

ROUNDTABLE
DISCUSSION
REPORT

SERIES 2

Health system Impact of Pandemics

Bangkok, Thailand

28 - 29 March 2024



Australian Government

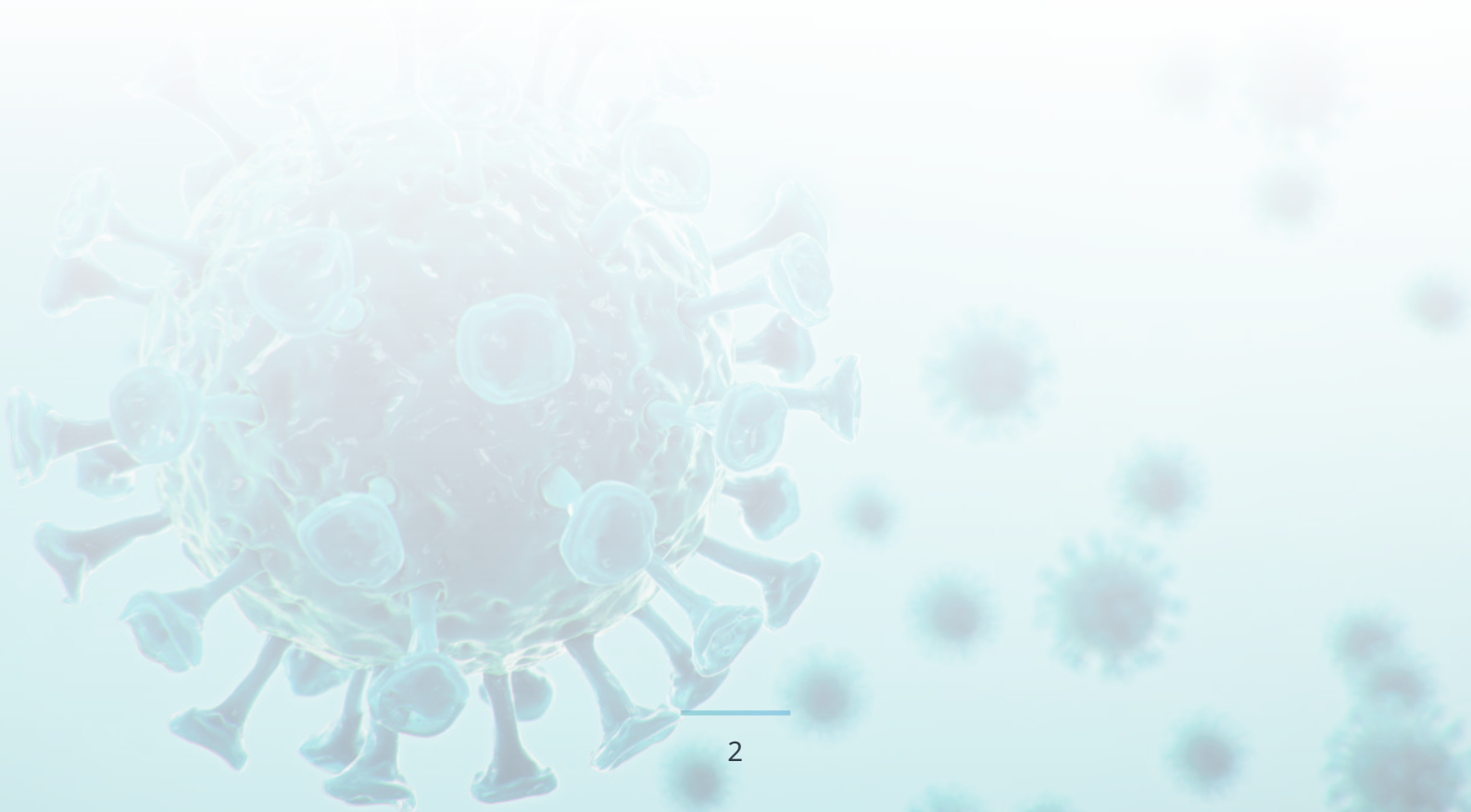


ROUNDTABLE DISCUSSION REPORT

SOUTHEAST ASIA HEALTH SECURITY ROUNDTABLE SERIES

Improving Regional Health Security through Knowledge
Exchange & Collaboration

SERIES 2: Health System Impact of Pandemics



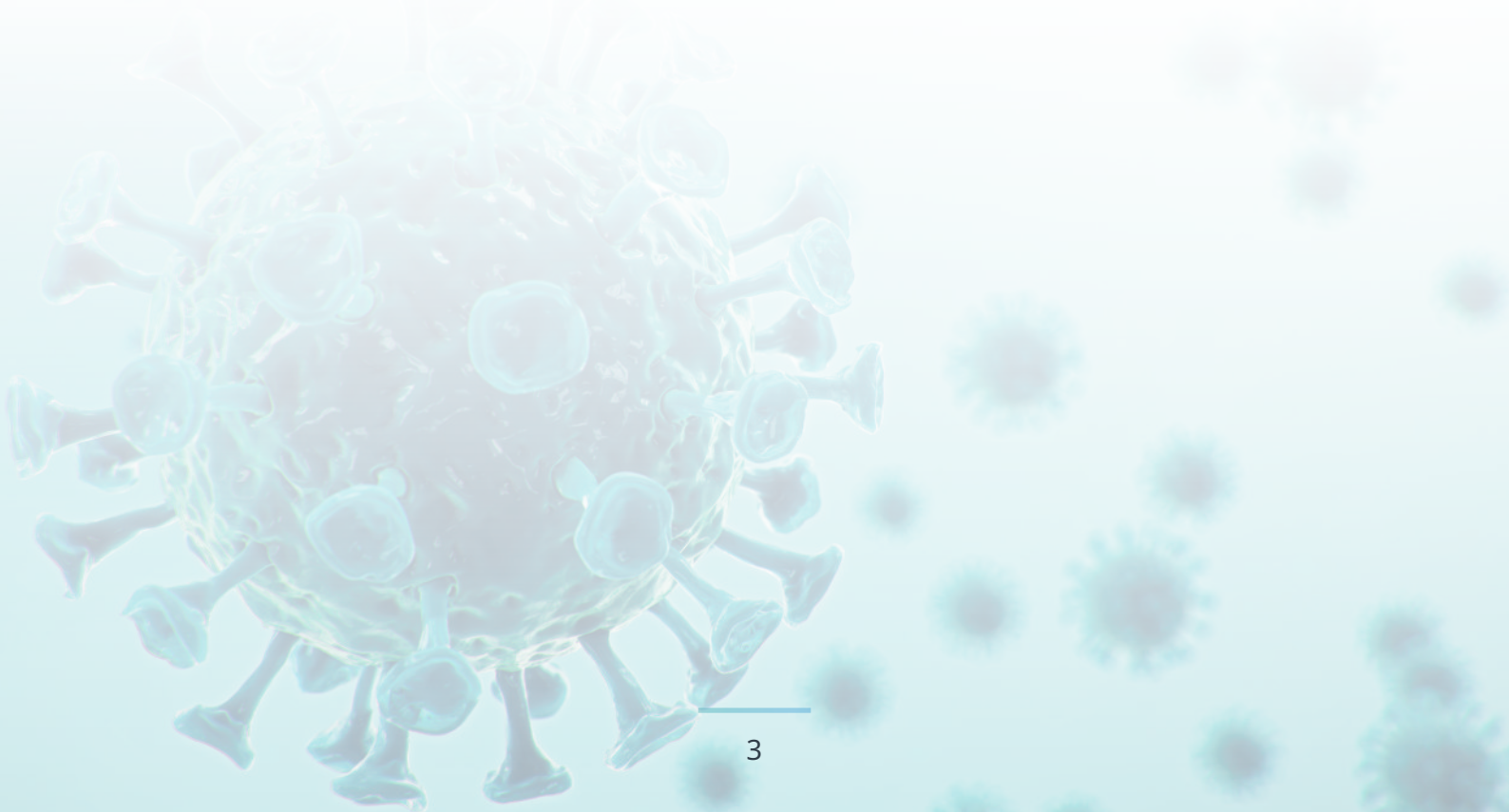


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Health Intervention and Technology Assessment Program (HITAP), Thailand & Saw Swee Hock School Of Public Health (SSHSPH), Singapore, 2024

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List of Abbreviations

ABVC	The ASEAN BioDiaspora Virtual Centre
ACHPEED	ASEAN Centre for Public Health Emergencies and Emerging Diseases
AHA Centre	The ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management
AMS	ASEAN Member State
APD	Automated Peritoneal Dialysis
ASCC	The ASEAN Socio Cultural Community
ASEAN	The Association of Southeast Asian Nations
BIDI	Bamrasnaradura Infectious Diseases Institute
CAM	Complementary & Alternative Medicine
CHW	Community Health Worker
DCDC	Department of Communicable Disease Control
DDC	Department of Disease Control
DFAT	The Department of Foreign Affairs and Trade
DHIS2	District Health Information Software
DOTS	Direct Observation of Therapy
EHS	Essential Health Services
EOC	Emergency Operations Center
EU	The European Union
EWS	Early Warning System
GHS	Global Health Security
G20	The Group of Twenty
HCSA	The Healthcare Services Act
HIA	Health Impact Assessment
HIB	Health Information Bill
HITAP	Health Intervention and Technology Assessment Program
HSG	Healthier Singapore
ICT	Information and Communications Technology
IHR	International Health Regulations
IMS	Incident Management System

Lao DPR	The Lao People’s Democratic Republic
MERS	Middle East respiratory syndrome
MME	Medical Monitoring Equipment
MOH	Ministry of Health
NEHR	National Electronic Health Record
NERP	National Economic Recovery Program
NHF	National Health Foundation
P-ABS System	Pathogen Access and Benefit-Sharing System
PD	Peritoneal Dialysis
PHE	Public Health Emergencies
PHEOC	Public Health Emergency Operations Center
PhilHealth	Philippine Health Insurance Corporation
PHMCA	The Private Hospitals & Medical Clinics Act
PMAC	Prince Mahidol Award Conference
PPE	Personal Protective Equipment
RCCE	Risk Communication and Community Engagement
RHS	Resilient Health System
ROK	The Republic of Korea
RRT	Renal Replacement Therapy
SARS	Severe acute respiratory syndrome
SEARO	The Southeast Asia Region of WHO
SOPs	Standard Operating Procedures
SSHSPH NUS	Saw Swee Hock School of Public Health, National University of Singapore
TB	Tuberculosis
UHC	Universal Health Coverage
UNPAD	Universitas Padjadjaran
VOTS	Video Observed Therapy Short-Course
VTD	Vaccines, Therapeutics, Diagnostics
WGS	Whole Genomic Surveillance
WHO	World Health Organisation
WPRO	The Western Pacific Region of WHO

Foreword

I am grateful for the opportunity to present this report from the second Health Security Roundtable Series. I extend my sincere appreciation to the Australian Department of Foreign Affairs and Trade (DFAT), the Saw Swee Hock School of Public Health at the National University of Singapore (SSHSPH NUS), Padjadjaran University (UNPAD), Indonesia, and the Health Intervention and Technology Assessment Program (HITAP), Thailand for their collaboration in this important initiative aimed at promoting regional dialogue and development for pandemic preparedness and response.

As we conducted this forum, we recognised the urgent need to address the challenges and lessons learned from the recent pandemic and previous health crises. The COVID-19 pandemic has not only tested the resilience of our healthcare infrastructure but has also exposed vulnerabilities and disparities within our health systems worldwide.

In recent years, we have witnessed firsthand the immense strain placed on healthcare workers, facilities, and resources as they grappled with the overwhelming demands of the pandemic. From shortages of medical supplies and human resources to disruptions in routine healthcare services, the consequences of the pandemic have been far-reaching and multifaceted. Moreover, the pandemic has laid bare existing inequities in access to healthcare, disproportionately impacting vulnerable populations and underserved communities.

Discussions from the second Roundtable series present a unique opportunity for us to come together, share insights, and explore innovative solutions to mitigate the short and long-term impacts of pandemics on our health systems.

In line with the ASEAN Comprehensive Recovery Framework, building resilience for health systems will remain a priority for our region. We should advocate for increased collaboration with partners in this area, recognising that collective efforts are vital in successful pandemic management, safeguarding the health and well-being of all individuals and communities in ASEAN.



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Introduction

The COVID-19 pandemic has reverberated globally, exposing vulnerabilities of healthcare systems, and impacting societies on multiple fronts (1). This crisis has emphasised the importance of enhancing the agility and crisis management capabilities of healthcare systems while controlling virus transmission. In resource-limited settings, the pandemic disrupted health service delivery, posing challenges for essential health services (EHS), human resource management, and medical supply allocation, exacerbating the imbalance between health needs and resources (2, 3). Excess mortality was witnessed as many countries were deemed to be less prepared. Financial losses and strains on healthcare infrastructure were observed worldwide (4, 5), including in the Association of Southeast Asian Nations (ASEAN) region (6).

ASEAN countries responded with a range of measures, and coordination and cooperation were sought through international meetings (7). Recognising the need for pragmatic adaptation strategies, collective and coordinated efforts for crisis responses, substantial investment in health system, and sustainable partnerships and social dialogue were identified as key to rebuilding resilient health system (8, 9). ASEAN members agreed to establish the ASEAN Centre for Public Health Emergencies and Emerging Diseases (ACPHEED) with the aim of formalising such strategies (10).

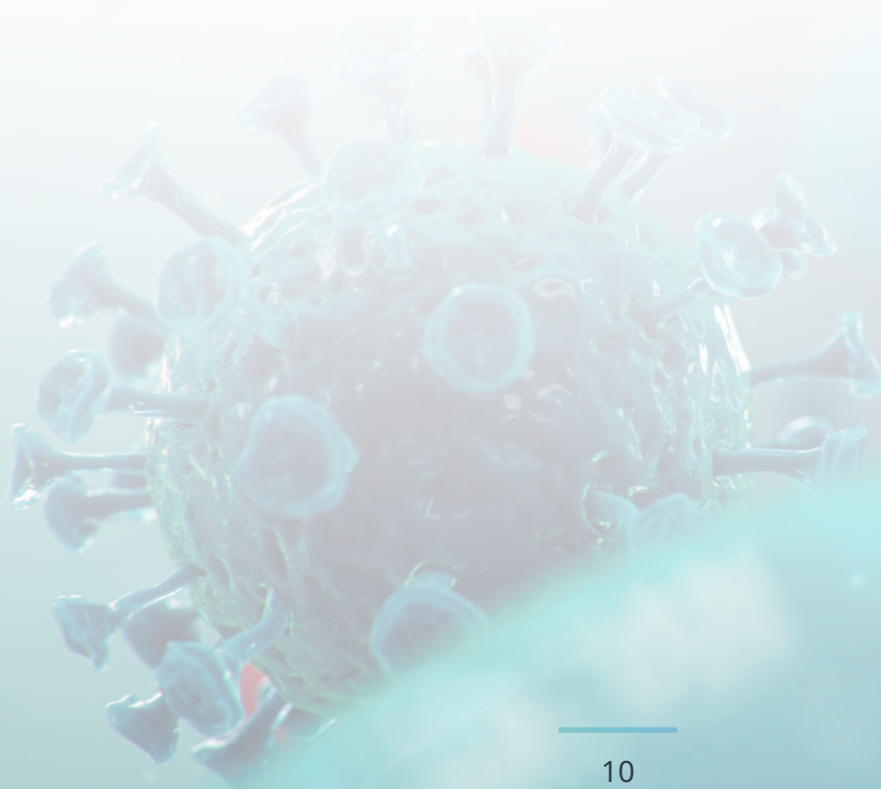
In reflecting on the pandemic, the Southeast Asia Health Security Roundtable was conceptualised to facilitate the sharing of national experiences and lessons learned from the outbreak, with a primary focus on the ASEAN region. With support from the Australia's Department of Foreign Affairs and Trade (DFAT), the Saw Swee Hock School of Public Health (SSHSPH), National University of Singapore (SSHSPH NUS), Singapore, together with the Health Intervention and Technology Assessment Program (HITAP), Thailand and Universitas Padjadjaran (UNPAD), Indonesia, conducted three roundtables, one in each country, each focusing on a different theme. A final Roundtable will be conducted online. This series was designed as such to allow for understanding of pandemic impacts from different perspectives, ranging from economic impact, health system impact, to leadership and communication domains.

Across four distinct roundtables, each event explored specific aspects of health security, through targeted discussions. Although they were not mutually exclusive, these roundtables served as platforms for exchanging knowledge, sharing best practices, and identifying synergies to enhance regional health security. Despite having a different focus individually, the collective efforts of these roundtables contributed to a more robust and integrated approach to addressing health challenges in the region.

Objectives

Following the success of the first series in Indonesia, the second roundtable in the series was conducted in Bangkok, Thailand, on 28-29 March 2024. The specific objectives of this series included understanding key aspects of the health system in relation to pandemic preparedness, sharing experiences on health system resilience, and building networks to combat future pandemics.

This report aims to provide a summary of the second roundtable held in Bangkok. The report begins with the background of the overall initiative and a brief recap of the first series. It then outlines the structure and format of the current roundtable, key activities conducted, and insights from each component, including ideas from group discussions. The report concludes with recommendations for relevant stakeholders.



Background

Southeast Asia Health Security Roundtable Series

Before the pandemic, many countries recognised the importance of regional collaboration in preparing for future pandemics, whether within ASEAN or the broader Asia Pacific region. In 2019, the SSHSPH discussed with the DFAT Australia for funding and support to this initiative, and the onset of the pandemic provided the impetus for it to move forward. The first roundtable in Indonesia, organised in Jakarta by UNPAD, focused on the economic ramifications of the pandemic, highlighting the need for future economic resilience measures. The second roundtable in Bangkok was to address the traditional aspects of pandemic response from a health systems perspective, which is crucial for enduring resilience. The third roundtable in Singapore was to be arranged, focusing on leadership and communication. Together, this initiative aims to draw on concrete examples from across the region to learn from each other's successes and shortcomings. By facilitating dialogue and collaboration at multiple levels, it can collectively strengthen the region's capacity to respond effectively to future crises.

Figure 1 Prof. Hsu Li Yang delivering a presentation on the overall Health Security Roundtable initiative





The First Series:

Recap from ‘Economic Response To COVID-19 And Future Pandemics’

The first series of the Roundtable was on held in Indonesia during 29-30 November 2023 and was attended by key participants from several ministries. The event was led by UNPAD and held under the theme **“Economic Response To COVID-19 And Future Pandemics”**. Key insights from the plenary sessions shed light on Indonesia’s strategic approach to national development post-COVID-19, emphasising socio-economic recovery through accelerated health sector initiatives, business continuity, and structural reforms. Notable measures include the initiation of pandemic funds disbursed during the Group of Twenty (G20) Summit, with subsequent ASEAN agreements to expand joint funds for future pandemics.

Discussions also highlighted Indonesia’s resilience in combating the pandemic, underlining the significance of surveillance, early detection, containment, and social distancing measures. The National Economic Recovery Program (NERP) played an essential role, focusing on budget flexibility, transparency, and efficiency to mitigate the pandemic’s impact. Additionally, attention was drawn to enhancing pharmaceutical resilience and the role of digital transformation in healthcare decision-making processes. Sharing sessions in the event further explored problem-solving strategies, including reserve funds, global collaboration, leadership, vaccination efforts, and border management.



Figure 2 Prof. apt. Auliya Suwantika (co-leading of the Roundtable with Dr. Fredrick Purba in Indonesia) briefing participants on the highlights and discussions from the first Roundtable

During the first series, key recommendations for future collaborative efforts within ASEAN were derived. These included establishing regulatory harmonisation, joint research funds, data sharing mechanisms, and stronger leadership, reflecting a collective commitment to anticipate and address future health, and economic challenges in the ASEAN region.



Summary of the Current Roundtable

The Second Series: Health System Impact of Pandemics

Structure and format

Framed by the World Health Organisation's (WHO's) six building blocks of a health system (11), the discussion explored the pandemic's impact on health system landscapes (agenda of this series is shown in annex 1). Participants of this series were primarily technical advisors, high-level representatives, or heads of relevant departments from ministries of health across ASEAN countries.

The second series adopted a discussion-based format, facilitated by a designated faculty member. A summary of activities conducted during the second Roundtable is shown in figure 3. Participants were similarly requested to share their country's experiences, respectively to each of the health system's building blocks. Presentations were delivered by invited country representatives, followed by open discussions under the Chatham house rules. Breakout group sessions were also arranged to allow for deeper engagement and sharing of experiences, while gender and geographical representation were ensured to gain diverse perspectives.

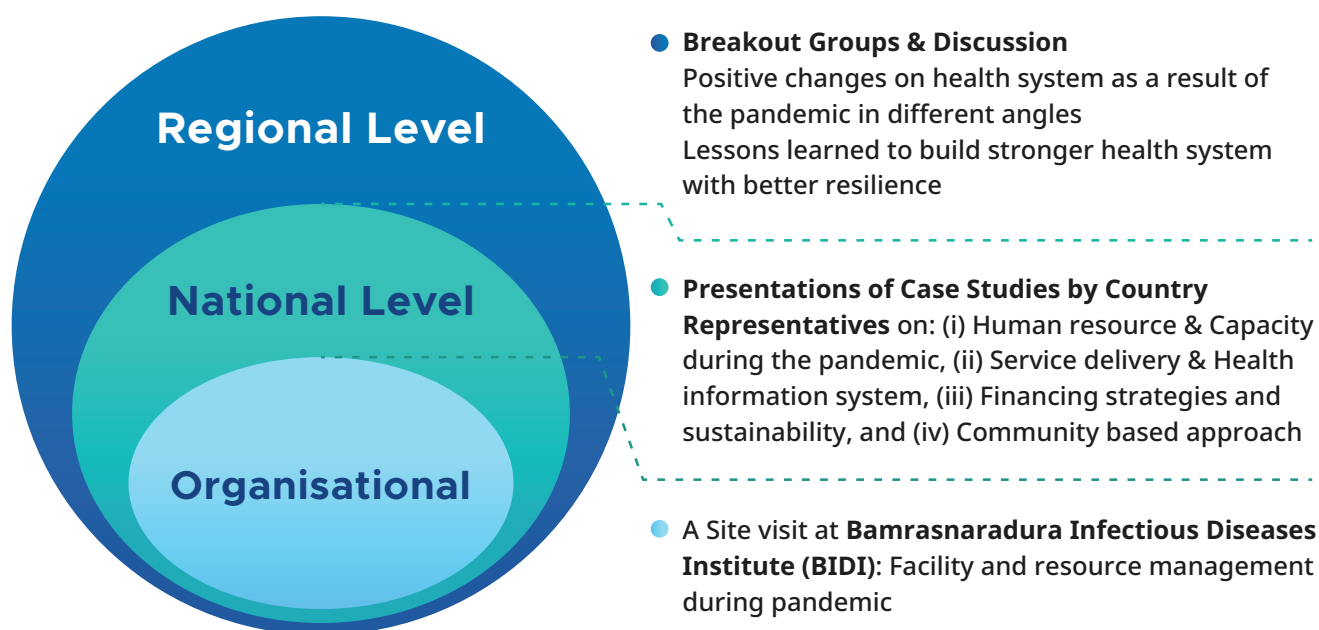
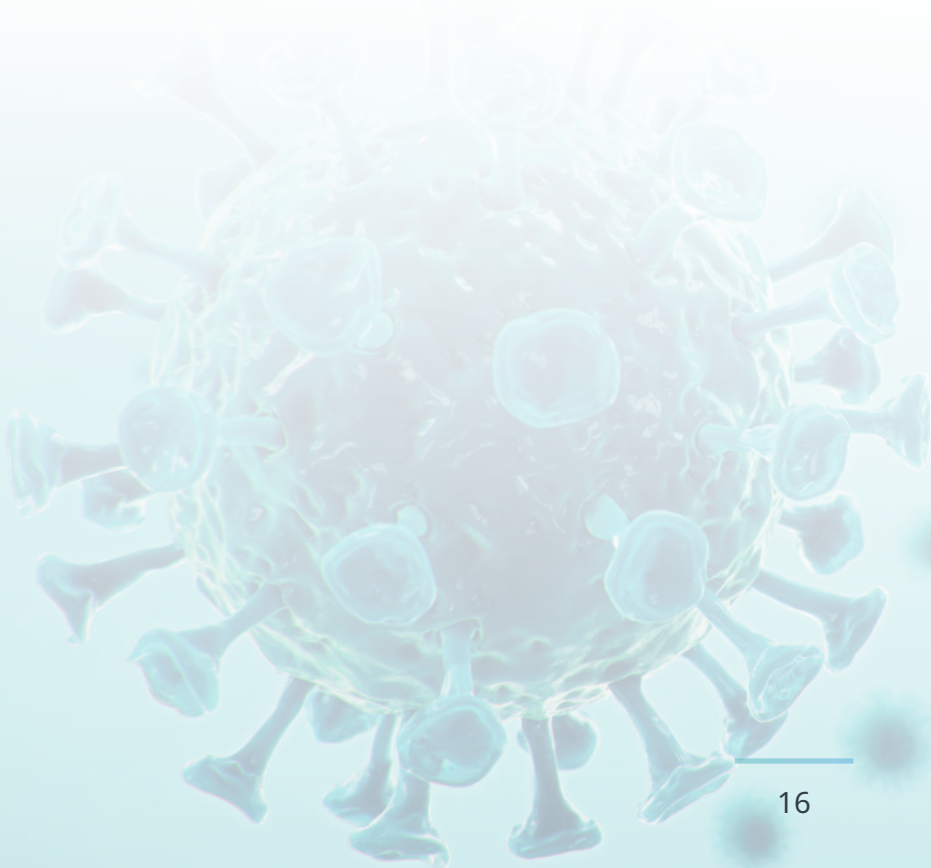


Figure 3 A summary of activities conducted with participants during the 2-day Roundtable event

Insights from the second Roundtable series



Regional Impact: **Experience from ASEAN's Health Systems**

In this section, the broad impact of the pandemic on the dynamic Southeast Asian region was examined. This also outlines the public health emergencies of concern, together with existing measures. It highlighted the navigation of COVID-19 and its impact on the ASEAN economy, social welfare, and health systems, offering insights into the Global Health Security (GHS) Index and resilience health systems.

Southeast Asia, known for being a hotspot for emerging and reemerging infectious diseases, has faced significant threats. The catastrophic outbreak of COVID-19 in early 2020 not only affected health but also had profound economic and welfare implications, with 76.3 million cases and 367 deaths reported across the ASEAN region (12). Safety measures such as lockdowns, social distancing, and vaccination were deemed crucial. However, the impact extends beyond health outcomes, with significant declines in regional GDP and increased vulnerability. The hardest hit economies were the Philippines, Thailand, and Malaysia, with GDP contracting by -9.5%, -6.2%, and -5.3% respectively, while Brunei, Vietnam, and Myanmar experienced less severe declines in GDP growth (12). Particularly in poverty rates, compared to pre-pandemic figures, estimates indicated an alarming increase of 67.8 million people living in extreme poverty across developing Asia in 2022 (13, 14), highlighting the severe economic repercussions. Disruptions in essential health services (EHS), as highlighted by the WHO, have further challenged the Southeast Asian Health System (15).

Despite these challenges, the ASEAN region has demonstrated remarkable resilience, with collaborative and multisectoral actions strengthening existing public health measures. Initiatives such as the One Health approach, social protection in health, and Digital Health Transformation exemplified the region's proactive response (see also table 1). Through intelligence, surveillance, and strengthened health infrastructure, ASEAN countries have shown a commitment to empowering public health capacity and building resilience in the face of evolving challenges.

Table 1 Existing Public Health Emergency Measures in the Southeast Asian Region

Intelligent Surveillance	Public Health Emergencies (PHE) Preparedness	Strengthening PHE Infrastructure & Capacity of Health Workers
<ul style="list-style-type: none"> • Whole Genomic Surveillance (WGS) in research <ul style="list-style-type: none"> - Drug-resistant pathogens (Singapore) - Antibiotic resistance surveillance (the Philippine) - Advanced facilities for researching Whole Genome Sequences Analysis (Malaysia) <hr style="width: 25%; margin-left: 0;"/> <ul style="list-style-type: none"> • Health Impact Assessment (HIA) for climate change <ul style="list-style-type: none"> - Building awareness and establishing the HIA framework - Researching on gaps in workforce capacity 	<ul style="list-style-type: none"> • The ASEAN Strategic Framework for Public Health Emergency <ul style="list-style-type: none"> - A strategic map guiding health security programs development in ASEAN Member State (AMS) and efficiently preparing for and mitigating PHE and biosafety risks - Risk assessment and communication are also embedded in the ASEAN Strategic Framework for Public Health Emergency 2020 <hr style="width: 25%; margin-left: 0;"/> <ul style="list-style-type: none"> • The ASCC Research and Development Platform (Public Health Emergencies) <ul style="list-style-type: none"> - To address the concerns raised at the high-level regional fora. - To put in place an effective research and development framework for ASCC Sectoral Bodies 	<ul style="list-style-type: none"> • ASEAN Network for Drugs, Diagnostics, Vaccines, and Traditional Medicines Innovation <ul style="list-style-type: none"> - To promote ASEAN-led health product innovation <hr style="width: 25%; margin-left: 0;"/> <ul style="list-style-type: none"> • ASEAN Dx Initiative <ul style="list-style-type: none"> - To commercialise and make locally-developed diagnostic products available - Examples of product and study include the Biotek-M Dengue Aqua Kit and ASEAN Sero-surveillance

Collaborative and Multi-Sectoral Actions	Social Protection in Health	Digital Health Transformation
<ul style="list-style-type: none"> • One Health Approach <ul style="list-style-type: none"> - To support multi-sectoral actions and ensure the sustainability of the ASEAN Center for Public Health Emergencies and Emerging Diseases (ACPHEED) <hr style="border: 0.5px solid #00AEEF; margin: 10px 0;"/> • The ASEAN Health Ministers' Meetings <ul style="list-style-type: none"> - One of the mechanisms for health cooperation <hr style="border: 0.5px solid #00AEEF; margin: 10px 0;"/> • Establishing the Regional Action Plan on Healthy Lifestyle 2020 	<ul style="list-style-type: none"> • The ASEAN Senior Officials Meeting on Social Welfare and Development <ul style="list-style-type: none"> - To promote the well-being and quality of life of the elderly, children, and other vulnerable populations 	<ul style="list-style-type: none"> • The ASEAN BioDiaspora Virtual Center (ABVC) <ul style="list-style-type: none"> - To predict, anticipate, and respond to (emerging) public health concerns via Big Data predictive analytics and visualisation. <hr style="border: 0.5px solid #00AEEF; margin: 10px 0;"/> • The ASEAN BioDiaspora program <ul style="list-style-type: none"> - To link multiple datasets and empower AMS's public health capacities through real-time web-based risk assessment tools (the explorer and insight tools)

Source: Presentation delivered during the roundtable

There appears to have been considerable innovation in implementing public health emergency measures. Notably, intelligence surveillance has been invested in to enhance early detection capabilities for potential pathogens that may trigger outbreaks. For instance, Cambodia and Vietnam have received grants from the Gates Challenge, a global initiative within ASEAN, to establish surveillance systems for severe acute respiratory infections using metagenomics and next-generation sequencing. These efforts aim to enhance whole genome sequencing for pathogen detection. Moreover, initiatives such as the ASEAN Socio-Cultural Community's (ASCC) Health Division also promote alignment of public health emergency initiatives to minimise redundancy and optimise Big Data and Information Systems.

Building resilience in ASEAN health systems is essential for effectively managing public health emergencies and enhancing regional health security. Health system resilience was defined as the ability to prepare for, manage (absorb, adapt, and transform), and learn from sudden and extreme health system changes. Strengthening the six building blocks outlined by the WHO is critical, along with support from infrastructure, ecosystem, food security, and climate change and disaster planning. Achieving universal health coverage (UHC), for instance, can improve access to service delivery, while an enabling environment can support healthcare delivery and human resources. Developing suitable infrastructure and enhancing food security can also further complement efforts to strengthen health systems.

Overall performance of the ASEAN for pandemic preparedness and response

The Global Health Security (GHS) Index assesses capability of countries across six domains including prevention, detection and reporting, rapid response, health system, compliance with international norms, and risk environment (16). The GHS index revealed that ASEAN countries have an overall score of 46.9 (out of 100 which is the best health security condition), with prevention being the weakest aspect at 33.9. This highlights significant weaknesses in preparedness across the region (table 2).

Table 2 *The GHS index of each ASEAN member country*

Country	Prevent	Detect	Respond	Health	Norms	Risk
Brunei Darussalam	30.1	44.7	44	34.9	41.5	65.9
Cambodia	24.8	37.1	21.3	12.3	52.4	38.4
Indonesia	31.8	55.4	50.2	41.2	68.9	55
Lao DPR	18.7	37.9	38.3	22	44.1	47.6
Malaysia	37.7	72.5	61.4	36.6	56.4	73.9
Myanmar	21.7	46.8	37.8	19.5	63.7	40.4
The Philippines	27.7	52.6	38.8	46.5	55.9	52.8
Singapore	46.8	61.1	61.3	47.3	48.6	79.5
Thailand	59.7	91.5	67.3	64.7	68.9	57.2
Viet Nam	40.3	55.1	30.6	24	53.3	53.9
Overall Score	33.93	55.47	45.1	34.9	55.37	56.46

Source: Global Health Security Index 2021 (16)

Key findings from the index show a lack of dedicated financial support for pandemic preparedness, minimal improvement in maintaining robust health systems, increasing political and security risks, and neglect in preparing for catastrophic biological threats larger than COVID-19. Additionally, the health system domain, which assesses capacity in clinics, hospitals, and community care centres, as well as health worker communication and medical countermeasure supply chain, has an overall score of approximately 34 out of 100, indicating serious gaps in national-level medical workforce capacity, facility accessibility, and healthcare access (table 3).

Table 3 *The GHS index of Health categorised to various domains*

Country	Health Category Score						
	Health Capacity in Clinics, Hospitals and Community Care Centres	Supply Chain for the Health System and Healthcare workers	Medical counter-measures and personnel deployment	Healthcare access	Communications with healthcare workers during a PHE	Infection control practices and availability of equipment	Capacity to test and approve new medical counter-measures
Brunei Darussalam	61.3	27.8	0	55.1	50	0	50
Cambodia	1.8	0	0	59.1	0	0	25
Indonesia	37.2	38.9	50	62.2	50	0	50
Lao DPR	19.8	27.8	0	56.4	0	0	50
Malaysia	8	44.4	0	53.5	0	100	50
Myanmar	36.3	16.7	0	58	0	0	25
Philippines	22.9	44.4	50	58.3	0	100	50
Singapore	62.5	44.4	0	49.1	0	100	75
Thailand	56.2	50	0	96.8	50	100	100
Vietnam	22.5	33.3	0	62.3	0	0	50
Overall Score	32.85	32.77	10	61.08	15	40	52.5

Source: *Global Health Security Index 2021 (16)*

Story in Spotlight: Gaps/Challenges in Regional Policy within ASEAN

Intelligent Surveillance:

Diverse capacity among AMS to develop Whole Genomic Surveillance (WGS) network

PHE Preparedness:

Data gaps and timeliness for the Early Warning System (EWS) data reporting

Strengthening PHE

Infrastructure: Disparity in the capacity to develop local Vaccines, Therapeutics, Diagnostics (VTD) tools and diverse laboratory capacity

Multi-Sectoral Actions:

Mutual buy-in and incentive of collaborative actions for Public Health Emergency (PHE)

Social Protection:

Countries with a sizeable informal sector struggle to achieve universal coverage

Digital Health

Transformation: Lack of data standardisation, trust, interoperability, and governance



Key Lessons From the Regional Experience on Health Systems Impact

While the scale of a pandemic undoubtedly influences its impact, it is important to establish a clear blueprint for pandemic preparedness in every country. Currently, many countries lack essential components such as a robust infectious disease surveillance system. Without routine surveillance to monitor potential pathogens and anticipate outbreaks, we often find ourselves reacting impulsively rather than implementing a proactive plan. Such an approach emphasises the need for a comprehensive strategy that can be promptly activated upon early warning signals of a new disease threat.

However, determining the scale of preparedness can be subjective and fraught with political implications, as seen in the tension between public health and economic considerations during the COVID-19 pandemic. Achieving a balance between these competing interests is crucial, as well as political commitment and advocacy in crisis response.

More importantly, building a Resilient Health System (RHS) is a prerequisite to managing PHE and enhancing regional health security. It also involves strengthening regional cooperation networks. To initiate and strengthen a resilient health system, several key steps should be taken, including:

1

Promoting understanding of health system resilience. This can be achieved by adopting tools such as the WHO Health Resilient System Resilience Toolkit, which helps identify potential sources of vulnerability and plan for further actions. Conducting simulations that stress-test health systems in different scenarios can also be beneficial.

2

Improving the supply chain approach for health system resilience. This involves ensuring that the supply chain is adaptable to various challenges and disruptions, integrating the improving humanitarian assistance track with the national health track in each ASEAN Member State (AMS).

3

Strengthening primary healthcare services. This includes integrating resilience development initiatives, such as integrating a climate lens into health systems and transforming the digital health landscape.



Pandemic Impact on: **Service Delivery & Health Information System**

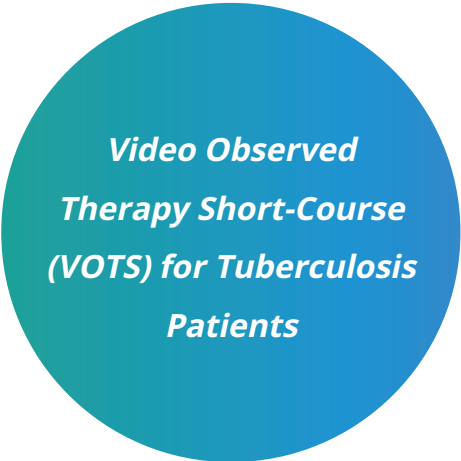
In this section, several initiatives/innovations were highlighted as the examples of how health technologies and care services have been adapted in response to the pandemic. Particularly, these include the paradigm shift of remote service delivery and technology driven service delivery.



***Remote Patient
Monitoring System:
Renal Replacement
Therapy (RRT)***

Automated Peritoneal Dialysis (APD) involves the use of a cyclor machine to perform dialysis while the patient sleeps, typically for 8 to 10 hours each night. The process is automated, with the cycle filling the abdomen with dialysate solution, allowing it to dwell, and then draining it into a sterile bag that is emptied in the morning.

Recently, an innovative project has been launched in Brunei which modems were installed to facilitate remote monitoring of patients undergoing peritoneal dialysis (PD). This initiative allows patients to undergo dialysis at home using C-suite machines, which are connected to a Medical Monitoring Equipment (MME). The MME collects patient data during dialysis sessions and uploads it to the cloud, enabling healthcare facilities to monitor patients remotely. This technology offers several advantages, including facilitating clinical decision-making, reducing time-consuming activities for nurses, and supporting healthcare professionals to adjust treatment regimens remotely. In addition to enhancing patient care, the initiative also aims to include smartwatch monitoring for vital signs and smart weighing machines to further improve dialysis effectiveness.



***Video Observed
Therapy Short-Course
(VOTS) for Tuberculosis
Patients***

This case highlights one of the tools which was repurposed during COVID-19 to address challenges in tuberculosis (TB) management in Brunei. Brunei has been an intermediate TB burden country for nearly two decades, with patients requiring direct observation of therapy (DOTS) for six months, often involving multiple daily clinic visits. This can be resource intensive and leads to patient dissatisfaction, affecting compliance and care.

During the pandemic, many tools and applications were developed for facilitating disease control measures. Building on these, COVID-19 surveillance tools were adapted and used to deliver end-to-end patient care, Video Observed Therapy Short-Course (VOTS). The VOTS includes establishing a TB registry for tracking patients, managing treatment progress, and optimising medication adherence. The VOTS helps address hurdles from the DOTS process, aiming to enhance patient experience, improve TB care efficiency. The patient's daily routine for VOTS significantly reduces the time and effort compared to traveling to the clinic every day. On the provider's end, the system is asynchronous, allowing them to review patient videos at their convenience. The interface displays a check-in trend, current diagnosis, and medication information, and providers can approve videos or escalate concerns to physicians for review. Another key feature is the patient overview, offering an understanding of their journey, including diagnosis, hospitalisation, test results, and follow-up appointments.

*From Covid-19
to ageing population:
technology driven
service delivery for
healthier society*

This case study provides the evolving healthcare in Singapore, driven by the key challenges posed by an ageing society and escalating burden of chronic diseases. The surge of healthcare consumerism, following digitalisation, requires inventive solutions to meet the increased expectations of patients. Drawing insights from pandemic period, the implementation of contact tracing systems such as TraceTogether and the establishment of virtual wards for COVID-19 patients demonstrates the transformative potential of technological interventions. These adaptive measures

highlight the imperative for agility and innovation during crises, forging the integration of technology into healthcare delivery.


After COVID-19, a multi-year population health strategy like Healthier SG (HSG) shows a broader shift towards patient-centred care models, aimed at easing the burden on hospital resources and ensuring continuity of care. HSG is expected to promote population health, reduce the prevalence of chronic diseases, and moderate the increase in healthcare utilisation and expenditure over time. Indeed, technology is a key enabler for HSG to become a success. Various tools have been developed, for example HealthHub, Lumihealth, MIC@Home, and Healthy 365.

In this case study, key factors facilitating the shift towards technology-driven healthcare service delivery were highlighted. For example, these include the implementation of the Healthcare Services Act (HCSA), which marks a transition from premise-based to service-based licensing. Previously, under the Private Hospitals & Medical Clinics Act (PHMCA), regulation was confined to fixed premises, lacking flexibility and adaptability to evolving medical technologies and digitalisation. In contrast, the HCSA introduces service-based licenses, accommodating new care models beyond traditional brick-and-mortar settings. This approach offers flexibility and modularity, allowing providers to obtain relevant licenses based on the services they offer. Furthermore, the HCSA enhances governance to safeguard patient safety and welfare while broadening regulatory scope to include services such as Complementary & Alternative Medicine (CAM) if necessary.


Complementing the HCSA is the Health Information Bill (HIB), ensuring proper collection, use, and sharing of patient information across healthcare providers and settings securely. Mandating licensed providers to contribute to the National Electronic Health Record (NEHR), the HIB also strengthens data protection through governance and cybersecurity requirements for both providers and third-party intermediaries. In Singapore, the NEHR serves


as a centralised platform for collating medical records, facilitating easy access for licensed healthcare providers and professionals. These legislative and technological advancements pave the way for a more efficient, interconnected, and patient-centred healthcare system.

Key lessons for service delivery & health information system

 Alongside these advancements of technologies and services, critical considerations relating to regulation, infrastructure, and patient accessibility must be addressed to ensure equitable healthcare provision. As we navigate the complex landscape of healthcare transformation, prioritising patient welfare and inclusivity remains paramount, acknowledging the diverse needs and circumstances within society.

 The success of these technological innovations relies on various factors. Foremost among these is fostering the population's trust in public health agencies and encouraging active engagement in contact tracing and surveillance efforts. Effective communication and transparency regarding data usage and privacy protections are imperative for instilling this trust and ensuring widespread participation.

 Additionally, the judicious use of data is critical for the success of these initiatives. Ensuring a balance between leveraging data for public health purposes and safeguarding individual privacy rights requires thorough adherence to established ethical guidelines and regulatory frameworks, thereby upholding public confidence, and preserving data integrity.

 The issue of interoperability in medical devices was highlighted as a critical one during the discussion, especially in the context of the ASEAN region. For example, while the European Union (EU) has successfully mandated uniform standards of chargers for big mobile companies, similar efforts (albeit in a context of medical devices) are needed in the ASEAN to address the challenges faced during the pandemic. With a population of over 670 million, and even greater potential if partnering with ASEAN Plus Three countries, including China, Japan, and the Republic of Korea (ROK), ASEAN has significant leverage to influence change in this area. It is essential to advocate for a standardised approach where spare parts for life-saving medical devices are interchangeable across companies. This not only ensures seamless access to critical equipment but also mitigates potential risks associated with limited availability of those spare parts. By negotiating medical device companies to adopt interoperable standards, ASEAN can enhance its pandemic preparedness and improve healthcare accessibility for all its citizens. It is imperative to rethink norms and regulations to strengthen collaboration and innovation in the medical device industry, ultimately leading to better health outcomes for the region.

Story in Spotlight: Points to Consider when Implementing Technology-Driven Healthcare Services

I.

Is there concrete evidence on ability (e.g., the efficacy, effectiveness, or accuracy) of these services?

II.

Which modality will be used to deliver them?

III.

Do users fully understand the limitations of these services?

IV.

Are there any Medico-legal issues associated with these services?

V.

Do we have adequate mechanisms in place to ensure data/ cybersecurity?

VI.

How can we implement accuracy checks & quality control measures?

VII.

Could these services potentially widen social gaps (e.g., affordability, accessibility)?



Pandemic Impact on: **Financing Strategies and Sustainability**

In this section, the impact of pandemics on the financing aspects of health systems was presented and discussed. The case studies outlined country experiences with (i) Public-Private Partnerships and (ii) financing mechanisms during times of crises.



Public-Private Partnerships to Sustain Healthcare Ecosystem – a case study from the Philippines

The Philippines, an archipelagic nation with approximately 7,000 islands and a population of 116 million, faced unique challenges in providing healthcare services to geographically isolated and disadvantaged areas, many of which lacked reliable internet connectivity and adequate electricity supply. In this context, the Philippine Health Insurance Corporation (PhilHealth), mandated by law as the national strategic purchaser of health services, played a key role during the COVID-19 pandemic.

The importance of strong public-private partnerships in the healthcare sector has been illustrated during the pandemic. Through close collaboration with both public and private healthcare providers, PhilHealth swiftly developed and implemented comprehensive benefits packages addressing various aspects of COVID-19 care. These packages included community and hospital-based isolation benefits, testing services (initially restricted to two capable facilities), inpatient benefits covering hospitalisation for moderate to critical cases, and a vaccine injury compensation package to support citizens in the event of adverse effects from vaccination.

The collaborative approach ensured timely access to healthcare services for Filipino citizens during the pandemic. PhilHealth negotiated with providers to minimise out-of-pocket expenses for patients and ensured adherence to minimum standards of care. It engaged healthcare providers in the design process of the benefits packages, and this active involvement of providers fostered a sense of ownership and facilitated the development and implementation of effective healthcare financing strategies during the pandemic.

*Health Financing
Mechanisms in Times
of Public Health Crises –
a case study from
Indonesia*

The Indonesian government recognised the urgent need to strengthen its healthcare infrastructure and pandemic preparedness measures in the wake of the COVID-19 crisis. During the initial stages of the COVID-19 response, the country faced a lack of centralised leadership, with multiple entities and task forces competing to control and lead the response initiatives. To address this challenge, the new Minister of Health took decisive action to centralise the planning and coordination of the pandemic response efforts.

The government allocated an additional \$6 billion to urgently address critical gaps in hospital capacity, primary healthcare facilities, and laboratory infrastructure across the country. This funding was critical, as prior to this, Indonesia faced notable challenges such as limited availability of diagnostic equipment and long waiting times for essential services (e.g., paediatric cardiac surgery).

The COVID-19 response budget for 2021 was structured around key pandemic management strategies, including testing and contact tracing, isolation measures, treatment protocols, vaccination campaigns, and research initiatives. Initially, the budget was based on an estimated 1.7 million confirmed cases, a figure that proved to be vastly underestimated. As the actual caseload surged, the required budget ballooned to a staggering 200 trillion rupiah (approximately \$13.5 billion). To finance this substantial increase in spending, the Indonesian government implemented budget refocusing and reallocation measures, cutting unnecessary expenses across government entities by up to 50% of the national budget. This reflected that the government acknowledged the need to make major investments to close gaps in the healthcare system and to enhance better preparedness for potential future pandemics.

Indonesia had previously participated in the G20 initiative to establish a Pandemic Fund, aimed at facilitating investments in peacetime to improve pandemic preparedness. As part of a broader strategy to prioritise preventive care, it introduced mandatory health screenings based on the burden of disease in the country. Moving forward, this approach aims to shift the health system to focus more on health promotion and preventive measures, rather than solely reactive treatment.

Key lessons for financing strategies and sustainability

- A lack of centralised leadership posed a challenge as multiple entities and task forces wanted to be in control and that led to coordination challenges. A national workplan with clear roles, designated coordination, as well budget management/allocation is warranted to streamline the pandemic response.
- Government collaborations with both public and private healthcare providers can be a useful strategy for enhancing the development and implementation of appropriate benefits packages in response to COVID-19. It is also essential to have flexibility and responsiveness in policy development. Engaging stakeholders, such as healthcare providers and patient groups, ensured relevance and buy-in.
- Increase in investment and allocated budget to address the country's healthcare infrastructure is needed, especially in a peacetime, to ensure health system readiness. Investing in primary care and laboratory infrastructure is key to improve early detection, diagnosis, and management of health conditions, including during preparedness for future pandemics.
- To prevent sub-optimal budget allocation for pandemic response, good-quality data and accurate estimates of the disease burden (e.g., a scale of affected population or resources needed) are required, highlighting the importance of data-driven and evidence-based decision-making.



Facility and Resource Management During Pandemics

One of the highlights during the course of two-day event was the site visit at the Bamrasnaradura Infectious Diseases Institute or BIDI. Standing as a testament to Thailand's commitment to combating infectious diseases, BIDI was one of the key facilities in Thailand where participants of the Roundtable were able to learn and exchange views on how facility and resources were managed at an organisational level in times of crises. Participants also visited the isolation ward which is used for highly contagious conditions.

The institute was established in 1960 by Field Marshal Sarit Thanarat in response to a Cholera outbreak. Named after Phra Bamrasnaradura, the Minister of Public Health, the institute underwent a significant transformation in 2002, becoming a cornerstone of the Department of Disease Control (DDC) under the Ministry of Public Health. Since its inception, the institute has played a vital role in addressing various infectious diseases, including Cholera, Severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS), Ebola, and the ongoing COVID-19 pandemic.

In addition to the provision of care services, the institute also conducted several studies on emerging infectious diseases in collaboration with Ministries of Health of other countries, furthering understanding of diseases such as Coronavirus. Within these, three studies to highlight are (i) clinical characteristics of patients hospitalised with Coronavirus disease, Thailand, (ii) clinical course and potential predictive factors for pneumonia of adult patients with Coronavirus disease analysis of 193 confirmed cases in Thailand, and (iii) journey of a Thai Taxi Driver and Novel Coronavirus.

Story in Spotlight: **BIDI's key achievements in the face of COVID-19**

During the COVID-19 crisis, the institute administered screening for more than 91,000 individuals, with over 23,000 testing positive and over 8,000 requiring admissions. The institute's management strategies evolved with each wave of the pandemic, adapting to the changing landscape, and implementing innovative approaches such as buffer hospitals, large scale field hospitals, hospitel (hospital + hotel), and home isolation.



Pandemic Impact on: **Human Resource & Capacity During the Pandemic**

In this section, the impact of pandemics on the health workforce was presented and discussed. The case studies outlined country experiences and strategies for managing human resources, highlighting key successes and challenges encountered during crises.

*Human resource
& capacity during the
pandemic – a case study
from Lao PDR*


The Ministry of Health in Lao PDR operates through a multi-level structure, incorporating the Department of Communicable Disease Control (DCDC), technical centers, provincial and district health officials, and community health workers. Community involvement has been marked as being essential for effective data collection and reporting. Following the declaration of a public health emergency in 2020, there was the formulation of a five-year work plan, focused on integrating national health security measures and enhancing readiness for future crises.

During the pandemic, collaborations with international and national bodies, including the National Ad Hoc Committee, allowed strategic oversight of the COVID-19 response. As health goes beyond the health sector and that outbreaks can affect the whole society, engagement with multisectoral entities (for example, government sectors, development partners, academia/ universities, and communities) is key for successful response efforts.

Within the outbreak management, the Public Health Emergency Operations Center (PHEOC) serves as a centralised platform, playing a critical role in data collection, coordination, and support, facilitating timely reporting. Various measures, such as health information systems and health screening, were implemented, supported by weekly reporting mechanisms to ensure effective coordination across different levels of the healthcare system.

Notable successes were achieved in pandemic management. A decree was enacted to establish the Emergency Operations Center (EOC) at the DCDC, supported by full infrastructure and ICT equipment. A dedicated committee was appointed to oversee EOC operations and delineate roles for core staff members. Standard Operating Procedures (SOPs) were also developed to govern EOC activities, including national emergency and response plans. Extensive training sessions were conducted, ranging from Incident Management System (IMS), emergency roles, surveillance techniques, and crisis communication strategies. The implementation of the District Health Information Software (DHIS2) surveillance dashboard facilitated real-time disease and outbreak monitoring.

However, there were also several challenges to note. Although the country values multisectoral involvement in pandemic response efforts, developing more collaborations is still an area for enhancement. Similar to other countries, additional challenges lie upon the shortage of health personnels at points of entry, as well as the limited technical capacity of human resources.



***Adaptive strategies
of workforce and
workflow at care-
facilities – a case study
from Thailand***

In the domain of health workforce, a recent study on Thailand's pandemic response conducted by the National Health Foundation (NHF) identified key factors contributing to its success. Observable challenges during the pandemic management were also shared.

Among several key facilitating factors to note were the country's long-term investment in public health, which contributed significantly to its relatively better performance. Additionally, the establishment of a robust Community Health Worker (CHW) Network has played a vital role in various aspects of pandemic response, including surveillance, detection, contact tracing, and risk communication. However, a high degree of public trust in government and science, coupled with strong leadership and governance structures, was highlighted to be of importance. This provided a solid foundation to inform policy measures, promoting social compliance to new regulations imposed as part of pandemic response efforts.

Moreover, a specialised workforce trained in epidemiology and supported by prior experience has proved crucial in effectively responding to infectious diseases. Pre-pandemic investments in health services and workers, along with policies such as mandatory rural services of medical personnels, laid the groundwork for health workforce distribution and efficient pandemic response. Policies aimed at supporting and incentivising health workers, such as financial incentives and recognition campaigns, have encouraged morale and dedication to population health.

However, several challenges were also discussed which require careful attention and strategic intervention. Data-related hurdles, including issues with real-time data availability and accuracy, were also recognised to impede timely decision-making and response efforts. Furthermore, the initial scarcity of Personal Protective Equipment (PPE) and testing kits posed significant threats to effective response measures. Delays in vaccine procurement further complicated the situation, slowing down the pace of vaccination efforts. The prevalence of misinformation and the digital divide exacerbated challenges in ensuring equitable access to COVID-19 care and essential health services. Moreover, the fear and anxiety among healthcare workers and patients added another layer of complexity to response endeavors.

Key lessons for human resource & capacity during the pandemic

- The presence of a strong Community Health Worker Network, coupled with a well-trained infectious disease response workforce, is essential for facilitating surveillance, contact tracing, and overall pandemic containment efforts.
- Effective communication and community engagement emerged as indispensable tools for ensuring public compliance with preventive measures.
- The implementation of financial incentives and recognition programs helps encourage healthcare worker morale and commitment
- Pre-pandemic investments in health services and infrastructure provided a solid foundation for navigating the crisis
- In addition to the multisectoral engagement for pandemic responses at a national level, establishing collaboration and resource-sharing through linking with Emergency Operations Centre (EOC) systems in neighbouring countries within the AMS could also be useful.
- Leveraging the International Health Regulations (IHR) Monitoring and Evaluation (M&E) framework facilitated effective planning and stakeholder engagement.



Community Based Approach

This section covers risk communication and community engagement during COVID-19, as well as the establishment of Health Information Systems (HIS) for future pandemics. It includes success stories, challenges, and key lessons learned from country case studies, providing insights into strategies to promote effective risk communication and community engagement across diverse contexts.



The Crucial Role of Risk Communication & Community Engagement in Combating Vaccine Hesitancy and Misinformation: A case study from Timor-Leste

The global challenge as a result of the pandemic demands effective public health interventions. In Timor-Leste, Risk Communication and Community Engagement (RCCE) emerged as a critical tool in this fight. This section explores how a well-executed RCCE strategy addressed vaccine hesitancy throughout the pandemic and tackled the widespread circulation of misinformation.

During the initial stages of the pandemic, vaccine hesitancy posed a significant hurdle. To overcome this, Timor-Leste's RCCE efforts focused on providing accurate and science-

based information to the public. This emphasis on factual data aimed to build trust and minimise any myths or anxieties surrounding the vaccines. However, the battle against vaccine hesitancy was not a one-time event. As cases of adverse events following immunisation emerged later in the pandemic, concerns re-surfaced. Recognising this shift, the adaptable RCCE strategy repositioned its focus to rebuilding public trust in the vaccines. By openly addressing these

concerns and providing transparent information, the campaign aimed to reassure the public about the safety and efficacy of immunisation.

Timor-Leste's fight against COVID-19 extended beyond vaccine hesitancy. The country also faced a significant challenge – the “infodemic” of misinformation circulating on social media and through other channels. To counter this, the Ministry of Health adopted a strategic approach leveraging social media platforms. Health leaders directly engaged the public through these platforms, fostering a sense of trust and accountability. Additionally, clear infographics in local languages were disseminated to ensure information accessibility and understanding across diverse communities. This multi-pronged approach aimed to combat misinformation at its source and provide the public with reliable sources of information. It contributed significantly to achieving high vaccination rates exceeding 90% in the country.

The RCCE campaign in Timor-Leste rose above traditional methods of communication. A multi-channel approach was employed to reach a wider audience and address specific needs. Social media influencers, equipped with accurate information, served as trusted voices to combat misinformation within their online communities. Furthermore, dialogue facilitated by Ministry of Health leaders directly addressed concerns and fostered collaboration with community leaders. This approach proved to be particularly effective in addressing community resistance to quarantine and isolation measures as well. Door-to-door campaigns, featuring role models who had been vaccinated, played a significant role in boosting vaccination rates. These campaigns leveraged the power of social influence and personal connections to encourage vaccine uptake and adherence of other safety measures.

Technology also played a big part in the RCCE strategy. Tools such as information platform, data tools, tracking systems, and mobile applications were used for various purposes, including data collection, monitoring progress, and facilitating communication efforts. Additionally, a dedicated hotline provided a direct line for public inquiries and concerns, ensuring open communication, and addressing anxieties in real-time.

However, reaching diverse communities remained a challenge. This warrants the need for further efforts, such as leveraging technologies, local radios, and community leaders, to ensure information accessibility across all segments of society.

“Economic loss can be relieved again, but loss of life cannot”

– Ministry of Health, Timor Leste

***Sharing Health
information with communities:
How to establish HIS for future
pandemic? – A case study
from Cambodia***

The global experience with COVID-19 has emphasised the critical need for robust health systems. In Cambodia, the pandemic exposed limitations in the existing health infrastructure, particularly its lack of flexibility in data collection and dissemination. This section explores Cambodia's response to these challenges and the lessons learned for building a more robust Health Information System (HIS) for future public health emergencies.

One key takeaway is the importance of inter-sectoral collaboration. Cambodia recognised

the limitations of a solely health-focused response. By engaging the defence and justice sectors, a more comprehensive approach was established, allowing for a coordinated national effort. This highlights the need for pre-existing frameworks for collaboration across various government sectors to ensure a swift and unified response during emergencies.

Furthermore, Cambodia's experience demonstrates the value of adaptable information systems. Recognising the existing HIS's shortcomings, the government developed new modules focused on managing migrant worker re-entry, contact tracing, and vaccination campaigns. This adaptability ensured the HIS remained relevant as the pandemic progressed. However, the lack of integration between these modules remains a challenge. Moving forward, efforts should focus on creating a unified HIS that seamlessly integrates various functionalities.

Another lesson learned is the importance of managing misinformation. Cambodia adopted a single, official communication channel through the Ministry of Health (MOH) to combat misinformation. This approach aimed to provide the public with a reliable source of information and reduce confusion. However, the involvement of the Ministry of Interior and local authorities in addressing fake news highlights the need for inter-sectoral collaborations. Public education campaigns and building media literacy can further support efforts to combat misinformation.

Key lessons for community-based approach

- Establishing a more robust integrated Health Information System (HIS) is key to promoting the success of community engagement.
- Investing in the training of healthcare professionals and IT personnel should be considered for effective data management and use within the HIS.
- Establishing standardised protocols for data collection and reporting across healthcare facilities ensures consistency and reliability in the information gathered and its future uses.
- Securing long-term funding and technical support is essential to sustain the HIS's operations and ensure its continued effectiveness.
- Vaccine hesitancy and misinformation tactics can evolve over time. A successful strategy for risk communication and community engagement must remain flexible, capable of adjusting its messaging and tactics to address emerging challenges effectively.
- Establishing trust with the public is essential for effective communication. Multiple-level approaches may be considered to help foster trust and credibility among the population, for example leveraging health leaders and local influencers on social media, establishing an official source of information that is well-recognised by the public.
- Using a variety of communication channels, including social media, hotlines, door-to-door campaigns, and technology tools, ensures broader reach and engagement with diverse segments of the population.
- Tailoring messages to local languages and different demographics, as well as leveraging trusted community figures can enhance information accessibility and ensure that accurate information reaches all individuals within the community.

Story in Spotlight:

Fake News in the Scientific Community and in the General Community

Defining fake news is not straightforward. Understanding its root causes of fake news is crucial, and the government should invest more in tackling it, along with academia. Conducting more research, obtaining regional funding, and collaborative efforts are necessary.

Addressing fake news can be achieved through social listening, and for effective social communication, it is essential to acknowledge several sources of miscommunication. Using evidence-based communication is paramount, yet it can be challenging to convince politicians who refuse to acknowledge the truth, such as the shortage of beds during a pandemic.

Sometimes, information is based on calibrated decisions, which may be useful for one group but not for others, resulting in disagreements and the creation of misinformation pockets.

Building capacity on science communication and improving the health system are essential to enhance quality and management of information. There may be sufficient human resources, but not enough investment in communication. Building an ecosystem of information and data is necessary as the evidence evolves over time and the role of official spokespersons will become pivotal. It should also be noted about the importance of recognising the evidence-based information and identifying who communicates it, especially when communicating with the elderly. Tailoring communication to their understanding is crucial.



Group Discussions:

Changes on health system and demand for future public health

In addition to presenting case studies from different countries, participants were engaged in small breakout groups to share about observable changes as a result of the pandemic. The purpose of the discussions was to identify areas for further enhancement, including positive changes, and to discuss how to maintain them for healthcare efficiency and sustainability. The summary of these discussions (see also figure 4) is as follows:

Group 1

Emphasised the importance of international collaboration and regionalisation, highlighting ASEAN's role in health. Key examples of initiatives included ACPHEED, the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre), and ASEAN EOC, emphasising the importance of cooperation in disaster management and health security meetings. It was also mentioned that the ASEAN should expand its collaborations to the wider partners and regions, for example, ASEAN Plus Three, Australia, India, the Western Pacific Region of WHO (WPRO), and the Southeast Asia Region of WHO (SEARO). Moving forward, there is a collective wish to increase trust among countries, prioritise regionalisation over nationalisation, harmonise regional health standards and regulations, and enhance data sharing to improve coordination and response efforts.



Group 2

Focused on the significance of investing in research and development (R&D) and procurement of resources during the pandemic. This included coordinated support and flexibility of funding for R&D, expedited procurement processes during emergencies, and involvement of the private sector. To maintain essential health services during crises, reimbursement mechanism guidelines should be developed, allowing the timely management and operationalisation of care facilities and providers. Suggestions for regional collaboration included strengthening an open exchange of human resources and expertise, establishing regional funds for pandemics and infrastructure, and ensuring interoperable health systems to accelerate the establishment of regional vaccine development hubs. Increased investment in health infrastructure and the use of big data analysis were noted as key strategies to strengthen the health workforce and enhance surveillance capabilities. Moreover, there is a call for establishing regional mechanism for supply chain, negotiations with private companies and the implementation of exit plans to expedite the vaccination process, including other life-saving equipment.



Group 3

Centered discussions on research and innovation development evidence for policy. Topics included surveillance with transparency, infodemic management, and integration of health information systems. The importance of digital health literacy and social science research was highlighted, along with the need for Pathogen Access and Benefit-Sharing System (P-ABS System) and multidisciplinary approaches to address civil security management. Collaborations in research (e.g., epidemiology, infectious diseases, use of machine learning, and social sciences) at multinational levels and with other development partners should be maintained to calibrate and strengthen national and thus regional capacity. Research dissemination, translation, and planning should be encouraged to create more social impacts. ASEAN's capacity to tackle these challenges is also marked by making surveillance data open and prioritising health priorities amidst political demands, paving the way for enhanced collaboration and innovation in the region's healthcare landscape.



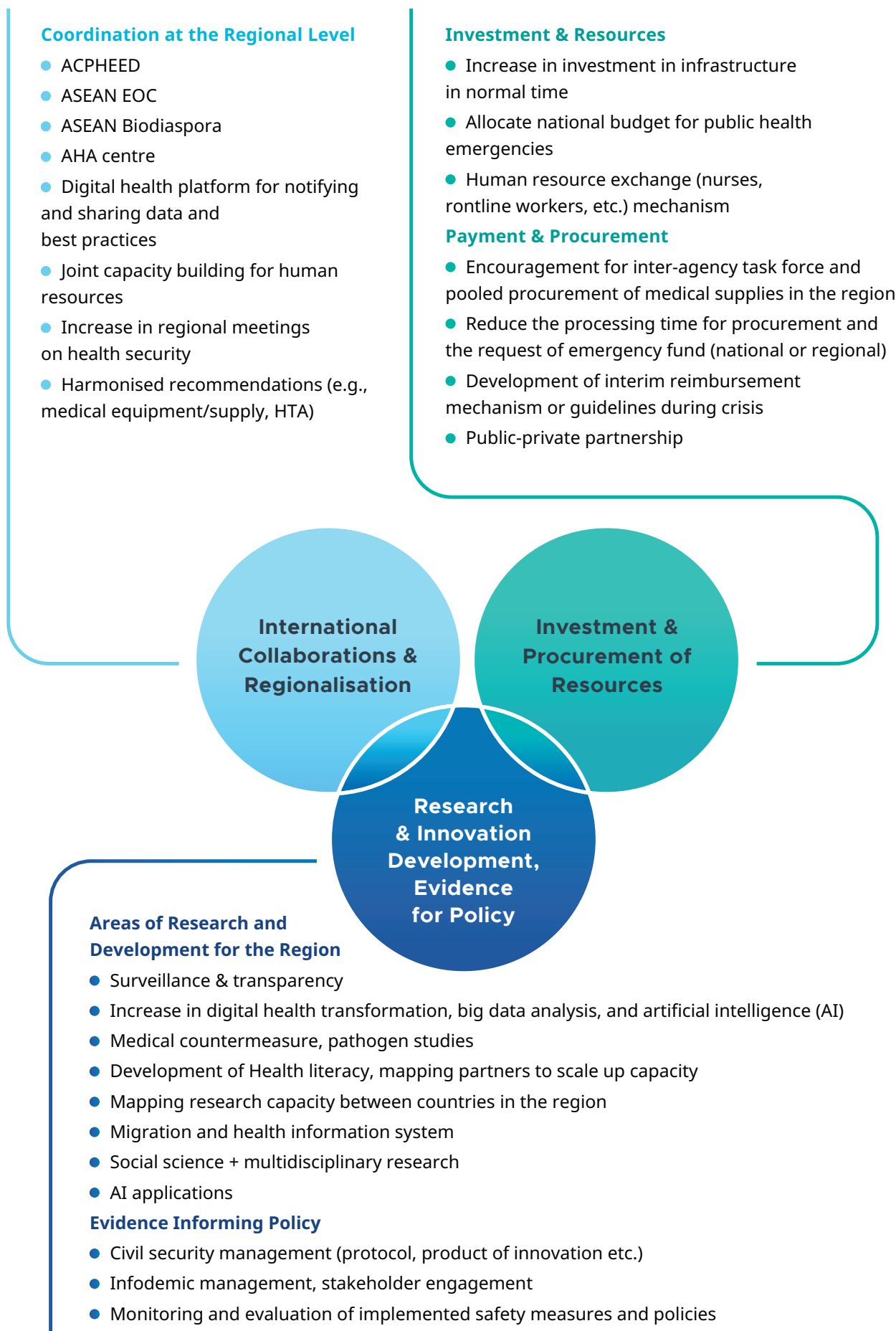


Figure 4 The summary from the group discussions

Key Recommendations:

Learning loop for robust public health capacity and regional solidarity

In this activity, the focus lies upon consolidating lessons learned from the Roundtable discussion, which we can take forward to build stronger health system with better resilience at both national and regional levels.

“For the public health emergency response, it is about early warning. Do we have a good surveillance-based system in place? Is the information from it the priority for our leaders or decisionmakers?”

Surveillance

During the pandemic, traditional information sharing methods focusing solely on data repositories have become outdated. Instead, the emphasis is now on making data and information readily available to the public. ASEAN should urge relevant sectors to address issues such as language barriers, ensuring that all member countries in the region can understand current situations, synthesise evidence, and formulate policies accordingly. Concerns surrounding the establishment of open data should be openly discussed and resolved among relevant stakeholders and data custodians. Additionally, expanding district health surveillance and rapid response teams can be facilitated by providing staff training for outbreak investigation at the district level. This approach will enhance transparency, empower the public with essential information, and enable evidence-based policy formulation to effectively combat the pandemic and future health challenges.

Governance

In the context of regional health, a shared vision among ASEAN member states regarding their collective expectations and aspirations should be achieved. This shared vision serves as a guiding framework for synergised roles and collaborative action.

“Health security cannot be discussed without the issue on health equity”

Equity

Ensuring equity in healthcare system design is paramount and warrants acknowledgment as a key aspect. Achieving equity can be realised through various means, such as the development of Universal Health Coverage (UHC), evidence-based decision-making, and prioritising the needs of vulnerable populations. An equitable healthcare system not only promotes fairness and social justice, but also complements the overall health security of the population. By addressing disparities in access to healthcare services, particularly among marginalised groups, and providing essential care to everyone, irrespective of their socioeconomic status, ethnicity, or geographical location, we can build a more resilient and inclusive healthcare system.

“Harmonisation does not necessarily mean uniformity”

Diversified Community

Recognising and addressing the heterogeneity (where possible) within the region is paramount. There are opportunities for ASEAN as a bloc to lead in this regard by exploring the feasibility of a regional pact and demonstrating its effectiveness through proof of concept. ASEAN can leverage the strengths and uniqueness of its member countries to advance this initiative. For instance, countries can collaborate on joint training programs to develop expertise in Hazard Identification, Risk Assessment, and Risk Control (HIRARC) at various levels. By pooling resources, sharing best practices, and strengthening closer collaboration, ASEAN can effectively address the diverse needs of its communities and enhance resilience to health threats and emergencies.

“We should throw our hat over the fence! Political buy-in from member countries is important. We should recognise our priority for health security and pandemic preparedness and the commitment will come”

Harmonisation in the Region

The concept of regional harmonisation within ASEAN has gained traction due to the increasing connectedness and mobility of populations within the region. This aspiration is seen as potentially beneficial for ASEAN and its people. Harmonisation in health can cover a wide range of areas, including but not limited to, pooled procurement of medical supply chains, adoption of digital solutions and data standards, medical device standards, alignment of infant vaccination schedules, and implementation of health technology assessment (HTA) to support resource allocation and Universal Health Coverage (UHC). By harmonising these aspects, ASEAN can streamline processes, improve efficiency, and ensure consistency in healthcare delivery across member states.

“With technologies to support health system efficiency in peacetime, they may as well help with the workload and preparedness in crisis time”

Reap What You Sow

Working within the health system can often feel like carrying a bucket of water. During times of peace, there is a manageable load we carry, but during emergencies, the bucket becomes heavier with unavoidable additional workload. Resilience in this context means the system’s ability to continue daily operations while accommodating sudden increases in workload. Building capacity to manage this workload is vital, making routine tasks easier and freeing up resources for emergency response. Incorporating technologies and innovations to monitor and predict outbreaks can aid in this effort, streamlining routine work and making the health system more efficient. It is noteworthy that an agile, yet predictive approach (through the incorporation of new technologies) is necessary not only to anticipate future pandemics but also to enhance the efficiency and effectiveness of routine health services, especially considering anticipated increases in disease burden worldwide.

Testing the Waters

A learning health system involves understanding how to introduce innovations into the healthcare system effectively. Implementing new initiatives, whether they are digital solutions or policy changes, can be daunting, particularly within hospital settings. Therefore, creating sandboxes to pilot these changes allows for experimentation and refinement before scaling them up to a wider audience.

Future Proofing Innovation

This involves considering how new innovations can be adapted to unforeseen circumstances, such as a new pandemic or disease outbreak. When proposing new innovations, it is essential to question how they can be flexible and adaptable to different scenarios. For example, surveillance systems and video/teleconsultation platforms should be designed with scalability and versatility in mind, allowing them to be quickly modified or repurposed to address emerging health threats. Thus, striking a balance between immediate requirements and future flexibility is essential.

Co-Creation

Engaging in conversations with technology partners and innovation developers, including those from the private sector, is crucial. These stakeholders can provide valuable insights and expertise in developing solutions that are robust and adaptable to changing needs. Advocating for different solutions to policymakers ensures that innovative approaches are considered and supported at the policy level, facilitating their implementation and sustainability.

“Silver lining in the cloud”

Two Sides of a Coin

The advent of evolving technologies, Artificial Intelligence (AI), and digital transformation presents two sides of a coin in the realm of healthcare. On one hand, there are potential threats, including the spread of misinformation, concerns about data security and sharing, and the possibility of widening social gaps in terms of access and affordability. On the other hand, it should be recognised the potential of these technologies as solutions to such challenges. AI-powered tools can help identify and combat misinformation, enabling more

effective management of public health crises. Digital platforms and telemedicine services enhance accessibility to care services, especially for underserved communities in remote or rural areas. Innovations in digital health can improve efficiency, reduce healthcare costs, and enhance patient outcomes. Nevertheless, they require thoughtful regulation, investment in infrastructure and education, and collaboration among stakeholders to ensure that technology-driven solutions are accessible, affordable, and inclusive for all.

“The health system is big, but it doesn’t function alone”

One Health, Yet Health Goes Beyond Health Sector

During pandemics, there are many critical agencies supporting crisis response. These for example include ministry of interior, police department, and the economic sector. Establishing mechanisms for ongoing dialogue and collaboration with these entities is essential for synthesising lessons learned and improving future response and preparedness efforts. The window of opportunity for reflection and action during crises is indeed fleeting, as other commitments and priorities inevitably emerge. Therefore, it is worth capitalising on the momentum generated during crisis response to enact meaningful changes and implement lessons learned. This may involve institutionalising communication channels and collaboration frameworks between health and non-health sectors, ensuring that cross-sectoral coordination becomes an integral part of holistic plans for emergency preparedness and response.

Community Engagement

This is a critical component of effective public health strategies. It is essential to define and understand what constitutes a community in this context. By actively involving community members in health initiatives, public health authorities can gain valuable insights into local needs, preferences, and behaviours, leading to more effective policy interventions and improved compliance. Strong community ties will promote coordinated responses across different areas, which is essential for managing the spread of pandemics. This engagement is even more vital in the context of infodemics which can hinder public health efforts. By educating and empowering communities to critically

assess information, public health authorities can mitigate the spread of false narratives and promote adherence to evidence-based advice. Depending on the context, countries may adopt various approaches to community engagement and communication. However, given an overabundance of information, it is imperative to establish a nationally recognised and trusted source of information for community.

“Recommendations we made for the region alone is not enough, we need the right audience, context, and platforms to support them, otherwise they can be meaningless...”

Knowledge Translation and Dissemination

This is one of the key components of strengthening regional solidarity and pandemic preparedness. While academic exercises like roundtable discussions are not new initiatives, ensuring that the insights and recommendations generated from these discussions reach the right target audience, especially decision-makers in the region, is often overlooked. Hence, one step of the dissemination is to identify the stakeholders for whom the insights from the roundtable and similar initiatives are useful. In this case, stakeholders may include regional bodies such as the ASEAN Secretariat, the International Health Regulations (IHR) working group, the Intergovernmental Negotiating Body (INB), and among others. Once stakeholders are identified, strategic dissemination, communication, and translation of key messages should be executed. This may involve leveraging existing platforms and networks, such as ASEAN health cluster meetings, ASEAN Senior Officials' Meetings (SOM), the Global Health Security Conference, and the Prince Mahidol Award Conference (PMAC). These platforms provide opportunities to present key recommendations and engage decision-makers directly. Additionally, using various communication channels, such as reports, policy briefs, infographics, and digital media, can help ensure that key messages reach a broader audience in a format that is accessible and understandable.

Conclusion

The two-day Roundtable on the pandemic's impact on health systems covered a range of activities aimed at facilitating learning and expertise exchange across various levels, from organisational to regional scales. Participants actively engaged in discussions to synthesise recommendations for enhancing ASEAN pandemic preparedness and response efforts. The recommendations dive into several domains, including improving surveillance systems at different scales, utilising evidence to inform decision-making processes, enhancing efficiency and maintaining essential healthcare provision during crises through technology-driven services, promoting health equity to strengthen health security, addressing infodemics and misinformation, continuously engaging multisectoral stakeholders in health system readiness planning, recognising and leveraging the diversity of resources and expertise within the region, and developing a sense of regional pact for collective ASEAN actions. However, it was emphasised that these recommendations are not one-size-fits-all solutions. There is a need for ongoing dialogues and similar platforms to continue learning about lessons and good practices for pandemic preparedness and responses. These discussions should be adaptable and relevant to evolving contexts, ensuring that ASEAN remains agile and responsive in addressing future health crises effectively.



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Annex

I. Agenda

Day 1	
Time	Topic/Description
9:00 – 9:30	Registration
9:30 – 9:45	Introduction and Welcome Remarks <i>The Ministry of Public Health, Thailand</i>
9:45 – 9:55	Photo session
9:55 – 10:00	Overall initiative: the Health Security Roundtable
10:00 – 10:10	Recap from the Roundtable in Indonesia
10:10 – 10:30	Broader picture: <i>Regional experience: the pandemic's impact on ASEAN's health systems and available supports/initiative at the regional level</i>
10:30 – 10:45 Morning Coffee Break	
10:45 – 12:00	Service delivery & Health information system: <i>Paradigm shift of remote service delivery through Telemedicine and e-health Technology Driven Service Delivery - How healthcare has changed since Covid-19</i>
12:00 – 13:00 Lunch	
13:00 – 14:15	Financing strategies and sustainability: <i>Public-private partnerships to sustain healthcare ecosystem Health financing mechanism in times of public health crises</i>
14:15 – 14:25 Afternoon Break	
14:25 – 17:00	A case study of Bamrasnaradura Infectious Diseases Institute (BIDI): <i>Facility and resource management during pandemic Equitable access to health technologies [Off-site visit]</i>
17:00 – 17:10	Summary of day
17:45 onwards	Welcome Dinner at Nonthaburi [Networking]

Day 2	
Time	Topic/Description
8:45 – 9:00	Registration
9:00 – 9:15	Networking: Knock, Knock Who's There? [Ice-breaking]
9:15 – 10:25	Human resource & capacity during the pandemic: <i>Human resource & capacity during the pandemic</i> <i>Adaptive strategies of workforce and workflow at care-facilities</i>
10:25 – 10:40 Morning Coffee Break	
10:40 – 12:00	Community based approach: <i>Risk Communication & Community Engagement Efforts for COVID-19 in Timor-Leste</i> <i>Sharing Health information with communities: How to establish HIS for future pandemic?</i>
12:00 – 13:00 Lunch	
13:00 – 14:00	Positive changes on health system as a result of the pandemic in different angles: <ul style="list-style-type: none"> • <i>Group 1: International collaborations & Regionalisation</i> • <i>Group 2: Investment in & Procurement of resources</i> • <i>Group 3: Research & Innovation development, Evidence for policy</i> [3 Breakout groups – discussion w/flipcharts]
14:00 - 14:45	Presentations from the breakouts
14:45 – 15:00 Afternoon Break	
15:00 – 15:45	Learning loop: what lessons we can take forward to build stronger health system with better resilience <i>Robust public health capacity and regional solidarity</i>
15:45 – 16:30	Closing remark <i>Summary of the Roundtable</i>
End of this Roundtable	

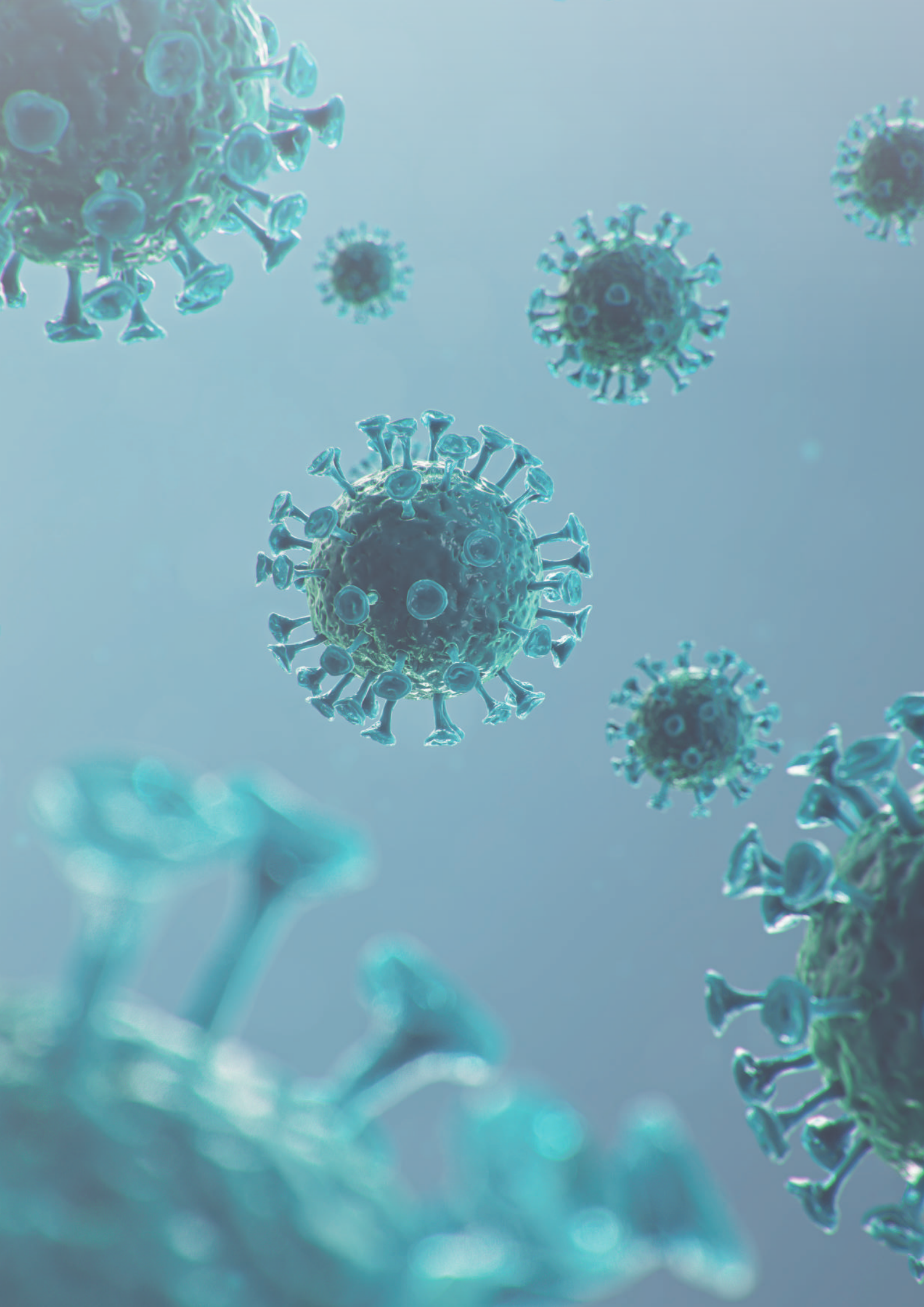
II. Participant list

No	Country	Organisation	Participant
Remark speaker			
1	Thailand	Ministry of Public Health (MoPH)	Dr. Sopon Iamsirithaworn
Country representatives/participants			
2	Brunei	Brunei Centre for Diseases Control and Prevention	Dr. Md Fathi bin Dato Paduka Hj Alikhan
3		Ministry of Health (MOH)	Mr. Haji Salehkamal Hj Badarudin
4	Cambodia	National Institute of Public Health (NIPH)	Prof. Chhea Chhorvann
5		University of Health Sciences	Prof. Vonthanak Saphonn
6	Indonesia	The Center for Decentralised Health Financing Policy, MOH	Mr. Bondan Wicaksono
7		Department of Public Health, Faculty of Medicine, Universitas Padjadjaran	Dr. Bony Wiem Lestari
8	Lao PDR	University of Health Sciences Lao PDR and MoH	Prof. Mayfong Mayxay
9		Department of Communicable Disease Control & The ASEAN Health Sector	Dr. Nilandone Senvanpan
10	Malaysia	Disaster, Outbreak, Crisis and Emergency Management (DOCE) Sector	Dr. Tan Seok Hong
11		Disease Surveillance Sector, MOH	Dr. Mohd Ihsani Bin Mahmood
12	Thailand	Permanent Secretary Office, MoPH	Dr. Somsak Akksilp
13		National Health Foundation (NHF) Thailand	Dr. Piya Hanvoravongchai
14		Field Epidemiology Training Program (FETP) and the MOPH-US CDC collaborating Unit	Dr. Chawetsan Namwat
15	Philippines	Philippine Health Insurance Corporation	Mr. Glenn I. David
16	Timor Leste	Department of Partnership and Cooperation, MOH	Dr. Adelia Maria Moniz Barreto
17		Department of Toxicology and Water Testing, MOH	Dr. Josefina Clarinha João
18	Singapore	Global Partnerships and Engagement, Interim-Communicable Diseases Agency, MOH	Ms. Wen Qing Yeo

No	Organisation	Participant
<i>Resource persons</i>		
19	The World Bank	Ms. Wei Han
20	Japan International Cooperation Agency (JICA)	Ms. Somsri Sukumpantanasan
21	Department of Foreign Affairs and Trade (DFAT)	Ms. Jemma Thompson
22	United Nations Development Programme (UNDP)	Mr. Les Ong
<i>Observing participants</i>		
29	Asia Centre for Health Security, Singapore	Ms. Astrid Khoo
30	Global Health Office, Saw Swee Hock School of Public Health, NUS	Ms. Elisa Coati
31	Global Health Initiates, NHF	Dr. Nyein Chan Oo
32	HITAP International Unit	Ms. Chayapat Rachatan

III. Organising team

Organising Committee		
Faculty members		
1	Prof. Hsu Li Yang	The first Vice Dean of Global Health in Saw Swee Hock School of Public Health at the National University of Singapore (NUS)
2	Dr. Yot Teerawattananon	Secretary General, Health Intervention and Technology Assessment Program (HITAP) Foundation
3	Assoc. Prof. Wannudee Isaranuwachai	Program Leader, HITAP
4	Prof. apt. Auliya Suwantika	Vice Dean for Resources and Organisation, Universitas Padjadjaran
5	Dr. Fredrick Dermawan Purba	Faculty of Psychology, Padjadjaran University
6	Saudamini Dabak	Head of International Unit, HITAP
Rapporteurs		
7	Dr. Dimple Butani	HITAP International Unit
8	Chittawan Poonsiri	HITAP International Unit
Operation management		
9	Panchanok Muenkaew	HITAP International Unit
10	Ryan Jonathan Sitanggang	HITAP International Unit
11	Thuso Tlhaole	HITAP International Unit
12	Sarita Kitmoke	HITAP International Unit
13	Kanokwan Kammong	HITAP International Unit
14	Thapana Senrat	HITAP Administration Unit
15	Naphat Pudkaew	HITAP Communication Unit
16	Serah Carolyn Clarence	HITAP Communication Unit
17	Wittawat Chatchawanpreecha	HITAP Communication Unit
18	Saranyu Laemlak	HITAP International Unit
19	Sushanth Keremata	HITAP International Unit
20	Manit Sittimart	HITAP International Unit





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