (Bureau of Food Safety Extension and Support)	0.5 (Annual Budget)	0.1	0.1	0.1	0.1	0.1	
Project 17: Develop control and regulation systems and enhance the quality and safety of agricultural products and food.									
1) Inspect the quality of imported agricultural products according to mandatory standards for peanuts: waterlogging levels (Thai Agricultural Standard [TAS] 4702-2557).	Peanuts imported under mandatory standards are tested for waterlogging levels.	ACFS (National Bureau of Agricultural Commodity and Food Standards)	4.26 (Annual Budget)	0.852	0.852	0.852	0.852	0.852	
2) Inspect agricultural product safety according to mandatory standards.	Provide analytical results based on the required safety parameters for each product type.	ACFS (National Bureau of Agricultural Commodity and Food Standards)	2.5 (Annual Budget)	0.5	0.5	0.5	0.5	0.5	
Project 18: Conduct annual surveillance sampling for Fiscal Year 2023.									
1) Evaluate previous analysis data and review the situation of the previous year. 2) Plan sampling based on identified issues. 3) Coordinate with analytical laboratories. 4) Conduct field sampling and submit samples to a laboratory for analysis. 5) Review and summarize the analysis report and take further actions as required.	1) Obtain surveillance data on food product safety. 2) Develop plans that enhance producers' capacity for safe food production. 3) Communicate risks to consumers and relevant stakeholders in cases where unsafe food is found.	Food and Drug Administration	35 Annual Budget	7	7	7	7	7	

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 19: Inspect imported plant products received from the Food and Drug Administration.									
1) Inspect imported plant products received from the Food and Drug Administration for further investigation.	Randomly inspect 70 samples of products classified under categories 09, 10, and 12.	Department of Agriculture (DOA)	4 (Annual Budget)	0.8	0.8	0.8	0.8	0.8	
Project 20: Develop the Thailand Rapid Alert System for Food and Feed (THRASFF).									
1) Import data from the Thailand Rapid Alert System for Food and Feed. 2) Utilize the Alert System data.	1) The Thailand Rapid Alert System for Food and Feed issues alerts if products do not comply with food or feed safety regulations or standards. 2) Relevant agencies use the list of alert data to formulate random inspection measures or food safety policies.	ACFS (National Bureau of Agricultural Commodity and Food Standards)	0.5 Annual Budget	0.1	0.1	0.1	0.1	0.1	Establish a new budget because this project has not received budgetary support to date.
3) Improve THRASFF system efficiency and integrate it with other relevant food safety agency systems.	The THRASFF system is upgraded and integrated with other food safety agency systems, such as INFOSAN and the Ministry of Public Health's alert systems.	ACFS (National Bureau of Agricultural Commodity and Food Standards)	0.5 Annual Budget	0.1	0.1	0.1	0.1	0.1	Establish a new budget because this project has not received budgetary support to date.
Project 21: Campaign for vaccination in high-risk groups.									
1) Drive vaccination campaigns for high-risk groups and in high-risk areas. 2) Support the operations of partner agencies involved in the campaign.	**Output**: Guidelines on promoting vaccination for high-risk groups and in high-risk areas. **Indicator**: Percentage of target areas that receive	Ministry of Public Health - Department of Disease Control - Provincial Public Health Offices	3.5 Budget Act Ministry of Finance	0.7	0.7	0.7	0.7	0.7	

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
	support through guidelines and vaccine allocation for the campaign (100% of target areas).	- Department of Health Service Support - National Vaccine Institute Ministry of Education Ministry of Interior - Local Administrative Organizations - Bangkok Metropolitan Administration - Ministry of Higher Education, Science, Research and Innovation							
Project 22: Develop and support immunization operations.									
1) Drive the implementation of immunization operations. 2) Supervise and monitor vaccination coverage data and coordinate with the vaccine information system.	**Output**: A collaborative network for immunization operations. **Indicator**: Number of times vaccination coverage data is supervised or monitored (four times per year).	Ministry of Public Health - Department of Disease Control - Provincial Public Health Offices - Department of Health Service Support - National Vaccine Institute Ministry of Education Ministry of Interior	1 Budget Act Ministry of Finance	0.2	0.2	0.2	0.2	0.2	

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
		- Local Administrative Organizations - Bangkok Metropolitan Administration Ministry of Higher Education, Science, Research and Innovation							
3) Enhance the network's capacity in monitoring and supervising immunization operations.	**Output:** A network for monitoring and supervising immunization operations. **Indicator:** Number of provinces where the network's capacity for monitoring and supervising immunization operations is enhanced (three provinces per year).	Department of Disease Control	6 Budget Act Ministry of Finance	1.2	1.2	1.2	1.2	1.2	
4) Improve the assessment standards of immunization operations.	**Output:** Summary report on the evaluation of immunization operation standards. **Indicator:** The Office of Disease Prevention and Control conducts assessments of immunization operations standards (50% of provinces in the area).	Department of Disease Control	0.5 Budget Act Ministry of Finance	0.1	0.1	0.1	0.1	0.1	
5) Communicate and promote immunization through various means, such as developing media models for disseminating	**Output:** Summary of communication and promotion activities for immunization.	Department of Disease Control	2.5 Budget Act Ministry of Finance	0.5	0.5	0.5	0.5	0.5	

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
information across platforms, and organizing events to share information through mass media.	**Indicator:** Number of communication and promotion activities for immunization (at least one).								
Project 23: Procure vaccines according to the immunization program.									
1) Procure vaccines and medical supplies for the immunization program.	**Output:** Report on the procurement of vaccines and medical supplies for the immunization program. **Indicator 1:** Percentage of vaccines and medical supplies procured according to the target set by the immunization program (100%). **Indicator 2:** Percentage of support provided for implementing the immunization program (100%).	- National Health Security Office (NHSO) - Coronavirus Hospital - Government Pharmaceutical Organization (GPO)	11,000 Budget Act Ministry of Finance	2,200	2,200	2,200	2,200	2,200	
Project 24: Develop the cold chain management and transportation system.									
1) Strengthen and develop the cold chain and transportation system for vaccine reserves to support disease prevention and control efforts.	**Output:** A standardized and real-time trackable transportation system. **Indicator:** A nationwide cold chain management and transportation system has been established (one system).	- Department of Disease Control - Health Administration Division, Office of the Permanent Secretary - Department of Health, Bangkok Metropolitan Administration - Government Pharmaceutical Organization	21 Budget Act Ministry of Finance	20	-	-	-	1	

Key Projects/Activities	Output Indicators and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
2) Promote and develop personnel capacity.	**Output:** Personnel who have undergone capacity development. **Indicator:** Percentage of personnel responsible for the cold chain system who have received promotions and undergone management capacity development training.	- Department of Disease Control - Health Administration Division, Office of the Permanent Secretary Government Pharmaceutical Organization	4 Budget Act Ministry of Finance	2	-	-	-	2	
3) Develop warehouses for storage of vaccine reserves and support.	**Output:** Vaccine storage warehouses that meet international standards at the regional level. **Indicator:** Percentage of health regions with international-standard vaccine storage warehouses for reserves and support.	- Department of Disease Control - Health Administration Division, Office of the Permanent Secretary - Department of Health, Bangkok Metropolitan Administration Government Pharmaceutical Organization	65 Budget Act Ministry of Finance	30	10	10	10	5	

ACTION PLAN 4:
DEVELOP A HIGH-PERFORMANCE PUBLIC HEALTH SAFETY AND BIOSECURITY SYSTEM THAT MEETS INTERNATIONAL STANDARDS.

1. Objectives

1) Enhance the capacity of Thailand's antimicrobial resistance (AMR) management system to meet international standards.

2) Prevent and control hospital infections efficiently using advanced technology and knowledge.

3) Develop a national laboratory system with a standardized network of laboratories that are globally recognized across the country.

4) Develop a biosafety and biosecurity management system with high management standards.

2. Objectives, Indicators, and Target Values

Development Targets	Indicators (Responsible Person)	Past Performance	Target Values				
			2023	2024	2025	2026	2027
1) Establish an antimicrobial resistance (AMR) management system that meets international standards. This system aims to reduce the incidence of antimicrobial-resistant infections in humans, minimize AMR risks in food and the environment, and implement a monitoring system for AMR contamination and residues in food and the environment, as per international standards. Additionally, this aims to decrease the consumption of antimicrobials in humans and animals.	P.4.1 Effective Multi-Sectoral Coordination on AMR and the National Action Plan: Scores on effective multi-sectoral coordination on AMR and the National Action Plan.	5	5	5	5	5	5
	P.4.2 Antimicrobial Resistance (AMR) Surveillance: Scores for AMR surveillance.	4	4	4	4	4	4
	P.4.3 Prevention of Multi-Drug Resistant Organism (MDRO) Transmission in Healthcare Facilities: Scores for the prevention of MDRO transmission in healthcare facilities.	4	4	4	4	4	4
	P.4.4 Optimize Usage of Antimicrobial Medicines in Human Health: Scores on optimizing the use of antimicrobial medicines in human health.	4	4	4	4	4	5
	P.4.5 Optimize Usage of Antimicrobial Medicines in Human and Animal Health, and Agriculture: Scores for the optimized use of antimicrobial medicines in human and animal health, and agriculture.	4	4	4	4	4	4
2) Develop a strong, effective hospital infection prevention and control (IPC) program or system, utilizing secure, modern information technology systems for surveillance, prevention, and infection control at the hospital and national levels, following	R.4.1 IPC Programs: Scores for IPC programs.	4	4	4	4	5	5

Development Targets	Indicators (Responsible Person)	Past Performance	Target Values				
			2023	2024	2025	2026	2027
WHO's IPC core component recommendations.							
3) Enhance personnel capabilities, promote professional advancement, and strengthen operational networks, supported by the National Infection Prevention and Control Center.	R.4.2 HCAI (Healthcare-Associated Infection) Surveillance: Scores for HCAI surveillance.	4	4	4	4	5	5
4) Healthcare facilities can effectively manage environmental health and safety according to national standards.	R.4.3 Safe Environment in Healthcare Facilities: Scores for a safe environment in healthcare facilities.	4	4	4	4	5	5
5) Develop a national laboratory management system to standards that adhere to International Health Regulations, capable of accurate, timely disease diagnostics, to reduce disease spread and ensure public safety.	D.1.1 Specimen Referral and Transport System: Scores for the specimen referral and transport system (Department of Medical Sciences, Department of Disease Control, Department of Livestock Development, and Department of National Parks, Wildlife and Plant Conservation).	4	5	5	5	5	5
	D.1.2 Laboratory Quality System: Scores for the laboratory quality system (Department of Medical Sciences, Department of Disease Control, Department of Livestock Development, and Department of National Parks, Wildlife and Plant Conservation).	4	5	5	5	5	5
	D.1.3 Laboratory Testing Capacity Modalities: Scores for laboratory testing capacity modalities (Department of Medical Sciences, Department of Disease Control, Department of Livestock Development, and Department of National Parks, Wildlife and Plant Conservation).	4	5	5	5	5	5
	D.1.4 Effective National Diagnostic Network: Scores for the effective national diagnostic network (Department of Medical Sciences, Department of Disease Control, Department of Livestock Development, and Department of National Parks, Wildlife and Plant Conservation).	5	5	5	5	5	5

Development Targets	Indicators (Responsible Person)	Past Performance	Target Values				
			2023	2024	2025	2026	2027
	Number of regional training centers and communities of practice (Department of Medical Sciences, Department of Disease Control, Department of Livestock Development, and Department of National Parks, Wildlife and Plant Conservation).	-	1	1	1	1	1
6) Build a comprehensive, multi-sectoral national biosafety and biosecurity system. Enhance personnel capacity, develop specimen referral and infectious material transportation systems, create national guidelines, and revise laws and control measures to mitigate biological risks and threats.	P.7.1 The Whole-of-Government Biosafety and Biosecurity System is in place for all sectors (including human, animal, and agricultural facilities): Scores for the Whole-of-Government Biosafety and Biosecurity System for all sectors, including facilities for humans, animals, and agriculture (Department of Medical Sciences, Department of Disease Control, Department of Livestock Development, and Department of National Parks, Wildlife and Plant Conservation).	4	5	5	5	5	5
	P.7.2 Biosafety and biosecurity training and practices in all relevant sectors (including human, animal and agricultural): Scores for biosafety and biosecurity training and practices in all relevant sectors, including human, animal, and agriculture sectors (Department of Medical Sciences, Department of Disease Control, Department of Livestock Development, and Department of National Parks, Wildlife and Plant Conservation).	4	5	5	5	5	5
	Number of laws on pathogens and animal toxins that have been developed or amended (Department of Medical Sciences).	8	1	1	1	1	1

3. Strategies and Measures

Strategy 1: Develop the capacity of Thailand's antimicrobial resistance management system to meet international standards.

Measures and Guidelines

1) Develop an integrated national AMR surveillance and alert system, build the capacity of infectious disease personnel, and microbiology laboratory and AMR epidemiology networks, and strengthen the distribution control system for both human and veterinary antimicrobial drugs.

2) Enhance law enforcement and social measures to address the inappropriate distribution of antimicrobials. Systematically manage AMR issues within public and private healthcare facilities using an integrated approach.

3) Supervise, monitor, and assess antimicrobial management efforts. Ensure the appropriate use of antimicrobials in clinics, pharmacies, and healthcare facilities. Regulate antimicrobial use to prevent misuse and overuse.

4) Reduce antimicrobial use in livestock and aquaculture to decrease AMR in the food production chain. Monitor antimicrobial use in plants. Regulate antimicrobial use in veterinary care facilities. Educate agricultural stakeholders (crop and animal sectors) on the appropriate use of antimicrobials.

5) Strengthen partnerships among civil society organizations, the media, and communities, to build understanding of AMR and promote the appropriate use of antimicrobials. Enhance public health literacy regarding AMR and raise awareness on responsible antimicrobial use, focusing on children, the young, and working-age individuals.

6) Develop national-level structures and mechanisms to manage AMR through administration, monitoring, evaluation, research support, and development, to find effective strategies for managing AMR in Thailand.

7) Maintain Thailand's proactive role in addressing AMR domestically and internationally. Continue collaborating with global partners to effectively combat AMR.

Strategy 2: Elevate the standards for preventing and controlling hospital infections. Manage hospital infection information efficiently, using technology and knowledge.

Measures and Guidelines

1) Develop and integrate an IPC database system by using advanced technology for reporting, data communication, and alerts in various formats, such as digital platforms. This will reduce redundancy, minimize staff workload, enhance efficiency, ensure accuracy and timeliness, and integrate information systems and data centers for effective and timely management with accurate, up-to-date information.

2) Develop role models among IPC practitioners, by creating examples at the hospital level of collaborative integration for disease prevention and control, thus raising awareness, and promoting collective responsibility.

3) Integrate and enhance the IPC system and database to meet international standards. Foster collaboration among public, private, organizational, and academic institutions, ensuring data management, monitoring, and surveillance of hospital infections, for policy development, planning, and evaluation. Establish a National Infection Prevention and Control Center to integrate surveillance data, employing personnel to analyze and synthesize information for tracking local situations, connecting seamlessly at the district and national levels.

4) Promote knowledge creation and innovation in IPC, enhance IPC personnel capabilities, strengthen operational networks, and provide continuous training that aligns with international standards, where staff can maintain their professional qualifications through Continuing Education Units and participate in experience-sharing platforms at the district level, along with national seminars.

5) Strengthen the capacity of agencies and personnel at all levels (organizational, provincial, district, national) to analyze, process, and monitor situations. Enable the synthesis of information for policy recommendations and communication across levels, facilitating timely internal and inter-agency alerts.

6) Develop plans to raise awareness and promote IPC engagement among personnel from all sectors and the public, to reduce infections and prevent the spread of disease within hospitals and from hospitals to the community.

7) Develop plans to improve systems, mechanisms, and information technology for infection prevention and control at the organizational and national levels, ensuring seamless organization, from the organizational level to the national level. Support the National Infection Control Committee (NICC) and Bamrasnaradura Infectious Diseases Institute in implementing effective and consistent IPC policies and plans at national and organizational levels.

8) Establish a National Infection Prevention and Control Center dedicated to IPC, complete with personnel, information technology, budget, and research funding.

9) Support the development and adaptation of operational guidelines and mechanisms appropriate for each organizational level, promoting continuous exchange of IPC experiences to meet international standards, such as the WHO's 8 core components or USCDC guidelines.

10) Develop plans and conduct research on infectious diseases, prevention, and hospital infection control, including hospital epidemiology. This supports determining appropriate staffing levels and career paths for personnel, aiming to meet standards comparable to those of developed countries in the public health sector.

11) Encourage integrating AI technology or robotics in IPC operations.

12) Strengthen the surveillance system for detecting and alerting multi-drug resistant organisms (MDRO) pathogens in hospitals (healthcare-associated infections [HAIs]) and communities, ensuring timely reporting to networks across all healthcare facility levels nationwide, supported by the National Infection Control Committee.

Strategy 3: Develop a high-capacity national laboratory system for diagnostics and surveillance in human, animal, and environmental health, with an national laboratory network to international-standard across the country.

Measures and Guidelines

1) Develop a Strategic National Laboratory Plan, integrating the One Health approach with budget allocation and an annual action plan, which includes activities based on recommendations.

2) Strengthen the skilled workforce through academic training, while implement clear strategies for retaining skilled personnel in fields such as molecular diagnostics and bio-risk management.

3) Enhance the specimen referral network's capabilities in transferring samples safely and efficiently to reference or certified laboratories. This includes training and scenario-based simulation drills involving all relevant stakeholders across all levels. to ensure personnel and environmental safety,

4) Elevate national laboratory standards and capabilities for disease diagnostics. Allocate a budget for nationwide laboratory certification, and create an integrated management plan for the National Public Health Laboratory network (human and animal health) at the national level. Develop national mechanisms for establishing nationally or internationally certified laboratories for human and animal disease diagnostics across all health regions in the country.

5) Enhance laboratory capabilities with appropriate modern technologies. Promote Proficiency Testing Providers to ensure the quality of diagnostic tests, encompassing all major diseases and health hazards, meets international standards for human, animal, and environmental health agencies.

6) Prepare for future challenges and changes in emerging infectious disease diagnostics by increasing the flexibility of laboratory management systems.

7) Enhance the capacity of national reference laboratories and the network of human and animal health laboratories to provide accurate, timely, and efficient diagnoses of major diseases and emerging, or re-emerging diseases, with effective emergency response. This includes developing standardized diagnostic methods, providing diagnostic training, certifying network laboratories, and establishing proficiency testing plans with provision of samples.

8) Establish regional training centers and communities of practice, focusing on strengthening epidemiology and competency in detection, biosafety, and laboratory systems, in both human and animal health.

9) Improve laboratory guidelines for human and animal health, focusing on standardized referral and transportation systems at the national level.

10) Develop and expand information technology use by connecting data from relevant agencies, such as the National Health Security Office (NHSO).

Strategy 4: Develop a well-managed biosafety and biosecurity management system.

Measures and Guidelines

1) Review and improve legislation to oversee biosafety and biosecurity policies, including guidelines for implementation, certification, and maintenance of biosafety level 3 (BSL-3) systems across all sectors.

2) Establish a national policy for a multi-sectoral biosafety and biosecurity system. Review and update laws to oversee these policies. Integrate all relevant sectors (Ministry of Public Health, Ministry of Agriculture and Cooperatives, and Ministry of Higher Education, Science, Research, and Innovation), to jointly develop a national biosafety and biosecurity manual.

3) Enhance pathogen detection from outbreak-affected countries to strengthen biosafety and biosecurity. Develop and improve systems, and to prevent illegal activities or unknowing businesses from mishandling pathogens and toxins entering Thailand. Address the growing issue of infectious waste from laboratories, which poses risks to human health and the environment.

4) Improve law enforcement during outbreaks by developing a support management plan (4M), conducting regular practice drills under simulated outbreak scenarios to evaluate effectiveness. Consider enacting subsidiary laws to enhance biosafety and biosecurity, focusing on communication, collaboration, and coordination.

5) Enhance training by expanding the coverage of training providers in biosafety and biosecurity practices across all sectors.

6) Establish national guidelines and develop standardized training curricula and manuals for biosafety and biosecurity practices across all relevant sectors. Enhance the competency of personnel in biosafety and biosecurity through bio-risk management training, integrating all sectors. Develop Thailand as a model for neighboring countries by implementing and enforcing laws on biosafety and biosecurity systems.

7) Develop data systems to support specimen referral and the shipment of infectious packages. Enhance the monitoring of national pathogen repositories through online programs like the PAT Act. Establish national standards by elevating the implementation of BSL-3 certification and maintenance across all sectors. Link this development with capacity-building for local entities in transporting infectious packages during normal conditions and public health emergencies.

8) Update the Thai-language Biorisk Management (BRM) toolkit, initially released in 2014, to ensure relevance.

9) Advocate for national legislation on biosafety and biosecurity to mitigate biological risks and potential threats.

10) Develop a national biosafety and biosecurity integration plan for multi-sectoral networks (e.g., the Emerging Infectious Disease laboratory network), which incorporates biosafety officers from public health, animal health, and other relevant sectors.

11) Develop mechanisms and technologies to control biosafety and biosecurity to accommodate modern biotechnologies.

National Action Plan for Health Security (NAPHS)
Action Plan 4: Develop a high-performance public health safety and biosecurity system that meets international standards.

Project/Key Project Activities	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 1: Monitor and assess Thailand's AMR Management System to meet international standards.									
1) Monitor and assess mid-term implementation of the National Antimicrobial Resistance Action Plan, 2nd Edition (2023-2027).	Provide a mid-term progress report on the implementation of the National Antimicrobial Resistance Action Plan, 2nd Edition (2023-2027).	1) Ministry of Public Health 2) Ministry of Agriculture and Cooperatives 3) Ministry of Natural Resources and Environment (through the working group coordinating and monitoring Thailand's Antimicrobial Resistance Management Plan)	0.8	-	-	0.8	-	-	
2) Monitor and assess overall implementation of the National Antimicrobial Resistance Action Plan, 2nd Edition (2023-2027).	Provide a self-assessment report on the overall implementation of the National Antimicrobial Resistance Action Plan, 2nd Edition (2023-2027).	1) Ministry of Public Health 2) Ministry of Agriculture and Cooperatives 3) Ministry of Natural Resources and Environment (through the working group coordinating and monitoring Thailand's Antimicrobial Resistance Management Plan)	0.8	-	-	-	-	0.8	

Project/Key Project Activities	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 2: Develop and improve the hospital infection surveillance system.									
1) Organize committee meetings for data collection. 2) Record data on hospital infections. 3) Conduct training on hospital infection data collection for network hospitals in 12 healthcare service areas, updating knowledge on surveillance, diagnosis, and data feedback.	**Output:** - A standardized hospital infection surveillance system has been established. **Indicator:** - 100% data entry for hospital infections through the web-based system by sentinel site hospitals.	Bamrasnaradura Infectious Diseases Institute	7.4 Department of Disease Control	1.4	1.4	1.5	1.5	1.6	
Project 3: Assess and develop IPC guidelines in hospitals.									
1) Organize working group meetings to draft infection prevention and control guidelines for hospitals. 2) Host expert seminars. 3) Publish the guidelines.	Output: - Infection prevention and control guidelines (including AMR controls) in hospitals (published in print and electronic formats).	Bamrasnaradura Infectious Diseases Institute	3 Department of Disease Control	0.6	0.6	0.6	0.6	0.6	
Project 4: Develop capacity and strengthen networks for infectious disease/infection prevention and control.									
1) Organize working group and network meetings to develop IPC tools for fieldwork. 2) Develop educational materials on IPC, and summarize the assessment results of the IPC Strategic Action Plan (2023-2027). 3) Conduct field assessments and provide IPC guidance to network hospitals. 4) Enhance the capacity of personnel working in IPC.	Output: - Train 100 healthcare professionals from all health service regions on the prevention and control of infectious diseases/infections. - Provide a summary report on the assessment of the Five-Year National Strategic Action Plan for Infection Prevention and Control in Hospitals (2023-2027).	Bamrasnaradura Infectious Diseases Institute	4.9 Department of Disease Control	0.9	1	1	1	1	

Project/Key Project Activities	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 5: Develop a National Guideline for specimen referral and transport to laboratories.									
1) Appoint a working group to develop a National Guideline for specimen referral and transport to laboratories.	Official order for the working group signed by the Permanent Secretary. *signed by the Permanent Secretary.	Department of Disease Control Department of Medical Sciences	-	-	-	-	-	-	
2) Hire personnel to draft the National Guideline document (in Thai) for specimen referral and transport to laboratories, referencing international guidelines.	Draft the National Guideline document (in Thai) for specimen referral and transport to laboratories.	Department of Disease Control Department of Medical Sciences	0.2	-	-	0.2	-	-	
3) Hold working group meetings to review international guidelines, in order to ensure they are aligned with the national context.	Provide the minutes of working group meetings.	Department of Disease Control Department of Medical Sciences	0.6	-	-	0.2	0.2	0.2	
4) Draft a National Guideline for specimen referral and transport to laboratories.	Provide a draft of the National Guideline for specimen referral and transport to laboratories.	Department of Disease Control Department of Medical Sciences	1.5	-	-	0.6	0.9	-	
5) Publish and disseminate the National Guideline for specimen referral and transport to laboratories.	Publish the National Guideline for specimen referral and transport to laboratories.	Department of Disease Control Department of Medical Sciences	0.15	-	-	-	-	0.15	
6) Train trainers in specimen referral and transport to laboratories.	Train trainers on specimen referral and transport to laboratories (at least one per health region per year).	Department of Disease Control Department of Medical Sciences	0.4	-	-	-	-	0.4	
7) Monitor and assess National Guideline implementation of specimen	Provide a report on the monitoring and assessment of the	Department of Disease Control	0.05	-	-	-	-	0.05	

Project/Key Project Activities	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
referral and transport to laboratories for review and improvement (using online self-assessment).	National Guideline on specimen referral and transport to laboratories.	Department of Medical Sciences							
Project 6: Integrate the National Public Health Laboratory system.									
1) Conduct a meeting to provide guidance on developing the national network of public health laboratories for disease prevention and control (Public Health Laboratory for Disease Control).	Establish a national network of public health laboratories for disease prevention and control (Public Health Laboratory for Disease Control).	Department of Disease Control Department of Medical Sciences	1.8	-	-	0.6	0.6	0.6	
2) Organize meetings to provide guidance on developing a national network of laboratories for zoonotic diseases.	Establish a national network of laboratories for zoonotic diseases.	Department of Disease Control Department of Medical Sciences	1.8	-	-	0.6	0.6	0.6	
3) Establish a resource map for the national public health laboratory network.	Develop a resource map of the national diagnostic laboratory network for human and animal diseases (National Public Health Laboratory).	Department of Disease Control Department of Medical Sciences	0.5	-	-	0.3	0.1	0.1	
4) Develop a plan for the National Public Health Laboratory Network.	Development plan for the National Public Health Laboratory Network.	Department of Disease Control Department of Medical Sciences	1.8	-	-	0.6	0.6	0.6	
Project 7: Electronic Laboratory Data Integration (Application Programming Interface: API)									
1) Establish a working group to develop the Electronic Laboratory Data Integration Program (Application Programming Interface: API).	Official order for the working group.	Information Technology and Communication Center, Ministry of Public Health Department of Medical Sciences Department of Disease Control	-	-	-	-	-	-	

Project/Key Project Activities	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
2) Organize working group meetings.	Minutes of the working group meetings.	Department of Disease Control Department of Medical Sciences	0.6	-	-	0.2	0.2	0.2	
3) Outsource the development of the Electronic Laboratory Data Integration Program (Application Programming Interface: API).	Electronic Laboratory Data Integration Program (Application Programming Interface: API).	Department of Disease Control Department of Medical Sciences	150	-	-	-	50	100	
Project 8: Develop National Guidelines on Biosafety and Biosecurity.									
1) Establish a working group to develop a National Guideline on Biosafety and Biosecurity.	Official order for the working group, *signed by the Permanent Secretary.	Department of Medical Sciences Department of Livestock Development Ministry of Higher Education, Science, Research, and Innovation (National Science and Technology Development Agency and Universities) Department of Disease Control	-	-	-	-	-	-	
2) Hire personnel to draft a National Guideline on Biosafety and Biosecurity (in Thai), referencing international guidelines such as the Laboratory Biosafety Manual, 4th edition (WHO).	National Guideline for Biosafety and Biosecurity (in Thai).	Department of Disease Control Department of Medical Sciences	0.5	-	-	0.5	-	-	
3) Hold working group meetings to review international guidelines and ensure alignment with the national context.	Minutes of the working group meetings.	Department of Disease Control Department of Medical Sciences	1.2	-	-	0.4	0.4	0.4	

Project/Key Project Activities	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
4) Draft the National Guideline on Biosafety and Biosecurity.	Draft of the National Guideline on Biosafety and Biosecurity.	Department of Disease Control Department of Medical Sciences	1.5	-	-	0.6	0.9	-	
5) Publish the National Guideline on Biosafety and Biosecurity.	Published the National Guideline for Biosafety and Biosecurity.	Department of Disease Control Department of Medical Sciences	0.2	-	-	-	-	0.2	
6) Conduct training sessions to develop trainers in biosafety and biosecurity.	Trainers in biosafety and biosecurity (at least 1 per health region per year).	Department of Disease Control Department of Medical Sciences	0.4	-	-	-	-	0.4	
7) Monitor and assess the National Guideline for Biosafety and Biosecurity implementation (conducted through online self-assessment) for review and improvement.	Report on the monitoring and assessment of the National Guideline on Biosafety and Biosecurity.	Department of Disease Control Department of Medical Sciences	0.05	-	-	-	-	0.05	

ACTION PLAN 5:
IMPLEMENT INTERNATIONAL HEALTH REGULATIONS WHILE DRIVING THE DEVELOPMENT OF THAILAND'S ECONOMY, SOCIETY, STABILITY, AND ENVIRONMENT TOWARD BECOMING A DEVELOPED NATION.

1. Objectives

1) To develop points of entry and exit to meet international-standards, with border health operations that align with the country's development context.

2) To enhance surveillance systems and management of chemical events and radiation emergencies to meet international standards.

3) To build and strengthen correct knowledge and understanding among the public, business operators, and high-risk areas nationwide, ensuring that these key target areas effectively enforce laws and fully comply with International Health Regulations (IHR).

4) To promote and support Thailand's public health capabilities and emergency health operations in providing international assistance and cooperation during global health emergencies.

2. Objectives, Indicators, and Target Values

Development Targets	Indicators (Responsible Person)	Past Performance	Target Values				
			2023	2024	2025	2026	2027
1) State Parties with surveillance and response capabilities for chemical risks or incidents should ensure effective communication and collaboration among those sectors responsible for chemical safety, including health, occupational health, emergency management, the environment, agriculture/veterinary, industry, transportation, and safe disposal.	CE.1 Mechanisms established and functioning for detecting and responding to chemical events or emergencies: Mechanisms established and functioning for detecting and responding to chemical events or emergencies scores.	4	4	4	4	5	5
	CE.2 Environment conducting in place for the management of chemical events: Environment conducting in place for the management of chemical events scores.	5	5	5	5	5	5
2) Thailand has the capacity for surveillance and response to radiation emergencies and nuclear accidents, requiring effective coordination among all sectors responsible for radiation emergency preparedness and response.	RE.1 Mechanisms established and functioning for detecting and responding to radiological and nuclear emergencies: Mechanisms established and functioning for detecting and responding to radiological and nuclear emergencies scores.	4	5	5	5	5	5

	RE.2 Environment conducting in place for the management of chemical events: Environment conducting in place for the management of chemical events scores.	5	5	5	5	5	5
	Level of success of the preparedness and response plan for nuclear and radiation emergencies and nuclear security incidents.	4	4.25	4.5	4.75	5	5
3) State Parties should designate points of entry and maintain core capacities at international airports and seaports. For valid public health reasons, State Parties may designate border crossings where necessary public health measures are implemented to manage various health risks.	PoE.1 Core capacity requirements at all times for PoE: Core capacity requirements at all times for PoE scores.	4	4.25	4.5	4.75	5	5
	Percentage of points of entry with established standard operating procedures (SOPs) and comprehensive plans covering All-Hazard Operations across 5 sectors, as coordinated by working groups.	N/A	0.8	0.85	0.9	0.95	1
	Percentage of points of entry that have developed and trained staff on environmental health inspection, covering all 7 operational programs.	N/A	0.8	0.85	0.9	0.95	1
4) Enhance the effectiveness of updating and developing public health measures for prevention, detection, and response to public health emergencies. This includes coordination among the Immigration Bureau, Customs Department, Ministry of Agriculture and Cooperatives, Ministry of Transport, Department of Highways, Department of Rail Transport, Port Authority of Thailand, Airports of Thailand, and others, under the International Health Regulations (IHR). Additionally, assess operational capacity and develop personnel skills to meet international standards.	PoE.2 Public Health Response At Point of Entry: Public health response at point of entry scores.	4	5	5	5	5	5
5) Improve surveillance efficiency based on existing	PoE.3 Risk-based approach to international	3	4	4	4	4	5

indicators at international points of entry by implementing event-based surveillance strategies that feed into the national surveillance system.	travel-related measures: Risk-based approach to international travel-related measures scores.						
	Percentage of international travelers from designated disease outbreak zones who are screened.	N/A	1	1	1	1	1
6) Ensure unified operations with clear structures, staffing, with information systems that align with the country's development needs and crisis conditions at each point of entry.	Percentage of success outcomes from implementing the annual development plan for operational systems.	N/A	1	1	1	1	1
7) Develop a systematic approach to international coordination at border crossings with neighboring countries to strengthen Thailand's border health. This should align with the country's economic, social, security, and environmental needs and the missions of relevant agencies, based on the requirements of each area.	Percentage of success outcomes from implementing the annual development plan for international health coordination, based on cross-border public health initiatives.	N/A	1	1	1	1	1

3. Strategies and Measures

Strategy 1: Enhance the country's capability in providing entry and exit channels, including airports, seaports, and borders, and managing public health risks to the country in accordance with international standards and in line with the context of national development.

Measures and Guidelines

1) Enhance the effectiveness of adjusting and developing public health protocols for prevention, detection, and response to public health emergencies, involving agencies such as the Immigration Bureau, Customs Department, Ministry of Agriculture and Cooperatives, Ministry of Transport, Department of Highways, Department of Rail Transport, Port Authority of Thailand, Airports of Thailand, and others. Establish operational systems that include health-related measures according to International Health Regulations (IHR 2005), the Communicable Diseases Act, B.E. 2558 (2015), and relevant laws and regulations.

2) Develop the core competencies of personnel at international disease control checkpoints by evaluating their knowledge, skills, and international-level abilities for surveillance. Specifically, ensure that border checkpoints reach Level 5 across all indicators (PoE 1 = 4, PoE 2 = 4, PoE 3 = 3). Improve surveillance systems at international disease control checkpoints by utilizing event-based surveillance strategies that feed into the national surveillance system.

3) Standardize and elevate operations to a national standard, with clear processes, structures, staffing, and information systems, that align with the country's development needs and the specific crisis conditions of each point of entry.

4) Strengthen international coordination at border crossings with neighboring countries, to elevate Thailand's border health within the context of the country's development needs. Specifically, in areas such as the economy, society, security, and the environment, as well as the relevant agency missions, based on each area's necessities.

5) Enhance existing patient surveillance skills by incorporating event-based surveillance strategies into the national surveillance system. Implement advanced technologies to improve the effectiveness of surveillance systems at international disease control checkpoints. Increase training of staff stationed at points of entry to ensure they are equipped to handle health emergencies, covering all potential health hazards.

6) Develop standards at certain points of entry, and update national and international guidelines to include hygiene standards and vector control. Introduce contactless technologies at points of entry to facilitate operations, reduce risks to travelers, and minimize exposure to disease and health hazards.

7) Strengthen the capacity to respond to disease outbreaks and health threats in alignment with the International Health Regulations' all-hazard framework. Enhance agreements between points of entry and nearby medical facilities to better manage health emergencies.

8) Develop operational guidelines tailored to specific risks, following (a) WHO's technical guidelines for managing international travel risks, and (b) Articles 2 and 43 of the International Health Regulations (2005). Promote border health operations, including maintaining food and water hygiene, waste management, and vector control, to support the country's development in line with global standards.

9) Build on the successes of the response to COVID-19 by improving systems for referral, treatment, and event surveillance at points of entry. Provide resources and equipment to enhance surveillance, control, and emergency response capabilities at points of entry.

10) Expand capabilities to integrate these skills for managing other health threats, including dangerous communicable diseases, cross-border diseases, declared epidemics, and other health hazards. Enhance laboratory screening at points of entry to increase capacity for diagnosing dangerous, cross-border communicable diseases.

11) Scale up the success of point-of-entry drills and promote their adoption of all-hazard plans, moving toward full-scale exercises as a best practice.

12) Integrate data from various agencies related to points of entry into a centralized system that can be leveraged for all-hazard plans, covering five health threat domains under IHR 2005. Strengthen the expertise of personnel at points of entry and promote mentoring from model points of entry to transfer knowledge and best practices.

13) Establish and develop resource management systems (health and non-health), budgets, and critical equipment (facilities, equipment) to support operations at points of entry.

14) Coordinate activities such as screening, disease investigation, isolation, and quarantine of suspected patients, as well as referral to healthcare facilities. Improve environmental sanitation and vector control efforts at points of entry through collaboration with relevant officials.

15) Implement a multi-dimensional travel data system that integrates innovative technologies, such as AI kiosks, to assist in screening travelers from high-

risk areas, thus reducing the burden on personnel and facilitating efficient traveler monitoring.

16) Develop reporting systems for sanitation at points of entry, such as scientific reports on the critical parameters of free chlorine levels in water, CI HI values from mosquito and larval tests, waste/waste water management, and drinking water hygiene.

Strategy 2: Develop a system for monitoring and managing chemical incidents and radiological emergencies to meet standards, thus building confidence among citizens, investors, and tourists.

Measures and Guidelines

1) Budgetary investment to ensure sufficient resources, personnel, and capabilities to manage chemical incidents across various sectors. This involves conducting risk/gap analyses to identify needs at the national, intermediate, and primary healthcare levels, including points of entry. The response will then be tailored to meet such identified needs.

2) Develop a chemical management system to detect, control, and monitor chemicals and chemical industries. Establish an effective chemical hazard warning network with high-quality surveillance. This will be achieved through risk analysis, lessons learned from chemical incidents, and the development of a model for a national chemical incident management action plan. Thailand aims to become a regional leader in chemical safety management, enhancing law enforcement efficiency to regulate chemicals and chemical industries not currently covered by existing legislation.

3) Integrate collaboration among chemical-related agencies to ensure unified, system-wide information sharing. Implement effective law enforcement, establish standardized chemical hazard warning systems, and ensure timely and effective communication in response to chemical threats.

4) Develop a platform for cross-agency information sharing and establish a standardized warning communication system. Enhance monitoring and tracking of the transport and handling of chemicals and chemical products.

5) Establish a complete database to predict chemical dispersion from leaks, utilizing software for situation assessment and analysis. Implement a reliable public warning system that delivers timely alerts, which is verified by regulatory agencies overseeing chemical usage.

6) Enhance detection capabilities using tools, such as real-time satellite monitoring, to assess chemical incidents. Establish a trusted government application for chemical hazard warnings, and develop a robust system to prevent illegal chemical imports.

7) Promote and support the establishment of a national toxicology center with the capacity to care for, treat, and refer individuals affected by chemical exposure in all health zones. This center will operate under standardized protocols, offering integrated services with toxicology experts at every center. Additionally, the center will strengthen international data exchange in chemical toxicology.

Strategy 3: Promote and support international health emergency operations when a health emergency occurs.

Measures and Guidelines

1) Accelerate the development of national operational standards and enhance the capabilities of personnel responding to radiation emergencies, focusing on national-level drills that involve interagency collaboration.

2) Increase training for frontline personnel and emergency responders, focusing on tabletop and field exercises, as well as full cooperation among related sectors and emergency agencies.

3) Develop formal Standard Operating Procedures (SOPs) for notifications and coordination with International Health Regulations (IHR) National Focal Points in the event of a radiation or nuclear emergency, in compliance with the Nuclear Energy for Peace Act, B.E. 2562 (2019).

4) Create an operational manual for nuclear and radiological management (Regional Workshop Management in Radiological Security) for those affected by radiation emergencies and for specialized hospital personnel. Ensure they receive training in standard operational protocols and establish procedures for accessing essential medical supplies (medical stockpiles) required for treating radiation injuries.

5) Strengthen the capacity of healthcare facilities to accommodate, treat, and refer individuals affected by radiation emergencies across all health zones. Develop guidelines for managing radiation-affected individuals, provide training for hospital staff, and establish SOPs for essential medical supplies used in treating radiation injuries.

6) Establish comprehensive agreements for cross-sectoral cooperation with relevant agencies to foster coordinated radiation response at the national level, including international linkages.

7) Allocate budgets, materials, and equipment from both public and private sectors to expand operational centers with standardized personnel in radiation safety. Develop curricula to enhance learning in nuclear and radiological safety, and promote innovation that minimizes human exposure during emergency responses.

Strategy 4: Strengthen development in accordance with International Health Regulations in line with national development strategies.

Measures and Guidelines

1) Development is under International Health Regulations (IHR) to support national security:

- Enhance capability to monitor health threats from disease outbreaks along border areas and immigration.
- Develop national policies, plans, and measures to address medical and public health emergencies.
- Improve the emergency medical services system in security-sensitive areas, including the southern border provinces, to ensure efficiency, standardization, and rapid response.

2) Drive IHR development to boost the country's competitiveness and build confidence for trade partners, investors, and tourists:

- Promote and support food security and agricultural innovation to produce high-value food products, enhancing the nation's competitiveness and positioning of Thailand as a global food hub.
- Strengthen tourism by developing tourist attractions with good hygiene standards.
- Enhance tourist safety by establishing an emergency medical system in key tourist destinations across the country. Support efficient disease screening for international travelers, and communicate health

management strategies during health crises. Improve the capacity of tourism-related personnel to manage environmental health services.

- Support entrepreneurs in enhancing service and product development in line with IHR.
- Promote and support research to increase the country's vaccine production capacity.

3) Promote and support human resource development to enhance national growth and regional excellence:

- Encourage academic, production, and personnel development in line with IHR, and support neighboring countries and international cooperation.
- Elevate Thailand's capacity to serve as a medical emergency training hub in Asia.
- Develop national mechanisms to improve population health quality, focusing on prenatal and early childhood nutrition (from pregnancy to 1,000 days), thus ensuring that mothers and children receive nutritious meals through the national welfare system. Promote good genetic health for population growth with state-supported nutrition programs for children aged 0-6.

4) Promote equitable development to reduce disparities in healthcare access during normal times and health crises:

- Enhance emergency medical services in high-risk areas, such as the highlands, islands, remote regions, and hard-to-reach areas.
- Improve access to health immunity-building services for all age groups, especially vulnerable and disadvantaged populations.

5) Promote environmental development and sustainability through IHR mechanisms:

- Support IHR development using the BCG (Bio-Circular-Green) Model.
- Foster innovation to improve public health in line with IHR.

6) Enhance government administration and services to support IHR development:

- Review budget allocation regulations to address national health crises.
- Revise procurement regulations to ensure alignment with the country's urgent needs during crises.
- Review and modernize laws across all government agencies related to IHR development to ensure flexibility and compliance with global standards and changes in the domestic situation.

National Action Plan for Health Security (NAPHS)
Action Plan 5: Implement International Health Regulations while driving the development of Thailand's economy, society, stability, and environment toward becoming a developed nation.

Project/Key Project Activities	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 1: Disaster prevention and mitigation training									
1) Disaster prevention and mitigation training:	Conduct at least one Level 3 disaster training session and at least 76 provincial-level training sessions annually. Integrate operations between the Royal Security Command, the Central Volunteer Command, government agencies, state enterprises, local administrative organizations, educational institutions charitable organizations, private sectors, and international organizations, across Bangkok and 76 provinces.	Department of Disaster Prevention and Mitigation	12.88 Annual Expenditure Budget	12.88	-	-	-	-	
Project 2: Promote and develop chemical safety management in the industrial sector to prevent and reduce impacts from major chemical events									
1) Provide consultation and technology transfer for impact assessment and preparedness in case of major chemical events. 2) Develop knowledge and enhance the capabilities of factory operators, factory workers, Ministry of Industry officials, and related personnel. 3) Develop a mechanism for managing information systems to prevent and	1) At least 15 factories per year receive technology transfer for impact assessment and preparedness for major chemical events. 2) Develop 3 e-learning courses on chemical safety management.	Department of Industrial Works	4.4 A project to promote and develop chemical safety management in the industrial sector to prevent and reduce impacts from major chemical events (under the budget for development	4.4	-	-	-	-	

Project/Key Project Activities	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
coordinate responses to major chemical events.			and efficiency enhancement of energy use and safety in industrial factories).						
Project 3: Prepare for nuclear and radiological security incidents and emergencies									
1) Implement the nuclear and radiological emergency plan and establish standard procedures under the plan. 2) Conduct training and drills for relevant personnel to prepare for nuclear and radiological emergencies and nuclear security incidents. 3) Enhance the capacity to respond to nuclear and radiological emergencies and nuclear security incidents.	1) Number of personnel of relevant agencies with knowledge and understanding of operations in the event of nuclear and radiation emergencies according to the nuclear and radiation emergency plan (50 people per year). 2) Number of standard operating procedures of relevant agencies (2 matters per year).	Office of Atoms for Peace	25.55 Budget Bureau	1.45	9.1	5	5	5	
Project 4: Strengthen cooperation at points of entry									
1) Establish agreements between ministries and points of entry to promote compliance with International Health Regulations (IHR).	Establish a Memorandum of Understanding (MOU) between ministries and points of entry.	- Department of Disease Control - Subcommittee on the Development of Points of Entry	1	-	0.3	0.3	0.4	-	
2) Organize meetings to promote collaboration between countries (national, regional, and at points of entry).	Conduct/participate in at least one meeting annually.	- Department of Disease Control	2	-	0.5	0.5	0.5	0.5	
3) Create mechanisms for regular collaboration between officials responsible for risk assessments at points of entry and the regional level.	Number of meetings held: once a year.	- Department of Disease Control	4	-	1	1	1	1	

Project/Key Project Activities	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 5: Develop operations to comply with International Health Regulations									
1) Improve infrastructure at points of entry to meet international standards.	Develop infrastructure, such as office spaces and equipment, at points of entry.	- Department of Disease Control	15	-	4	4	4	3	
2) Conduct public health and vector control surveillance at points of entry in collaboration with relevant personnel.	- Develop guidelines for public health surveillance and vector control at points of entry. - Organize a meeting at least once a year.	- Department of Disease Control	3	-	0.5	0.5	1	1	
3) Establish agreements with local health facilities for quarantine and treatment of affected imported animals, as well as other necessary supports.	- Establish agreements or meeting reports related to quarantine procedures.	- Department of Disease Control - Department of Livestock Development	2	-	0.5	0.5	0.5	0.5	
4) Hold a meeting to establish procedures/mechanisms for handling public health emergencies. In cases where border control measures exceed those recommended by the World Health Organization (WHO), both routine and temporary measures must be implemented. There should be a mechanism in place to receive input from the WHO at least 48 hours in advance, in accordance with the International Health Regulations (2005), Article 43.	Number of meetings held: once a year.	- Department of Disease Control - Subcommittee on the Development of Points of Entry - Working Group on Points of Entry	1	-	0.25	0.25	0.25	0.25	
5) Develop national and international guidelines on public health and vector control at points of entry.	- Develop national and international guidelines for public health and vector control.	- Department of Disease Control - Working Group on Points of Entry	1	-	0.25	0.25	0.25	0.25	

Project/Key Project Activities	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
	Organize a meeting once a year.								
6) Promote waste disposal systems for infectious waste at points of entry.	Report on the waste disposal systems for infectious waste at points of entry.	- Department of Disease Control	1	-	0.25	0.25	0.25	0.25	
7) Develop specific guidelines, standard operating procedures, and training programs, including high-speed rail inspections. Conduct training, provide knowledge, and develop guidelines and manuals for border officers as appropriate.	- Guidelines and standard operating procedures for developing high-speed rail inspections. - Organize a meeting once a year.	- Department of Disease Control	1	-	0.25	0.25	0.25	0.25	
Project 6: Integrate response plans and drills for all health hazards									
1) Points of Entry will prepare a response plan to cover all diseases and health hazards within five years, with linkages and continuity with relevant agencies.	- Develop comprehensive response plans for points of entry covering all health hazards. - Organize a meeting once a year.	- Department of Disease Control - Subcommittee on the Development of Points of Entry - Working Group on Points of Entry - Department of Airports - The Civil Aviation Authority of Thailand - Airports of Thailand Public Company Limited - Marine Department - Port Authority of Thailand	5	-	1.5	1.5	1	1	
2) Conduct training on incident command systems at border points of entry.	Organize a meeting once a year.	- Department of Disease Control	2	-	1	-	1	-	

Project/Key Project Activities	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
3) Conduct drills on all health hazards based on lessons learned from the emergency response plan.	Conduct a drill once a year.	- Department of Disease Control - Working Group on Points of Entry	10	-	2.5	2.5	2.5	2.5	
Project 7: Development of information systems and data									
1) Create a centralized multi-dimensional traveler database system.	1 system.	- Department of Disease Control	4	-	2	-	2	-	
2) Develop an environmental sanitation and vehicle sanitation reporting system at points of entry.	Environmental sanitation and vehicle sanitation reporting system at points of entry (1 system).	- Department of Disease Control	4	-	2	2	-	-	
3) Create innovative technologies, such as an AI Kiosk system, to assist in screening travelers entering high-risk areas, in order to increase operational efficiency. - A contactless system for airport channels to enhance coverage.	1 innovative system.	- Department of Disease Control - Department of Airports - Airports of Thailand Public Company Limited	20	-	5	5	5	5	
4) Develop the infrastructure for information systems at international communicable disease control checkpoints.	Number of points of entry that receive funding support for infrastructure improvements, such as office space and equipment, will be no less than two.	- Department of Disease Control	10	-	2.5	2.5	2.5	2.5	
5) Provide an event-based surveillance system at points of entry for monitoring incidents through the surveillance and reporting mechanisms.	Surveillance and reporting mechanism from points of entry (1 system).	- Department of Disease Control	10	-	3	3	4	-	

Project/Key Project Activities	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
Project 8: Monitoring and Assessment									
1) Create a guideline for monitoring and assessing performance based on SPAR (State Party Self-Assessment Annual Reporting).	Completed SPAR monitoring guideline.	- Department of Disease Control	1	-	0.25	0.25	0.25	0.25	
2) Prepare for IHR-JEE (International Health Regulations - Joint External Evaluation) in the year 2030 (before the JEE assessment, two assessments will be conducted).	Organize a meeting at least once every two years.	- Department of Disease Control	4	-	-	2	-	2	
3) Field visits and assessments.	Number of field visits is no less than twice per year.	- Department of Disease Control	4	-	1	1	1	1	
4) Monitor performance based on the Action Plan for points of entry, as per the Communicable Diseases Act, B.E. 2558 (2015).	Points of entry Action Plan developed in accordance with the Communicable Diseases Act.	- Department of Disease Control	0.5	-	0.125	0.125	0.125	0.125	
5) Monitor and assess Designated Points of Entry according to the IHR. - Meetings to drive reporting and monitoring based on SPAR guidelines, with annual reports sent to the World Health Organization (WHO). - Annual monitoring and reporting of SPAR. - Promote the Office of Disease Prevention and Control to monitor points of entry within their regions, using the SPAR monitoring tool.	- Organize a meeting at least once a year. - Annual report sent to WHO. - Annual report sent to the Department of Disease Control.	- Department of Disease Control	2	-	0.5	0.5	0.5	0.5	

Project/Key Project Activities	Outputs, Indicators, and Target Values	Main Responsible Person	Budget (Source)	Implementation Period (Unit: Million Baht)					Notes
				2023	2024	2025	2026	2027	
- Conduct inspections, monitoring, and assessments based on the orders of the Subcommittee or other entities.	- Five inspections of Designated Points of Entry per year.								
6) Monitor and assess Non-designated Points of Entry. - Promote the Office of Disease Prevention and Control to monitor points of entry within their regions, using the SPAR monitoring tool.	Annual report sent to the Department of Disease Control.	- Department of Disease Control	1	-	0.25	0.25	0.25	0.25	

CHAPTER 5:
DRIVING THE NATIONAL ACTION PLAN FOR HEALTH SECURITY (NAPHS) IN IMPLEMENTATION, MONITORING, AND ASSESSMENT

To achieve the objectives and goals set forth, specific measures and guidelines have been established to translate the Strategic Plan into action and ensure effective monitoring and assessment:

1. Enhance understanding of the National Action Plan for Health Security (NAPHS), while establishing guidelines for integrated management that align with health standards and services, as well as risk management. The essence of the strategy is to translate the Plan into action, ensuring mutual understanding among all related organizations, both internal and external, to be ready and actively involved in effective implementation of the Plan. Key actions include:
    1) Foster a shared understanding of the concepts and key elements of the National Action Plan for Health Security (NAPHS). This will be achieved by organizing forums to create awareness of the mission, goals, and development strategies for government agencies and related networks. These entities will be informed of their roles and responsibilities concerning the Plan, and the networks that will support its implementation, to achieve tangible results.
    2) Drive the budgeting system and seek funds to support the necessary actions for implementing the National Action Plan for Health Security (NAPHS). This includes developing personnel competencies aligned with the strategies and projects of each specific initiative, with a strong focus on operational outcomes.
    3) Adjust planning methods related to healthcare service provision and management at each level, as well as budgeting processes, by defining shared target areas (Area/Function/Participation: AFP). This approach emphasizes participation with the local agency networks responsible for implementation of the Action Plan, and aims to ensure that health management benefits the public, with a focus on quality services.
    4) Encourage related network agencies to develop action plans that align with the National Action Plan for Health Security (NAPHS). This ensures that all efforts are directed toward the same goals, and that these agencies can link and evaluate their performance according to the defined strategic plans, thus leading to more efficient consideration and allocation of resources.
2. Appoint an executive committee for the National Action Plan for Health Security (NAPHS), composed of representatives from relevant agencies, with the Department of Disease Control serving as the secretariat.
3. Arrange for the signing of performance agreements to establish strategic commitments with relevant agencies. These agreements should link performance under the National Action Plan for Health Security (NAPHS) to performance evaluations and resource allocations. Additionally, continuous strategic communication measures should be employed to create an ongoing strategic atmosphere within the organization's network. This can be achieved through various activities designed to energize and drive consistent implementation of the Plan.
4. Develop an integrated process for drafting plans and projects, while prioritizing key actions to serve as tools in facilitating the transition from planning to implementation. Support the creation of integrated plans and projects through coordination between relevant government agencies, the private sector, as well as

communities involved in the mission and strategy of the National Action Plan for Health Security (NAPHS).

5. Establish clear steps in the process of implementing plans and projects, focusing on creating a paradigm shift among network agency personnel within the of the National Action Plan for Health Security (NAPHS) system. Emphasize the prioritization of tasks and activities that aim for measurable outcomes, aligning with the budgeting process to ensure maximum benefit from execution of the Plan.

6. Establish a system for monitoring and evaluating the outcomes of plans and projects to ensure they align with the strategic objectives of the National Action Plan for Health Security (NAPHS). This system must allow for concrete tracking and evaluation through the use of information technology, while also developing mechanisms and tools for such monitoring and evaluation. Additionally, success indicators for each plan and project should be defined in line with the development guidelines of each respective action plan, by:

1) Coordinating monitoring and evaluation efforts to create a unified standard across related agencies, with interconnected networks to systematically synchronize plans, personnel, and budget information.
2) Supporting related network agencies in conducting evaluations of the plans and projects under the National Action Plan for Health Security (NAPHS), with an emphasis on setting key performance indicators and an outcome-focused evaluation system.
3) Using the findings from the monitoring and evaluation process to refine and improve planning and implementation strategies, ensuring that the achievement of objectives are consistent with the vision of the National Action Plan for Health Security (NAPHS).
4) Developing knowledge and enhancing understanding of monitoring and evaluation, along with the establishment of success indicators for the agencies involved in the National Action Plan for Health Security (NAPHS), in order to build the necessary skills for effective monitoring and evaluation, which can then be practically applied across all agencies.

7. Develop an information system to support implementation of the Action Plan for the Department of Disease Control, ensuring it serves as the primary agency for continuously monitoring and evaluating the progress of the National Action Plan for Health Security (NAPHS). This system should also facilitate the establishment of a network to enable shared usage at all levels, particularly through the development of a comprehensive database to support project planning, monitoring, evaluation, and decision making.

8. Implement quarterly monitoring of project progress and key performance indicators in line with the strategic development objectives. Assign responsible personnel within the relevant agencies to analyze the progress of the National Action Plan for Health Security (NAPHS), with results presented to management on a monthly basis during executive meetings.

9. Strengthen the capacity of the agencies involved in the National Action Plan for Health Security (NAPHS) by developing them into professional strategic managers. These professionals should be capable of efficiently managing, tracking progress, and evaluating the performance of projects under the Plan, ultimately delivering measurable results that contribute to the overall development strategy.

10. Establish a Strategic Assessor Team (SAT) to serve as evaluators of the implementation of the National Action Plan for Health Security (NAPHS). This team will be formed by selecting and training supervisors and department heads from

agencies involved in the Action Plan. They will be officially appointed to work in parallel with the strategic implementation, in coordination with internal audit teams conducting evaluations twice a year.

11. Enhance methods for translating the National Action Plan for Health Security (NAPHS) into actionable projects, focusing on urgent initiatives. The process will prioritize the achievement of strategic outcomes, linking projects with partner agencies, and pushing for budget allocation through national and agency-specific budget proposals to ensure effective execution of the Action Plan.

12. Establish a system for monitoring the progress of plans, projects, and budgets in line with policy. All affiliated agencies must report results immediately upon completion through the project progress reporting system (using the project progress tracking form in the appendix). This system will ensure accurate, timely, and efficient processing of data, thus improving monitoring, development, and operational support. The data will be linked to the Department of Disease Control's reporting system via the Strategic Management Information System (SMS) and the eMENSCR system on a quarterly basis.

13. Establish a system for monitoring and assessing performance indicators, with assessments divided into two parts:

1) Internal Assessment: This involves assessing the performance of network agencies within the the National Action Plan for Health Security (NAPHS) system. A committee will be appointed to oversee the Action Plan and approve Corporate Strategy-level indicators (organization-level strategies). This process will consider the mission goals, stakeholder expectations, and past performance, to determine success metrics (indicators), and to forecast short-term (quarterly "Small Success") and long-term (five-year) outcomes during preparation of the Action Plan. Annual evaluations will be conducted through the reporting system, with budget expenditure performance evaluated quarterly through the e-budgeting system.
2) External Assessment: This involves an assessment by external partner agencies appointed by the executive committee of the National Action Plan for Health Security (NAPHS). These assessments will take the form of cross-agency assessments, providing support in medical science and technology based on specific needs, as well as promoting knowledge exchange. Performance indicators will be determined by taking past results and necessary monitoring contexts into account, in collaboration with stakeholders such as relevant network agencies, private sector partners, and local organizations.

14. Establish a system for supervision, visits, and executive meetings, such as monthly meetings of the Executive Committee for the National Action Plan for Health Security (NAPHS). These meetings will take place during the first week of each month, to monitor urgent policy issues or matters requiring joint executive decisions In emergencies. Executive meetings will be conducted via conference calls.

15. Create a system for evaluating the National Action Plan for Health Security (NAPHS), linked to the performance agreements of each agency. This includes setting indicators, targets, and scoring criteria, which will be used in evaluating the performance of civil servants, as agreed upon in their performance agreements. The system will encourage personnel to commit to achieving meaningful, cost-effective results that meet public needs. Evaluations will be conducted twice a year through the E-PA system.

16. Implement a system for monitoring and evaluating strategic risks in the National Action Plan for Health Security (NAPHS), aiming to reduce the likelihood of operational failures that could hinder goal achievement. Additionally, this system will foster organizational learning (Learning Organization). Strategic risk management (Enterprise Risk Management: ERM) will be conducted according to COSO guidelines at both the departmental and sub-agency levels within the network of partners involved in the Action Plan. Risk monitoring and evaluations will take place twice a year.

APPENDIX

Project Progress Monitoring for Strategic Implementation
(Project Monitoring Phase)

General Introduction

a. Specify the objectives of project progress monitoring:

1) .....
2) .....
3) .....
4) .....
5) .....

b. Timeframe for project progress monitoring:

☐ Monthly ☐ Quarterly ☐ Semi-annually ☐ Annually

Specify the timeframe: .....

c. Person responsible for project progress monitoring (specify department/person/position):

1) Primary person responsible for monitoring: .....
2) Person being monitored: .....
3) Persons involved in providing information: .....
4) Others: .....

d. The data required for monitoring consists of five sections as follows:

Section 1: Monitoring the alignment of the project with the strategic plan.

Section 2: Monitoring the progress of the Action Plan and project budget.

- 2.1) Monitoring the progress of the Action Plan for project implementation (Project Schedule Variance).
- 2.2) Monitoring the progress of the project budget for implementation (Project Cost Variance).

Section 3: Managing issues and obstacles encountered during project execution.

Section 4: Project lessons learned.

- 4.1) Summarizing the key lessons learned during the project for strategic plan implementation.
- 4.2) Adjusting the project based on lessons learned.

Section 5: Summary of the project's situation in relation to strategic plan implementation.

- 5.1) Summarizing the project's operational status in alignment with the strategic plan.
- 5.2) Summarizing the project's progress in relation to the status and potential of the strategic plan.

The report must be comprehensive, with all necessary supporting documents attached. The report must be submitted to the office by ..... For further inquiries, please contact .....

e. Signature of the person responsible for reporting results: .....
Position: .....

Signature of the person reviewing the completeness of the report: .....
Position: .....

Signature of the person approving the project progress report: .....
Position: .....

Section 1: Monitoring the alignment of the project with the strategic plan.
Project: .....

Project Implementation Activities	Specify the nature of the alignment with the strategic plan (with justification)				
	Strategic Issues	Objectives	Strategies	Indicators	Outputs

Section 2: Monitoring the Progress of the Action Plan and Project Budget

2.1) Monitoring the progress of the Action Plan for project implementation (Project Schedule Variance)

Activities	Responsible Person	Duration	Action Plan (Schedule)		Performance Results		Summary of Plan/ Actual Comparison (Schedule Variance)	Notes
			Start	End	Start	End	(Delayed/On Schedule/Ahead of Schedule)	

Summary of the Current Status of Action Plan Progress:

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2.2) Monitoring the progress of the project budget for implementation (Project Cost Variance)

Activities	Responsible Person	Operation		Budget	Actual Budget Expenditure		Percentage of Performance Results	Comparison of Plan/Actual (Cost Variance) (Percentage)		
		Start	End		Amount	Percentage		Below Plan	On Plan	Above Plan

Summary of the Current Status of Action Plan Progress:

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.....

Section 3: Managing Issues and Obstacles Encountered During Project Execution

Factors	Topics	Problems/Obstacles that Occurred During Project Implementation	Solutions Implemented to Address the Problems	Additional Recommendations for Future Problem-Solving
Human Resources	☐ Project Executor ❍ Administrator ❍ Operator ☐ Project Customer ☐ Beneficiary/Stakeholder ☐ Others: ……			
Management	☐ Operational Model ☐ Management Structure ☐ Coordination ☐ Standard Operating Procedures ☐ Others: ……			
Equipment/Materials	☐ Materials/Equipment ☐ Machinery ☐ Supplies ☐ Others: ……			
Budget	☐ Insufficient ☐ Exchange Rate ☐ Others: ……			
Environmental Factors	☐ Natural ☐ Economic, Social, Political ☐ Others: ……			

Factors	Topics	Problems/Obstacles that Occurred During Project Implementation	Solutions Implemented to Address the Problems	Additional Recommendations for Future Problem-Solving
Public Relations	☐ Communication and Public Relations ☐ Marketing ☐ Raising Public Awareness ☐ Others: ……			
Technology	☐ Data and Information ☐ Technology ☐ Knowledge ☐ Others: ……			

Section 4: Project Lessons Learned

4.1) Summarizing the key lessons learned during the project for strategic plan implementation.

Factors/Activities	Summary of Key Lessons and Important Situations	Key Success Factors (KSF) or Critical Success Factors (CSF) for Further Development
Human Resources - Activity 1: ..... - Activity 2:		
Management - Activity 1: ..... - Activity 2:		
Equipment/Materials - Activity 1: ..... - Activity 2:		
Budget - Activity 1: ..... - Activity 2:		
Environmental Factors - Activity 1: ..... - Activity 2:		
Public Relations - Activity 1: ..... - Activity 2:		

Factors/Activities	Summary of Key Lessons and Important Situations	Key Success Factors (KSF) or Critical Success Factors (CSF) for Further Development
Technology - Activity 1: ..... - Activity 2:		

4.2) Adjusting the project based on lessons learned.

Adjustments to activities and implementation of the Action Plan toward strategic plan advancement:

☐ Yes ☐ No, because.....

Adjustment of the budget plan toward driving the strategic plan:

☐ Yes ☐ No, because.....

Adjustment of the implementation period for driving the strategy:

☐ Yes ☐ No, because.....

Section 5: Summary of the Project's Situation in Relation to Strategic Plan Implementation:
5.1) Summarizing the project's operational status in alignment with the strategic plan.
Strategy: .....
Project: .....

Past Performance			Indicators	Target Values Target for Current Year	Score					Completion Status Notes
201.....	201.....	201.....			1	2	3	4	5	

5.2) Summarizing the project's progress in relation to the status and potential of the strategic plan.

Projects/Activities	Customer Needs for the Project	SWOT Analysis Before Project Implementation	Relevant Strategic Options	Changes (During Project Execution)