©WHO Ploy Phutpheng

Learning from the COVID-19 response to strengthen health security and health systems resilience in the WHO South-East Asia Region

World Health Organization
REGIONAL OFFICE FOR South-East Asia

Virtual meeting, New Delhi, India, 20–22 October 2021
Report of the meeting

SEA-WHE-7
Distribution: General

Learning from the COVID-19 response to strengthen health security and health systems resilience in the WHO South-East Asia Region

Virtual meeting

New Delhi, India, 20–22 October 2021

Report of the meeting

World Health Organization
REGIONAL OFFICE FOR South-East Asia

Learning from the COVID-19 response to strengthen health security and health systems resilience in the WHO South-East Asia Region
SEA-WHE-7

Suggested citation. Learning from the COVID-19 response to strengthen health security and health systems resilience in the WHO South-East Asia Region, Regional Office for South-East Asia; 2021. Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at http://apps.who.int/iris.

Sales, rights and licensing. To purchase WHO publications, see http://apps.who.int/bookorders. To submit requests for commercial use and queries on rights and licensing, see http://www.who.int/about/licensing.

Contents

List of acronyms and abbreviations

AEFI	adverse event following immunization
APSED III	Asia-Pacific Strategy for Emerging Diseases and Public Health Emergencies
COVID-19	coronavirus disease 2019
FETP	field epidemiology training programme
HAI	health care-associated infections
IAR	intra-action review
ICT	information and communications technology
IHR (2005)	International Health Regulations (2005)
IPC	infection prevention and control
PHC	primary health care
PHSM	public health and social measures
PPE	personal protective equipment
RCCE	risk communication and community engagement
SOP	standard operating procedures
UHPR	universal health and preparedness review
WHO	World Health Organization

Executive summary

Strengthening health emergency preparedness and response has been an important health priority in the World Health Organization (WHO) South-East Asia Region. Member States in the Region have made considerable progress in advancing core capacities mandated by the International Health Regulations (IHR) (2005) for health emergency preparedness and response. However, the COVID-19 pandemic revealed that the current level of preparedness was not sufficient to effectively manage such a severe health emergency and that sustained investments in public health emergency preparedness and in resilient health systems are crucial.

It was recommended during the Seventy-fourth Session of the WHO Regional Committee for South-East Asia in September 2021 that WHO facilitate further synthesis of the lessons learnt from the COVID-19 response and work with Member States to develop a regional roadmap to strengthen health security in the South-East Asia Region. The virtual regional meeting, "Learning from the COVID-19 response to strengthen health security and health systems resilience in the WHO South-East Asia Region", was held to respond to the action points raised at the Regional Committee Session. This virtual meeting was attended by nine Member States. The specific objectives of the meeting were to:

(1) review achievements, challenges and innovations, and further synthesize lessons from country and regional response to the COVID-19 pandemic;

(2) provide inputs for the development of a regional roadmap to advance health security and health systems resilience in the South-East Asia Region, building on key lessons from the COVID-19 pandemic; and

(3) recommend priority actions to strengthen health security and health systems resilience in the South-Asia Region in the context of the ongoing COVID-19 pandemic.

Facilitated discussions on the lessons learnt from the COVID-19 response, based on the experiences of the Member States, were conducted across 12 technical areas — 10 technical areas as per the WHO Strategic Preparedness and Response Plan for COVID-19 plus two additional technical areas. The key messages from the 12 breakout sessions include the following:

- **Coordination, planning, financing, and monitoring:** A high-level, multisectoral leadership that fosters a whole-of-society approach, a strong incident management system, functional emergency operations centers, and accountability framework are crucial. Learning, such as through intra-action reviews, informs continuous improvement of response.
- **Risk communication, community engagement and infodemic management (RCCE):** A functional national action plan and standard operating procedures (SOP) for RCCE including coordination mechanisms, are very important. Listening to and engaging with communities and key influencers should be strengthened. A single set of information from the government was particularly important in the evolving science of a new disease.

- **Surveillance, epidemiological investigation, contact tracing:** Existing surveillance systems at subnational levels and field epidemiology training programme provided important foundation. More systematic synthesis of information for risk assessment and decision-making and having a workforce plan, including surge capacities, are priorities.
- **Points of entry, international travel and transport**: Improved multisectoral coordination and risk-based approach are priorities for management at POE and cross-border collaboration and information-sharing should be strengthened.
- **Laboratories and diagnostics**: Existing national policies and laboratory systems positively contributed. Formalizing workforce surge mechanisms and establishing a Diagnostic Technical Advisory Group at national and regional levels were recommended.
- **Infection prevention and control (IPC):** An integrated national IPC strategy and national programme is crucial to guide IPC implementation and as a basis for pandemic response. Timely and sustained supplies of personal protective equipment (PPE) need to be ensured.
- **Case management, clinical operations and therapeutics:** The capacity to scale up health-care systems through surge staff (both health and non-health) and ensuring compliance with rapidly changing guidelines and referral procedures were critical. Improved access to real-time data is needed to support evidence-based decision-making.
- **Operational support and logistics, and supply chains**: Significant disruptions and increased demand for essential goods posed major challenges. This pillar should be better financed as a key component of emergency response system. Strengthening public-private partnerships, regional stockpiles and local manufacturing capacities was recommended.
- **Maintaining essential health services and systems:** Innovative mechanisms to maintain health services and access were adopted, such as home delivery of treatment and multi-month dispensing. Evaluation of best practices and regulatory framework for new service delivery models are suggested.
- **Vaccination:** High-level political commitment, multisectoral oversight bodies, a vaccine deployment plan and mechanisms to expedite emergency use authorization were key factors for success. Ensuring RCCE to address vaccine hesitancy, systems to facilitate evidence-based, corrective actions and functional adverse effect following immunization (AEFI) surveillance were recommended.
- **Public health and social measures (PHSM):** Multisectoral processes that use a whole-of-society approach, with community engagement and two-way listening, were crucial to ensure effective PHSM. A risk-based approach for calibrating PHSM at subnational levels is required to timely adjust the response measures.
- **Resilient health system:** Enhanced investments in primary health care-oriented health systems that fully engage communities are a priority. Mechanisms to mobilize surge staff, engaging private practitioners during an emergency, while ensuring continuity of health services, are needed.

Participants were also updated on a summary of recommendations from global committees and panels on COVID-19, the ongoing deliberations at the Member States Working Group, and the planning for the proposed universal health and preparedness review (UHPR). The informal expert group as well as the partners' forum also shared key lessons from their perspectives.

The regional roadmap to strengthen health security and health systems resilience in the South-East Asia Region is to be developed. The roadmap is expected to accelerate implementation of the Delhi Declaration - Emergency Preparedness in the South-East Asia Region (2019) and inform development of future health security frameworks in the Region. The lessons learnt from the COVID-19 response, as gleaned from this meeting, will contribute to the development of the regional roadmap and will inform our collective efforts towards safer and more secure WHO South-East Asia Region.

1. Introduction

Strengthening health emergency preparedness and response has been an important health priority in the WHO South-East Asia Region. Emergency risk management was identified as a Regional Flagship Priority Programme in 2014 and was further endorsed by ministers of the Member States in the Region in the Delhi Declaration - Emergency Preparedness in the South-East Asia Region at the Seventy-second session of the WHO Regional Committee for South-East Asia in 2019.

In the same session, the honourable ministers launched the Five-year Regional Strategic Plan to strengthen public health preparedness and response 2019–2023 as well as the Risk Communication Strategy for public health emergencies in the WHO South-East Asia Region 2019–2023. The efforts of the WHO South-East Asia Region to strengthen health security systems have also been guided by the bi-regional strategic framework, Asia-Pacific Strategy for Emerging Diseases and Public Health Emergencies (APSED III): Advancing implementation of the IHR (2005), with three iterations since 2005.

Member States in the Region have made considerable progress in advancing core capacities mandated by the International Health Regulations (IHR) (2005) for health emergency preparedness and response. However, the COVID-19 pandemic revealed that the current level of preparedness was not sufficient to effectively manage such a severe health emergency and that sustained investments in public health emergency preparedness and in resilient health systems are crucial.

Building these regional and national health security systems requires long-term vision and committed political leadership to provide direction and ensure sustainable financing. To more effectively respond to the ongoing pandemic and prepare for future pandemics, emergencies and disasters, Member States, WHO and other partners must work together to identify the key learnings and gaps from the COVID-19 response to prioritize actions to further strengthen health security and health system resilience.

During the Seventy-fourth Regional Committee Session, the honourable ministers of the Member States adopted the "Declaration on COVID-19 and measures to 'build back better' essential health services to achieve universal health coverage and the health-related Sustainable Development Goals", emphasizing the "once-in-a-century opportunity to advance transformation towards resilient primary health care-oriented health systems as the means to achieve population health, well-being and prosperity in the South-East Asia Region".

The same Regional Committee Session also recommended to WHO, through Agenda item 8.5, that it "facilitate further synthesis of the lessons learnt from the COVID-19 response at a regional level along with the recommendations of the global panels and committees, and work with Member States to develop a regional roadmap to strengthen health security in the South-East Asia Region".

This meeting, Learning from the COVID-19 response to strengthen health security and health systems resilience in the WHO South-East Asia Region, provided a timely response to these action points noted at the Seventy-fourth Session of the Regional Committee to further optimize the COVID-19 response and to facilitate transformation of health security systems and resilient health systems in the Region. The deliberations at the meeting are expected to advance implementation of IHR (2005) and the Delhi Declaration on Health Emergency Preparedness in the Region, and to inform the future health security framework for the South-East Asia Region beyond 2023.

2. Objectives of the meeting

The overall objective of the meeting was to strengthen health security and health systems resilience in the WHO South-East Asia Region through learning from the COVID-19 response.

The specific objectives were as follows:

(1) to review achievements, challenges and innovations, and further synthesize lessons from country and regional response to the COVID-19 pandemic;

(2) to provide inputs for the development of a regional roadmap to advance health security and health system resilience in South-East Asia Region, building on key lessons from the COVID-19 pandemic; and

(3) to recommend priority actions to strengthen health security and health system resilience in the South-Asia Region in the context of the ongoing COVID-19 pandemic.

3. Discussions and deliberations

3.1 Opening session

The meeting was opened by the WHO Regional Director for the South-East Asia Region, Dr Poonam Khetrapal Singh. Dr Singh congratulated meeting participants on their efforts to control and manage the COVID-19 pandemic in the Region and stressed how significant efforts over many years have strengthened emergency preparedness and response in the Region. These efforts contributed to the pandemic response, saving countless lives and minimizing the wider social and economic impacts. However, the pandemic has also highlighted that the current level of preparedness was insufficient to manage severe health emergencies and there is a need to sustain, accelerate and innovate efforts towards making the Region more resilient and adaptive to the needs of the people. This meeting will respond to the request of Member States at the recent Regional Committee Session for the WHO South-East Asia Region to synthesize the lessons learnt from the response and guide the development of a regional roadmap to advance health security.

Professor Pratap Singhasivanon was elected as the meeting Chair, with Dr Mahbubur Rahman (Bangladesh), Professor Pratap Singhasivanon (Thailand), and Dr Sujeet Kumar Singh (India) elected as the Chair for each day. The co-Rapporteurs elected included Ms Shima Roy, Ms Michelle McPherson and Ms Leila Bell.

3.2 Plenary session 1: Learning from the COVID-19 response to strengthen health security and health systems resilience in the WHO South-East Asia Region

Responding to COVID-19 and managing health security threats in the WHO South-East Asia Region – Dr Jos Vandelaer, Regional Emergencies Director, WHO Regional Office for South-East Asia

Dr Vandelaer summarized the impact of the pandemic and the epidemiology of COVID-19 cases and deaths from the pandemic in the Region. He outlined that the Strategic Preparedness and Response Plan provided a structure for a comprehensive and coordinated multisector response approach that many countries adopted to guide their response.

Throughout the Region, the use of public health and social measures (PHSM) were proven to reduce virus transmission, but also had large societal and economic impacts. Using a risk-based approach, guided by transmission levels and response capacities, allowed targeted, local-level response. Consulting and engaging communities were required for effective implementation of PHSM measures.

Effective responses to the pandemic were built from existing systems. Resilient health systems provided foundation for effective pandemic response. However, even in countries with stronger systems, evolving epidemiological scenarios meant that these systems had to evolve throughout the response – for example, through the reorganization of health facilities and care pathways. New challenges also emerged, including off-label use of medicines, inequitable access to therapeutics and data management.

Risk communication and community engagement (RCCE), was a critical component of the response, especially the importance of embedding RCCE into the response cycle. The COVID-19 "infodemic" of significant misinformation highlighted the important role of listening to the community and adapting response based on feedback. Prior investment in health emergency operations has also been vital in coordinating and initiating response efforts, thus providing adaptable lessons for other countries in the Region. The pandemic has provided a once-in-a-century opportunity to build back better, based on the lessons learnt, and building upon significant investments and capacity-strengthening carried out over the years.

Advancing transformation towards resilient primary health care-oriented health systems – Dr Ibadat Dhillon, Regional Adviser, Human Resources for Health, WHO Regional Office for South East Asia

Dr Dhillon highlighted the unprecedented societal and economic impact the pandemic has had. Successive waves exposed long-standing health system gaps, disrupted health systems and exacerbated inequities. Even relatively well-resourced countries in the South-East Asia Region, and globally, were challenged with regard to infrastructure, human resources and access to medical products, among other issues. Health services have recovered through significant innovation and improvement. It is necessary to harness these efforts to make them sustainable. One example has been the extension of the service delivery capacities of health systems to hard-to-reach communities through millions of health worker and volunteer visits, tele-consultations and doorstep delivery of medical products.

The pandemic has reiterated that investment in resilient primary health care (PHC)-oriented systems serve as a foundation for public health response while also maintaining essential health services. The pandemic also provides an opportunity to strengthen multi-sector action, integrated services, and community engagement, all key features of a PHC-oriented health system and public health emergency response.

Achievements and challenges of implementing COVID-19 vaccination in the WHO South-East Asia Region – Dr Sunil Kumar Bahl, Coordinator, COVAX, Immunization & Vaccine Development, WHO Regional Office for South East Asia

Dr Bahl summarized the current achievements and challenges faced by COVID-19 vaccination efforts. With vaccination occurring in 10 of the 11 South-East Asian countries, 46% (921 million people) of the regional population have received at least one dose of a COVID-19 vaccine and 20.5% (422 million people) have received two doses. Some countries have met global vaccination targets, with others requiring additional efforts to reach these targets. There are currently eight different vaccines being used in the Region, with most Member States prioritizing health-care workers, the elderly and other vulnerable populations.

Countries have developed systems to register people to receive vaccination and countries are providing various vaccination certificates. There have been challenges in data management systems – for example, identifying priority groups in registration systems, literacy of mobile applications for registration and availability of convenient electronic devices for field workers. Surveillance for adverse event following immunization (AEFI) is critical, particularly for new vaccines, and this is occurring to varying degrees across the Region.

Key enablers for successful rollout of vaccines included having the highest level of engagement from government with multisectoral oversight and coordination bodies. High-quality and flexible National Deployment and Vaccination Plans for COVID-19 vaccination, guided by vaccine introduction readiness assessments and regulatory preparedness, have facilitated implementation. Previous experiences of mass vaccination campaigns showed there was existing capacity for vaccine delivery systems to scale up. Utilizing other existing systems, such as cold-chain capacity, digital tools and evidence-driven approaches to address vaccine hesitancy, has also facilitated successful vaccine rollout.

Insufficient vaccine supplies with erratic supply quantities and delivery schedules were the biggest challenges for the COVID-19 vaccine rollout. In some countries, there has been suboptimal vaccination coverage of key populations. Significant misinformation and lack of information resulted in vaccine hesitancy and slow vaccine uptake. Resources required for the COVID-19 vaccine rollout need to be balanced with the needs of routine immunization programmes to ensure that these continue.

3.3 Plenary session 2: Evolving landscape of the global health security architecture

Summary of recommendations from global committees and panels on COVID-19 and updates on the Member States Working Group – Dr Jaouad Majour, Assistant Director General, WHO headquarters

Dr Majour presented the WHO dashboard of COVID-19 related recommendations, a tool to facilitate access to over 200 recommendations issued to Member States, WHO and other entities regarding the COVID-19 response. This includes recommendations on leadership and governance (51%), systems and tools (26%), financing (16%) and equity (7%) across six themes – (1) global health architecture and governance for pandemic preparedness and response; (2) implementation, compliance, and enforcement of IHR (2005); (3) financing pandemic preparedness at the national and global levels; (4) equitable and timely access to control measures, including vaccines; (5) the need for a one-health approach beyond the technical level; and (6) better alert and risk assessments for future pandemics.

The Member States Working Group on WHO preparedness and response has reached preliminary consensus that maintaining the status quo is not an option and that bold action is needed to be better prepared for the next pandemic. The working group would deliver a report at the Special Session of the World Health Assembly in late November and based on preliminary feedback, is likely to include recommendations for targeted amendments to IHR (2005), developing new instruments for areas not covered by existing instruments, such as equity issues, and for strengthening existing mechanisms.

Updates on universal health and preparedness review – Dr Stella Chungong, Director, Health Security Preparedness, WHO headquarters

Dr Chungong introduced the universal health and preparedness review (UHPR), a voluntary, Member State-led and driven initiative that seeks to review emergency preparedness with universal health coverage and healthy populations to assess response, recovery and resilience. The review is to include (1) governance, stewardship and leadership; (2) strong, agile and coordinated national and global systems for emergency preparedness; and (3) predictable and sustainable resources.

UHPR builds on existing tools and indicators, such as the IHR monitoring and evaluation framework, to incorporate review of health as well as non-health sectors to include civil society, parliaments, private sector and communities. Countries can volunteer for a peer-to-peer review of comprehensive national preparedness capacities with several Member States in the Region volunteering for the pilot of UHPR. An update on the progress and future plans is scheduled for the Special Session of the Seventy-fourth World Health Assembly in November 2021.

The way forward – development of the regional roadmap – Dr Reuben Samuel, Programme Area Manager – Country Health Emergency Preparedness and IHR, WHO Regional Office for South- East Asia

Dr Samuel introduced the draft regional roadmap for health security, developed as per the recommendation from the Seventy-fourth Session of the Regional Committee. The proposed vision of the roadmap is: *A highly secure and safe South-East Asia Region with countries effectively prepared for, and ready to detect and respond to public health emergencies and the next pandemic*.

To strengthen health security in the Region, a long-term vision to guide coordinated efforts and sustainable investment is required. The roadmap proposes the vision towards 2030 and is to include medium- and long-term strategic priorities at the Member State and regional levels, with short-term actions for Member States and WHO. The roadmap also aims to accelerate implementation of the Delhi Declaration and inform development of future health security frameworks in the Region. The lessons learnt from the COVID-19 response, as gleaned from this meeting as well as from outputs from COVID-19 intra-action reviews (IARs), UHPRs and other formal and informal reviews, will contribute to the development of the regional roadmap to ensure that these lessons are not lost.

3.4 Breakout sessions

To facilitate discussions on the lessons learnt from the COVID-19 response, two rounds of breakout sessions were conducted. Participants were allocated to two sessions (one session on Day 1 and another on Day 2) of 12 technical areas, consisting of 10 technical areas as per the WHO COVID-19 Strategic Preparedness and Response Plan (SPRP 2021) [1] plus two additional technical areas, as follows:

- Coordination, planning, financing and monitoring
- Risk communication, community engagement and infodemic management
- Surveillance, epidemiological investigation, contact tracing
- Points of entry, international travel and transport
- Laboratories and diagnostics
- Infection prevention and control
- Case management, clinical operations and therapeutics
- Operational support and logistics, and supply chains
- Maintaining essential health services and systems
- Vaccination
- Public health and social measures
- Resilient health systems.

[1] *World Health Organization, COVID-19 Strategic Preparedness and Response Plan (SPRP 2021). 2021, WHO: Geneva.*

The following discussion points were provided to guide the sessions:

(1) Share and discuss key lessons for assigned technical area, including root causes for the issues and good practices.

(2) Propose potential strategic or policy-level actions that can lead to reform for more effective health security systems and/or health system resilience.

(3) Provide feedbacks to the draft framework for the regional roadmap, including potential priority actions for short and long term at country and regional levels.

3.5 Plenary session 3: Feedback from the breakout sessions

A session Rapporteur elected from each group presented the outputs during Plenary 3 as summarized below, with the content of the presentations provided in Annex 3. A description of each technical area is provided from the WHO COVID-19 Strategic Preparedness and Response Plan (SPRP 2021).

Coordination, planning, financing and monitoring

This technical area is based on the premise that no single agency or organization can prepare for or respond to a global pandemic on its own. Responding to a public health emergency requires adequate legislation, financing and response plans as well as a national emergency response committee that can coordinate a whole-of-society and whole-of-government approach. Contingency plans for emergency financing, essential health service and business continuity and recovery operations are also required.

The lessons learnt from this technical area include that having a high-level, multisectoral leadership that fosters a whole-of-society approach, a strong incident management system, an emergency operations centre with sufficient infrastructure, and adequate legal frameworks, are required for public health emergency preparedness and response. Being able to build on existing mechanisms, created through long-term investments in health security and with an all-hazard approach, and adapting these throughout the response, were also seen as key learnings, as was having adequate financing to prepare for public health events, and access to emergency funding during the response. The successful use of digital tools and technology to support coordination and communication was noted, as was using public-private partnerships and civil-military coordination.

Priority actions for this technical area included establishing partnership frameworks at the regional and national levels, ensuring that there are business continuity plans for the continuation of essential services during an emergency, having adequate surge capacity and emergency finance mechanisms. Continuing the monitoring and evaluation of preparedness and response capacities, including the monitoring of recommendations made in previous evaluations, was suggested. Evaluating the COVID-19 response against IHR core capacities and using this to develop further investment plans were suggested.

Risk communication, community engagement and infodemic management

This technical area highlights the role that communities play in preventing and controlling epidemics and is critical for the successful implementation of activities across all pillars of the response. Communities must be listened to and involved in codesigning solutions in order to address demand-side barriers to health service utilization, including vaccination, and to inform measures to mitigate the socio-economic impact of COVID-19 control interventions.

The key lessons learnt include the importance of a functional national action plan for RCCE, with standard operating procedures (SOPs), sufficient financing and RCCE experts, prior to an emergency. The national RCCE plan should include coordination mechanisms across all areas and for all partners involved in an emergency response. The critical importance of listening to and engaging with communities, individuals and key influencers (e.g. civil society organizations, faith-based communities, internet-based communities) to develop solutions and successfully address rumours and misinformation was also highlighted. A single set of information from the government (both health and non-health sectors) was particularly important given the evolving science of a new disease and the overwhelming amount of information available. Additionally, contextualized and easy-to-understand information that was delivered through appropriate platforms and languages had the largest impact of sharing RCCE messaging.

Priority actions identified included increasing RCCE capacity at the subnational, national and regional levels, for both health and non-health sectors, as well ensuring RCCE is a core part of public health emergency response systems and plans. Strengthening the whole-of-society approach by having systems to engage with and to increase health and science literacy within different sectors, actors and agencies was also highlighted. Developing policies and systems for sustainable infodemic management, including establishing a regional infodemic alliance plus systems for coordination and data collection on public perceptions, attitudes, and socio-behavioural issues for appropriate RCCE, was identified. Finally, it was suggested to establish a regional centre for excellence for RCCE.

Surveillance, epidemiological investigation, contact tracing

Disease surveillance and the public health capacities to identify, isolate and treat cases, trace and quarantine contacts, and implement and adjust public health and social measures were the key tools used to suppress COVID-19 transmission alongside vaccination. Surveillance data provide evidence for targeted interventions and for monitoring the course of the pandemic.

The lessons learnt for this technical area included that having strong existing public health surveillance infrastructure and utilizing these existing systems, especially at the subnational level, helped significantly, as they were able to be adapted for the COVID-19 response. Countries with a field epidemiology training programme noted that having these graduates in the workforce was extremely beneficial. Using information from multiple surveillance systems and contact tracing data allowed risk-based calibration of PHSM and a more targeted response.

Many types of people were mobilized for surge capacity to support case investigation and contact tracing. However, sustaining surge capacity resources became more difficult over time. Data management was challenging due to the volume of information being collected, the urgency at which it needed to be analyzed and reported to inform public health action, and the basic tools used to manage these systems initially. Integrated data systems that could triangulate data as well as using more sophisticated information technology maximized the value of the data. Interacting with the community to inform them of contact tracing, quarantine and isolation requirements required strong RCCE; having dashboards accessible to the public was effective in sharing relevant information.

Priority areas identified for this technical area included improving surveillance infrastructure to allow for real-time reporting of integrated data, strengthening capacity for in-country genomic sequencing, and capacities for risk assessment and decision-making using multiple sources of information in a more systematic manner. Developing a workforce plan that includes surge requirements across all administrative levels and disciplines and having sustainable and innovative financial arrangements for surveillance systems with adequate laboratory components are also considered the priority. Continuation of strengthening "One Health" approaches for the early detection and coordinated response for emerging zoonotic disease and event-based surveillance was also recommended.

Points of entry, international travel and transport

Risk mitigation at points of entry is the first line of defence in preventing, delaying and limiting a pandemic virus from entering a new country. Standard risk mitigation measures at points of entry include providing advice to travellers; surveillance and case management at the point of entry and across borders; capacities and procedures for international contact tracing; and environmental controls and PHSM at points of entry and onboard conveyances.

Lessons learnt in managing points of entry during the COVID-19 pandemic included that having timely and early implementation of measures at points of entry did limit importation and transmission of COVID-19 within the country. Having required response components located at the points of entry, such as screening, laboratory testing, digitized information systems linked to the national surveillance system and isolation/quarantine facilities, all contributed.

Better collaboration between the multisectoral stakeholders for information-sharing, joint risk assessment and outbreak control is required, with borders at ground crossings being more challenging to manage. Preparing quarantine policies and facilities for incoming travellers was also a challenge and required creative and risk-based solutions. Countries that had existing contingency plans for points of entry or that had conducted exercises were better prepared.

Key priority actions for points of entry include strengthening coordination mechanisms and multisectoral management at points of entry, which may include enhanced cross-border collaboration and information-sharing, and developing comprehensive and robust preparedness and response plans that include surge capacity requirements at points of entry. Having an interoperable surveillance system that integrates data collected from points of entry within the national surveillance system, as well as improving surge capacities across response pillars at

points of entry, will contribute to better coordination of response measures at points of entry. Risk-based approach, including precautionary application, of international travel measures proportional to risks should be strengthened with enhanced capacities to systematically conduct risk assessment. Compliance with IHR (2005) on additional health measures should also require improvement.

Laboratories and diagnostics

Strategic diagnostic laboratory testing was one of the cornerstones of the response to the COVID-19 pandemic. Testing is critical to detect cases and investigate clusters of cases so that rapid public health action can be taken to isolate those infected, quarantine contacts and break chains of transmission. In addition, countries also require mechanisms to detect circulating variants through in-country sequencing or referral to an international laboratory, with timely sharing of sequence data on publicly accessible data platforms being a critical priority.

The key learning for this technical area was that having existing national policies and laboratory systems positively contributed to the scale-up of diagnostic capacities for COVID-19, especially for testing at the local level. Several mechanisms were used for workforce surge capacity; however, sustaining sufficient human resources was a challenge. Information management was also a challenge, again due to the large volumes of information that existing systems were not capable of processing. Building on existing laboratory information management systems, particularly web-based reporting systems that were integrated with the national surveillance system, and using new digital tools alleviated these issues.

Global supply shortages, equipment maintenance, specimen transport and regulatory processes were also challenges; having decentralized and mobile laboratories, in-country manufacturing capacities and bilateral engagements with manufacturers and development partners was useful. Access to testing was increased through new technologies such as rapid diagnostic tests. Genomic sequencing remains resource-dependent and is suboptimal in several countries. Where genomic sequencing was available, sequence data was submitted to global platforms. The international laboratory network was essential, particularly to support initial diagnostic capacity and genomic surveillance.

Priority action areas for this technical area included sustained investments in strengthening laboratory networks throughout each Member State, prioritizing improvements to quality management systems and information systems, establishing a Diagnostic Technical Advisory Group at national and regional levels for overall laboratory preparedness and developing emergency procurement and supply chain policies. Formalizing workforce surge mechanisms and continuous training and developing strategic plans are also recommended to sustain the capacities and capabilities developed during the pandemic.

Infection prevention and control

Infection prevention and control (IPC) measures are among the most effective tools available to contain the spread of viral pathogens, including SARS-CoV-2. IPC can be used to prevent the spread of SARS-CoV-2 during health-care delivery and in public and private communal settings.

The key lesson learnt from this technical area was that an integrated national IPC strategy and national-level programme was required to drive effective IPC within the country, which then contributes to the pandemic response. Not having a national IPC strategy, coupled with inequitable health-care delivery and inadequate health infrastructure, made implementation of standardized IPC measures and health care-associated infections surveillance programmes challenging during the COVID-19 response.

Timely and sustained supplies of personal protective equipment (PPE) and other IPC-related commodities were challenging, with countries with in-country manufacturing capacities better able to manage supply demands. Training in IPC and the correct use of PPE was delivered throughout the COVID-19 response. However, this training needs to be embedded into routine practice and training of health-care workers. Not having adequate quarantine and isolation facilities also made it challenging to contain the spread of the disease.

Priority action areas for this technical area include advocating for political commitment and leadership at the highest levels to ensure implementation of functional IPC programmes at national and facility levels. IPC also needs to be considered a priority for allocation of national and local health budgets. Accountability through monitoring key indicators needs to be embedded into all health-care facilities in all countries, with development of regulations and legal frameworks to enforce IPC requirements and policies, supported by accreditation systems or other mechanisms that have been agreed upon at an international level.

Case management, clinical operations and therapeutics

Effective case management can save the lives of those who are at risk of death and those with severe or critical disease while also ensuring quality of life for all patients, regardless of disease severity. To do this, countries need access to multidisciplinary guidelines and the tools, training, education and workforce to translate these guidelines into practice.

As with several other technical areas, a key learning for this technical area was the importance of having existing strong multisectoral systems that comprise all key partners, including the public, private and non-health sectors, that can be scaled up to respond to COVID-19. The capacity to scale up health-care systems through surge staff (both health and non-health) and dissemination and compliance with rapidly changing guidelines and SOP for case management, referral mechanisms and isolation and quarantine measures were critical for effective case management.

To address the impact of COVID-19 cases on the health-care system and the stigma, which delayed health care-seeking behaviour of those suspected of having COVID-19, innovative health-care delivery mechanisms were adopted, such as home-based care, expansion of telemedicine and alternatives to hospitals, including mobile clinics and using other buildings for mild COVID-19 cases. Performance of procurement and supply systems as well as availability of essential medicines and equipment affected case management and clinical operations.

Priority actions for this technical area include further strengthening of regulatory and financing mechanisms to ensure access to health care and essential medicines for all populations. Care pathways should be reviewed and systems suitable to each local setting should be strengthened, including more effective triage and referral mechanisms that can also provide timely information for patients, seeking care, during the major surge of patients. Exploring the feasibility of regional stockpiling of essential medicines and local production capacity of essential medicines is recommended. Surge systems, which include private-partner engagement, and task-shifting need to be adapted to ensure that appropriate care can be scaled up during an emergency. There is also a need to reform policy and systems to improve access to real-time data from all sectors to support quick and evidence-based decision-making.

Operational support and logistics, and supply chains

Logistical and operational capacities at national and subnational levels underpin every pillar of the public health response, from surging staff deployments, efficient and timely procurement, safe storage and distribution of correctly specified essential supplies to staff payments. Supply chains must respond rapidly to changing and geographically variable patterns of demand and be sufficiently resilient to avoid shortages of essential medicines and health products.

The importance of multisectoral and coordinated operational support and logistics mechanisms and supply chains were emphasized during the pandemic, with significant disruptions and increased demand for many essential medicines and products. These disruptions and demand changes emphasized the importance of having regional and global stockpiles of key goods as well as in-country production capacity of quality-assured products, including PPE and essential medical products. Another key lesson learnt was the importance of real-time data to identify where supplies and human resources were needed prior to acute shortages occurring. In an emergency, the fast tracking of regulatory processes, procurement, custom clearances and distribution of essential medicines and supplies was also identified as critical to response efforts.

Priority actions identified for this technical area included enhancing advocacy and policy development to ensure that operational support and logistics are appropriately financed and embedded as a key component of emergency preparedness and response. The strengthening of public-private partnerships and coordination among various response agencies and partners were also recommended. Given the significant demand for essential medicines and goods during the COVID-19 response, particularly in the initial stages of the pandemic, it was also recommended that stockpiles be established and maintained, with the local manufacturing capacity, procurement and distribution mechanisms within the Region strengthened.

Maintaining essential health services and systems

The COVID-19 pandemic has challenged all health systems to ensure safe delivery of essential health services for all conditions. Disruptions in supply chains, shortages of PPE, reduced staffing, surging cases of COVID-19 patients and lowered capacity at health-care facilities complicated health service delivery, while also posing challenges to health sector budgets and health system governance.

The key lessons learnt from the significant impacts the pandemic had on essential health services and systems include that pandemic preparedness needs to consider maintenance of other health services and systems during a pandemic response so that the service delivery is maintained. Although access to health care was hampered during the COVID-19 response, innovative mechanisms to maintain health services and access were adopted, including community engagement, home delivery of treatment and services, multi-month dispensing for chronic conditions, self-testing, use of digital health services and reconfiguration of health-care institutions to include community-led initiatives and task-sharing. The importance of supply chain management, rational use of medicines and medical products, and regular monitoring of health information systems and services to address gaps and guide efforts was also recognized.

Priority actions include improving multisectoral coordination and mechanisms for health and non-health systems and ongoing investment to strengthen resilient health systems during emergencies. The development of regulatory frameworks for new service delivery models and ongoing monitoring and evaluation of best practices to maintain health service delivery and systems during an emergency response was also suggested.

Vaccination

The COVID-19 vaccination rollout throughout 2021 was one of the most complex immunization programmes in history, involving the simultaneous use of vaccines with different properties in a wide variety of contexts, for a variety of target groups, and against an ever-changing landscape of viral transmission and disease incidence. Country health systems require accountability, good management, human and financial resources, a resilient, well-trained and well-supervised workforce, and good data systems to monitor and track implementation of COVID-19 vaccination and to adjust the strategy as necessary. Countries in the Region were well placed to roll out COVID-19 vaccination by building on a strong childhood immunization programme and experience from seasonal influenza vaccination for adults.

Vaccination efforts were successful with high-level political commitment and multisectoral oversight bodies that involved government, private, civil society and partners. Having a vaccine deployment plan that has been tested and revised, regular preparedness assessments using checklists and systems approved globally, strong routine immunization programmes and mechanisms to expedite emergency-use authorization of vaccines have helped rapidly scale up vaccination efforts for COVID-19. There have been constraints with the supply of vaccines due to limited global supply. Some challenges with vaccination acceptance have been observed in selected population groups because of selective demand, misinformation and fear, but these factors are being regularly addressed through proactive, innovative approaches, tailored RCCE strategies, and evidence-driven approaches to address vaccine hesitancy. The significant burden placed on immunization systems is putting strain on routine immunization programmes and therefore, efforts must be balanced to ensure that routine immunization continues.

Priority actions for vaccination include ensuring there is a legal framework for a high-level, multisector coordinating body and preparedness plans to facilitate vaccination efforts for future pandemics and health emergencies. The challenges of misinformation and vaccine hesitancy in selected population groups have highlighted the need for strengthening risk communication

capacity at the national and subnational levels. Concurrent monitoring of the programme at all levels, including at session sites, and conducting evidence-based corrective actions have been some of the key features of rapid and successful rollout of COVID-19 vaccines and should continue. International agreements and collaborations need to be strengthened for cross-border immunization, surveillance, vaccine effectiveness studies and information-sharing, including use of agreed upon vaccination certificates. The strengthening of systems, including AEFI, research and development, production capacity and cold chain (especially, ultra-cold chain) were also identified as priorities.

Public health and social measures

The decision to introduce, escalate or ease PHSM is to be guided by a situational assessment of the intensity of transmission and the capacity of the health system to respond, but must also consider the effects these measures may have on the general welfare of society and individuals. Critical to the successful implementation of PHSM is the engagement and empowerment of the community to manage its own risk by adjusting behaviours and following PHSM.

Key lessons learnt for this technical area included the importance of having multisectoral processes and systems that use a whole-of-society approach, including government, civil society and the community, to implement and communicate PHSM. The successes of PHSM at reducing disease transmission relied on the adherence of the community and therefore, mechanisms for community engagement and two-way listening were critical to tailor messaging for specific audiences to support compliance. A risk-based approach for calibrating PHSM at subnational levels was considered critical to timely adjust the response measures to the adequate intensity in geographical areas in need, without imposing excessive measures on broader areas of the country.

The priority actions for PHSM include strengthening risk- and evidence-based decision-making to calibrate PHSM at the subnational level. Amendments to legislation may be needed to ensure that PHSM can be implemented in an effective and timely manner for maximum benefit. Additional strengthening of health information and surveillance systems to enhance the synthesis of information used to inform timely and appropriate decision-making on PHSM is also needed. The provision of evidence-based standards and guidance on appropriate PHSM during a pandemic of a novel disease, where there are supply constraints, was also highlighted. Generating evidence on the effectiveness and impacts of PHSM during the COVID-19 pandemic was also considered important.

Resilient health systems

A resilient health system is one which can effectively prepare for, withstand the stress of and respond to the public health consequences of disasters. Resilient health systems can protect themselves and human lives from the public health impact of disasters and are critical to achieving good health outcomes before, during and after a disaster.

The lessons learnt from the COVID-19 pandemic include that there were significant disruptions and strain on the health system and in the delivery of essential health services as a result of the surge in COVID-19 cases. To ensure a resilient health system, existing health system

capacities were adapted and expanded to respond to the pandemic, and innovative mechanisms, such as telemedicine and non-hospital alternatives for COVID-19 cases, were adopted for the provision of health care.

Surge staff were critical for the COVID-19 response; however, the repurposing of health-care workers to the COVID-19 response left huge gaps in other essential health services. The COVID-19 response also exacerbated the lack of trained specialist workers in some countries. Community health workers were integral to community-based surveillance and response. Public-private partnerships were also critical in pandemic response. There were inter-country variations in the extent to which country health systems effectively responded to the COVID-19 pandemic.

Priority actions for resilient health systems include having better planning and investments in health system strengthening and promotion of whole-of-society and whole-of-government approaches and multisectoral collaborations. Identifying mechanisms for obtaining surge staff and using private practitioners during an emergency, but also for continuity of health services during an emergency, were also recommended. The innovations and learnings from COVID-19 response can be leveraged to "build back better" with RCCE, mental health and psychosocial support services be further integrated within health systems and services.

3.6 Plenary session 4: Feedback from the expert working group and partners

Reporting from the informal expert group consultation on COVID-19 lessons – Dr Palitha Abeykoon, Senior Adviser, Ministry of Health, Sri Lanka

Dr Abeykoon summarized the discussions and recommendations from the *Virtual Regional Consultation with Informal Expert Group: Lessons learned from COVID-19 Pandemic* held on 19 October 2021. The best practices identified included utilizing whole-of-society and whole-of-government approaches and having existing emergency contingency and business continuity plans that could be leveraged during an emergency response. The rapid development of local manufacturing of pandemic products and scale-up of designated isolation and treatment centres were considered best practices. Using digital technologies, such as telemedicine, proved to be important in providing care and for surveillance systems, improved contact tracing and decision-making. Advances in home-based care models, supported by home-visits and virtual consultations was crucial in providing care, and prior investment in primary health care and resilient health systems led to more efficient responses. Clear messages on PHSM from the highest political leadership were impactful to improve compliance.

The expert working group also identified several challenges to response efforts. The utilization of the private sector health workforce and scale-up and implementation of some key public health functions, such as field epidemiology investigation, contact tracing, isolation and quarantine, was considered suboptimal or inadequate. During the acute phase of the pandemic, there was a lack of clear and practical risk-based approaches for local-level containment strategies and plans.

There was also inequitable and impaired access of migrants, refugees and vulnerable mobile populations to risk communication, essential health services, diagnostics and vaccines. Further to this, RCCE was often not uniform or consistent. IPC capacities, competencies and availability of IPC supplies (such as PPE) were variable, particularly at primary and secondary health care facilities. Sharing specimens for early detection and monitoring of variants were not optimal with limited genomic sequencing capacity and bio-safety equipment, technology and skills in some laboratories in the Region.

The expert group identified key strategic priorities. First, continue to strengthen whole-of-government, whole-of-society approach. Further improve coordination and collaboration mechanisms among different ministries, sectors, institutions and multiple stakeholders. More investment should be made for primary health care and urban health facilities that are closer to the community. Public–private partnerships should be secured in the regional roadmap to strengthen health security and networking of public as well as private sector hospitals needs to be strengthened.

Strengthening of the regional platform for regional alert, preparedness and response is considered crucial, through improving platform for regional surveillance and timely information sharing and enhancing regular assessments of health risks not limited to each country, but with regional scope. Bolstering regional capacities for research and development is also considered a priority. Investments to conduct large-scale and multicentric clinical trials and field trials of COVID-19 vaccines were considered important. More robust global and regional mechanisms for equitable distribution of emergency products are considered crucial.

Feedback presentation from the partners' forum – Dr John MacArthur, Southeast Asia Regional Director, United States Centers for Disease Control and Prevention

Dr MacArthur summarized the key lessons learnt from the COVID-19 response and recommendations from the partner forum. Several positive lessons were identified, including leveraging experience from managing previous emergencies and the unprecedented mobilization of resources by development partners to support governments and nongovernmental organizations and to develop national capacities. The engagement of civil society, community-based organizations and youth proved highly effective in the COVID-19 response, especially in reaching vulnerable communities and amplifying prevention and mitigation messaging. The multiple uses of modern technologies, such as for telemedicine, digital data capture, infodemic monitoring and enhanced contact tracing, were also recognized.

There were also several challenges identified during the partners' forum. Although many Member States have early warning, alert and response systems, these were suboptimal at national and subnational levels. There were also limitations in operational readiness for responding to the needs of the community, particularly of marginalized and vulnerable populations. Access and uptake of the available vaccines have also been challenging, with initial low confidence in vaccines, insufficient supply and inequitable access. Pandemic fatigue was also noted as a challenge affecting organizations, governments and communities at all levels. COVID-19 was a new disease that required rapid research to understand the virus, and there were many challenges faced for the conduct of research.

The partners' forum recommended that increased attention to vulnerable and marginalized groups and strengthening the involvement of civil society and community-based organizations in pandemic response were required to increase trust among authorities, communities and partners. Building RCCE capacity of community-based organizations and synchronizing these with ongoing campaigns (e.g. hand hygiene for all, disease risk reduction, international day of the girl child) were also suggested.

Partners should continue to support ministries of health and country-led coordination structures and mechanisms while aligning pandemic response coordination mechanisms with existing humanitarian response mechanisms. It was also noted that the enhanced use of emergency health operation centres and incident management systems within and between countries, plus improved capacity for data collection and analysis at the country level with enhanced use of digital technology, would also support future response efforts. The pandemic highlighted the need for significant surge capacity that can be improved through capacity-building of health professionals, with a focus on frontline health workers.

The partners also identified the need to strengthen partnerships with the private sector and improve field epidemiology intelligence expertise at all levels. Opportunities for partnerships around common public health issues, strengthening the role of regional organizations, and expanding and strengthening the "One Health" approach were also suggested. COVID-19 vaccine rollout requires the scale-up of vaccination efforts, but this should not prevent routine immunization. The partners' forum also recommended promotion and strengthening of research in emergency situations to improve evidence-based decision-making and strengthening of joint preparedness efforts, especially around pre-positioning health emergency stock.

5. Conclusions and recommendations

5.1 Conclusions

(1) Member States have made extraordinary efforts for COVID-19 response and to maintain essential health services, utilizing existing core capacities, and implementing comprehensive response strategies, in line with WHO strategic preparedness and response plans.

(2) However, the current level of preparedness has not been sufficient to effectively manage this pandemic. Further strengthening of systems is critically needed to better prepare for the future waves of COVID-19 as well as for future pandemics and emergencies.

(3) It is recognized that the pandemic is far from over. Countries continue to face challenges in managing COVID-19, such as limited availability of vaccines, potential waning of infection- and vaccine-induced immunity, pandemic fatigue affecting adherence to public health and social measures, and healthcare challenges to cope with major case surge.

(4) In line with the Declaration by the Ministers of Health at the Seventy-fourth Session of the Regional Committee for South-East Asia, the Member States identified a

"once-in-a-century opportunity to advance transformation towards resilient primary health care-oriented health systems as the means to achieve population health, well-being and prosperity in the South-East Asia Region".

(5) In line with the action points from the Seventy-fourth Session of the Regional Committee for Agenda item 8.5, Member States and WHO held intensive discussion at this meeting for "further synthesis of the lessons learnt from the COVID-19 response" and provided initial inputs "to develop a regional roadmap to strengthen health security in the South-East Asia Region".[2]

(6) This virtual meeting, attended by nine Member States, identified key lessons across 12 technical areas, based on the experiences of the Member States. The expert working group as well as the partners' forum also shared what was considered key lessons from their respective perspectives.

(7) Some common themes have emerged, such as:

- critical importance of leadership at the highest level of government, using whole-of-government, whole-of-society approaches;
- synergy between resilient health systems and health emergency preparedness and response for universal health coverage and health security;
- need for enhanced investments in primary health care-oriented health systems that fully engage communities and fully incorporate public health functions as the basis for health emergency preparedness and response;
- need for investment and planning for health and emergency workforce, including agile and scalable surge capacities;
- need for more robust global mechanisms for the equitable distribution of pandemic countermeasures;
- need to ensure early warning and alert mechanisms that enable rapid sharing of information are in place;
- need to strengthen risk-based approach for public health and social measures, including at points of entry, supported by systems to synthesize multiple sources of information for risk assessment;
- timely and transparent risk communication, with listening mechanisms to address rumours, misinformation and pandemic fatigue;
- importance of engagement and empowerment of communities to play critical roles in preparedness and response, while more investment during peace time is needed to support community systems;
- potential of digital health and information technology in supporting pandemic response (e.g. platforms, telemedicine, contact tracing, vaccination certificates, risk communication);

[2] *The Ministerial Declaration at the Seventy-fourth Session of the Regional Committee on COVID-19 put forth measures to "build back better" essential health services to achieve universal health coverage and the health-related Sustainable Development Goals.*

- potential benefits of enhanced public-private partnerships, for example, in local manufacturing, technology transfer, surge capacity and supply chain strengthening; and
- importance of strengthening technology transfer, research and development, and local manufacturing of quality-assured pandemic products and countermeasures.

(8) The participants were updated on the evolving global health security landscape, including the recommendations from global committees and panels, and the working group to strengthen WHO preparedness and response, and the universal health and preparedness review. These initiatives may provide critical opportunities for the Region to strengthen health security and health system resilience.

(9) The participants expressed their willingness to continue providing inputs for the development of the regional roadmap to further strengthen health security and health system resilience in the South-East Asia Region.

5.2 Recommendations

These recommendations were addressed to Member States while WHO is expected to support implementation of these recommendations, where appropriate and needed.

Continue to strengthen and optimize responses to COVID-19 as a foundation to improve health security and health system resilience

(1) Accelerate COVID-19 vaccination towards national targets and following global guidance, especially through:

- intensifying vaccination efforts to ensure at least 40% of the population are fully vaccinated with COVID-19 vaccines before December 2021, prioritizing groups as per the Strategic Advisory Group of Experts on Immunization (SAGE) prioritization roadmap, which includes health-care workers, older adults and other vulnerable groups (including pregnant women, migrants and refugees);
- enhancing vaccine acceptance, demand generation and demand management across all populations through targeted and tailored interventions;
- enhancing safety surveillance for vaccination and risk communication to develop vaccine confidence; and
- ensuring that childhood routine immunization programmes are continued and immunity gaps created due to suboptimal vaccination during the pandemic are closed and plans are in place to strike a good balance between COVID-19 vaccination and routine immunization.

(2) Continue to implement comprehensive public health and social measures through:

- sustained adoption of individual precautionary measures or "new normal" behaviours, including appropriate use of masks and social distancing, hand hygiene, effective ventilation, and avoidance of unnecessary crowding; and

- strengthening the risk-based approach to adjust the measures at subnational levels, informed by functional monitoring of transmission levels and system response capacities.

(3) Ensure health-care facility and community readiness for another possible surge, through:

- reviewing issues during previous surge, strengthening the system to ensure optimal care pathways and referral mechanisms at national and subnational levels, adopting evidence-based clinical management approaches and ensuring supply chain management for essential commodities; and
- strengthening mechanisms for quick mobilization of surge capacities, including some "reserve" capacities in all aspects of health care, national and international emergency medical teams, and non-heath sectors and private sector services.

(4) Strengthen strategic information and risk assessment to guide response decisions and operation, by:

- strengthening early waning and monitoring systems using appropriate indicators to inform risk-based and timely calibration of public health and social measures;
- considering seroprevalence surveys on a regular basis for risk assessment, where feasible;
- further strengthening genomic surveillance to monitor the ongoing evolution of SARS-CoV-2, including through strengthening of regional platforms; and
- generating and sharing evidence on nature of infection- and vaccine-induced immunity in terms of protection against mild or severe disease as well as the duration of protection, where resources are available.

(5) Continue to strengthen whole-of-government, whole-of-society approach for COVID-19 response, by:

- strengthening listening to inform a tailored risk communication and community engagement approach to enhance the effectiveness of response measures;
- promoting innovative approaches to engage civil societies, private sectors and communities in COVID-19 prevention, care and support and share these experiences;
- further strengthening existing platforms for coordination across government sectors; and
- strengthening psychosocial and mental health services, as part of the health system, and by identifying community-based solutions for different populations, such as children, adults, health-care workers and vulnerable populations.

Further synthesize lessons and inform reform and investment for more effective health security systems and health system resilience.

(1) Review the strengths and challenges of the COVID-19 response, analyse their root causes and identify short-, medium- and long-term priorities to transform national and subnational health security systems and health system resilience

(2) Conduct reviews of legislation to inform potential amendments to legal frameworks to improve health emergency preparedness and response, and to strengthen health system resilience

(3) Initiate or continue high-level dialogue, advocacy and planning to ensure predictable and sustainable financing and investment to strengthen health security and health system resilience.

Contribute to upgrading global and regional health security framework

(1) Continue to participate and contribute to the deliberations at the Member States Working Group on Strengthening WHO preparedness and response to health emergencies {as per a resolution by the Seventy-fourth World Health Assembly (WHA74.7)} to lead constructive changes on global health architecture.

(2) Contribute to the development of a regional roadmap to provide strategic actions to transform preparedness in the Region for future pandemics and other health emergencies.

(3) Provide technical inputs to the potential development of future regional health security frameworks beyond the current strategic document, such as the five-year regional strategic plan for public health preparedness and response 2019–2023 and APSED III.

(4) Strengthen mechanisms for timely sharing of information and biological materials at regional and global levels.

(5) Strengthen the capacity for research and development in the Region for production of vaccines, diagnostics and other medical supplies.

(6) Further strengthen partnership mechanisms among Member States, WHO and partners towards coordinated strategic actions for ongoing pandemic response and to advance health security and health system resilience.

Work towards more primary health care-oriented resilient health systems as the basis for health security.

(1) Strengthen PHC-oriented health systems, including investment at the subnational/district level in human resources for health and infrastructure, including laboratories, medical products and information systems, with prioritization of public health capacities.

(2) Develop regional PHC strategy to develop PHC-oriented health systems for universal health coverage, health system resilience and improved emergency preparedness and response.

(3) Address data inter-operability issues and strengthen routine health information systems to ensure timely risk-assessment and response decisions at different phases of health emergencies.

(4) Enhance laboratory capacities, capabilities and networking to build resilient systems to reduce inequities and increase access to testing.

(5) Strengthen national regulatory mechanisms and capacities, including through collaboration with the South-East Asia regulatory network, to ensure quality, safety, efficacy and performance of medicines, vaccines, diagnostics and other medical products.

(6) Optimize the use of traditional medicine systems to support emergency preparedness and response, informed by appropriate evaluation.

(7) Strengthen agile and evidence-informed management of medical and vaccination waste.

Annex 1

Programme

Day 1: 20 October 2021

Opening session

Opening remarks by Dr Poonam Khetrapal Singh, Regional Director, WHO South-East Asia Region

Introductions of the participants

Overview of objectives and agenda

Nomination of Chairs and Rapporteur

Administrative announcements

Group photo

Plenary session 1: Learning from the COVID-19 response to strengthen health security and health systems resilience in South-East Asia Region

Responding to COVID-19 and managing health security threats in WHO South-East Asia Region: Dr Jos Vandelaer, WHO-SEARO

Advancing transformation towards resilient primary health care-oriented health systems Dr Ibadat Dhillon, WHO-SEARO

Achievements and challenges of implementing COVID-19 vaccination in the South-East Asia Region: Dr Sunil Kumar Bahl, WHO-SEARO

Break-out session – Round 1

Participants will be divided into six tracks and each track will discuss the following questions.

1) Share and discuss key lessons for assigned technical area – including root causes for the issues and good practices
2) Propose potential strategic or policy level actions that can lead to reform for more effective health security systems and/or health system resilience
3) Provide feedbacks to the draft framework for the regional roadmap, including potential priority actions for short and long term at country and regional levels

Tracks	Subjects
1	Coordination, planning, financing, and monitoring
2	Resilient health systems
3	Vaccination
4	Laboratories and diagnostics
5	Case management, clinical operations, and therapeutics
6	Public health and social measures

Day 2 – 21 October 2021

Break-out session – Round 2

Participants will be divided into six tracks and each track will discuss the following questions (each track will take break from 10:10 to 10:30).

1) Share and discuss key lessons for assigned technical area – including root causes for the issues and good practices
2) Propose potential strategic or policy level actions that can lead to reform for more effective health security systems and/or health system resilience
3) Provide feedbacks to the draft framework for the regional roadmap, including potential priority actions for short and long term at country and regional levels

Tracks	Subject
1	Risk communication, community engagement and infodemic management
2	Maintaining essential health services and systems
3	Operational support and logistics, and supply chains
4	Surveillance, epidemiological investigation, contact tracing
5	Infection prevention and control
6	Points of entry, international travel and transport

Partners' forum: Partners share experiences and lessons and identify potential priority actions to strengthen health security and health system resilience in the WHO South-East Asia Region

Plenary session 2: Evolving landscape of the global and regional health security architecture

Summary of recommendations from global committees and panels on COVID-19 and updates on Member States Working Group: Dr Jaouad Mahjour, Assistant Director-General, WHO HQ

Updates on universal health and preparedness review: Dr Stella Chungong, WHO HQ

The way forward – development of the regional roadmap: Dr Reuben Samuel, WHO-SEARO

Day 3: 22 October 2021

Plenary session 3 – Feedbacks from the break-out sessions

Feedback presentations from six tracks – covering both break-out sessions rounds 1 and 2 (approximately 10 minutes presentation followed by 5 minutes questions and answers)

Plenary session 4: Feedback from the Expert Working Group and Partners

Reporting from the expert working group consultation on COVID-19 lessons: Representative from the expert working group

Feedback presentation from the partner forum: Representative from the partner forum

Plenary session 5 – Conclusion and recommendations

Closing session

Annex 2

List of participants

Member States

Bangladesh

Dr ASM Alamgir
PSO, IEDCR
Email: aalamgir@gmail.com

Dr Mahbubur Rahman
Associate Professor, IEDCR
Email: dr_mahbub@yahoo.com

Dr Mustufa Mahmud
DPM (IHR), CDC-DGHS
Email: dr.mustufa@gmail.com

Dr Nasir Ahmed Khan
Senior Adviser (IHR), CDC-DGHS
Email: nasir_7@hotmail.com

Bhutan

Mr Tandin Dorji
Director
Department of Public Health
Ministry of Health
Royal Government of Bhutan
Email: tandindorji@health.gov.bt

Dr Tshokey
Sr Medical Officer,
Jigme Dorji Wangchuk National Referral Hospital
Ministry of Health
Royal Government of Bhutan
Email: tshokey@idwnrh.gov.bt

Dr Sonam Wangchuk
Specialist
Royal Centre for Disease Control (RCDC)
Ministry of Health
Royal Government of Bhutan
Email: sangchuk@health.gov.bt

Mr Sangay Phuntsho
Sr Program Officer
Department of Public Health
Ministry of Health
Royal Government of Bhutan
Email: sangayphuntsho@health.gov.bt

Mr Ugyen Tshering
Sr Program Officer
Department of Medical Services(DMS)
Ministry of Health
Royal Government of Bhutan
email: utshering@health.gov.bt

Mr Ugyen Tashi
Chief Program Officer
Department of Medical Services (DMS)
Ministry of Health
Royal Government of Bhutan
email: utashi@gov.bt

India

Dr Pradeep Khasnobis
DDG, DM Cell,
Ministry of Health and Family Welfare,
Email: pradeep.khasnobis@gov.in

Dr P. Ravindran
Adviser,
Ministry of Health and Family Welfare,
Email: p.ravindran@nic.in

Dr Himanshu Chauhan
Joint Director & Officer Incharge (IDSP)
NCDC
Ministry of Health and Family Welfare
Email: himanshu.chauhan@nic.in

Dr Samiran Panda
Sc-G and Head ECD
Email: pandasamiran@gmail.com

Dr Manoj Murhekar
Sc-G and Director
NIE - Chennai
Email: mmurhekar@gmail.com

Dr Priya Abraham
Sc-G and Director,
NIV, Pune
Email: priya.abraham@icmr.gov.in

Dr. Nivedita Gupta
Sc-F (ECD)
ICMR, New Delhi
Email: gupta.drnivedita@gmail.com

Dr. Pragya Yadav
Sc-F,
NIV, Pune
Email: hellopragya22@gmail.com

Dr. Aparna Mukherjee
Sc-E (ECD),
ICMR, New Delhi
Email: aparna.sinha.deb@gmail.com

Dr Yogesh Kumar
CMO, DM Cell,
Ministry of Health and Family Welfare,
Email: writeto.dr.yogesh@gmail.co

Indonesia

Dr Eka Jusup Singka
Director
Centre for Health Crisis
Email: e.singka@yahoo.com

Dr Vivi Setyawaty
Director
Center of Research and Development of Biomedical and Basic Health Technology
Email: vilibang@yahoo.com

Dr Endang Budi Hastuti
Coordinator
Emerging Infectious Disease
Directorate of Surveillance and Health Quarantine
Email: endang22@yahoo.com

Dr Nelly Puspandari
Sub-coordinator
Biomedical of Communicable Disease
Centre of Research and Development of Biomedical and Basic Health Technology
Email: nelly.puspa@gmail.com

Dr Subangkit
Researcher
Centre of Research and Development of Biomedical and Basic Health Technology
Email: bangkit_27@yahoo.com

Dr Aji Muhawarman
Coordinator
Issue Management
Communication Publication and Coverage Bureau of Communication and Public Services
Email: muhawarman@gmail.com

Dr Inri Denna
Sub-coordinator
Issue Management
Bureau of Communication and Public Services
Email: inri.denna@kemkes.go.id

Dr I Made Yosi Purbadi Wirenata
Sub-coordinator
Land Area and Ground Crossing Health Quarantine
Directorate of Surveillance and Health Quarantine
Email: made_yosi@yahoo.co.id

Dr Dyan Sawitri
Sub-coordinator
Basic Immunization
Directorate of Surveillance and Health Quarantine
Email: dyan.sawitri@gmail.com

Dr Irma Gusmi Ratih
Epidemiologist
Directorate of Surveillance and Health Quarantine
Email: irmagusmi@gmail.com

Dr Febrima Wulam
Public Health Educator
Directorate of Health Promotion and Country Engagement
Email: feb_wulan@yahoo.com

Maldives

Dr Ibrahim Ashraf
Director
Ministry of Health
Email: i.ashraf@health.gov.mv

Dr Hawwa Guraisha
Public Health Program Office
Ministry of Health
Email: hawwaguraisha@health.gov.mv

Dr Ahmeem Farish
Senior Public Health Program Officer
Ministry of Health
Email: ahmeem@health.gov.mv

Dr Adam Rifau
Public Health Program Officer
Ministry of Health
Email: rifau@health.gov.mv

Nepal

Dr Krishna Prasad Paudel
Director
Epidemiology & Disease Control Division
Department of Health Services
Email: kpkalyan@gmail.com; kp_kalyan@yahoo.com

Dr Runa Jha
Director
National Public Health Laboratory
Department of Health Services
Email: runa75jha@gmail.com; runa75jha@yahoo.com; drruna@nphl.gov.np

Mr Sunil Raj Sharma
Director
NHEICC
Email: sunilrajsharma46@gmail.com

Dr Amrit Pokhrel
Senior Medical Superintendent
Epidemiology & Disease Control Division
Department of Health Services
Email: pokhrelashu@gmail.com

Mr Sagar Dahal
Chief Immunization Section
Family Welfare Division
Department of Health Services
Email: dhlsagar76@gmail.com

Dr Samir Kumar Adhikari
Senior Health Administrator
Chief - Health Emergency Operation Center
Ministry of Health and Population
Email: adhikarispk@gmail.com

Sri Lanka

Dr Lal Panapitiya
Deputy Director General
Medical Services
Email: lalpanapitiya@gmail.com

Dr GSK Dharmaratne
Deputy Director General
Medical Services
Email: lalpanapitiya@gmail.com

Dr S.M. Arnold
Deputy Director General
Public Health Services
Colombo 10
Email: mahendra_arnold@yahoo.com

Dr Samitha Ginige
Acting Chief Epidemiologist
Email: samithag@hotmail.com

Dr Anver Hamdani
Director
Medical Technological Services & In-charge of Coordination of COVID-19
Email: anverhamdani@gmail.com

Dr Deepa Gamage
Consultant
Community Physician
Epidemiology Unit
Email: deepagamage@gmail.com

Thailand

Dr. Chawetsan Namwat
Director,
Division of Disease Control in Emergency Situation
Department of Disease Control
Ministry of Public Health
Email: chawetsan@gmail.com

Dr. Teerasak Chuxnum
Veterinarian, Senior Professional Level
Division of Epidemiology
Department of Disease Control
Ministry of Public Health
Email: tchuxnum@yahoo.com

Ms Suthanun Suthachana
Public Health Technical Officer,
Professional Level Division of Epidemiology
Department of Disease Control
Ministry of Public Health
Email: suthachana@gmail.com

Dr. Chaninan Sonthichai
Medical Officer,
Senior Professional Level
Division of Communicable Diseases
Department of Disease Control
Ministry of Public Health
Email : chaninan33@yahoo.com

Dr. Sirirak Thanasakulprasert
Medical Officer, Senior Professional Level
Division of International Disease Control Ports
Department of Disease Control
Ministry of Public Health
Email: sirithana@yahoo.com

Ms Pitchapa Kleblumjeak
Foreign Relations Officer, Practitioner Level
Office of International Cooperation Department of Disease Control
Ministry of Public Health
Email: porpitchapa@gmail.com

Dr. Pilailuk Akkapaiboon Okada
Medical Technologist, Senior Professional Level
Chief of National Influenza Center, Thailand
National Institute of Health
Department of Medical Sciences
Ministry of Public Health
Email: pilailuk.o@gmail.com

Timor-Leste

Dr Narcisco Fernandes
Email: ciso_11@yahoo.com

Dr Filipe de Neri Machado
Email: machado.26587@gmail.com

Dr Endang Soares da Silva
Email: crishanasna2321@gmail.com

Dr Nilton do Carmo da Silva
Email: fpinto@ms.gov.tl

Experts – Technical Advisory Group Members

Professor Mahmudur Rahman
Senior Technical GHSA Consultant
Global Health Development. EMPHNET
Former Director
Institute of Epidemiology
Disease Control and Research (IEDCR) and
National Influenza Centre
People's Republic of Bangladesh
email: mrahman@globalhealthdev.org;
mahmudur57@gmail.com

Professor Pratap Singhasivanon
Secretary General,
SEAMEO TROPMED Network,
Faculty of Tropical Medicine
Mahidol University
Kingdom of Thailand
Email: pratap.sin@mahidol.edu

Dr Sujeet Singh
Director
National Centre for Disease Control
22, Shamnath Marg
New Delhi, India
Email: dirnicd@nic.in; sk.singh59@nic.in; sujeet647@gmail.com

Partners/Other Agencies

Dr John R. MacArthur
Regional Director
Southeast Asia Regional Office
US Centers for Disease Control and Prevention
Email: jmacarthur@cdc.gov

Dr Meghna Desai
Country Director
US-CDC-India
Email: mud8@cdc.gov

Dr Siddhartha Saha
Director, Influenza Program (South Asian Region)
U.S. Department of Health and Human Services
Centers for Disease Control & Prevention (CDC)
Email: ssaha1@cdc.gov

Ms Arunima Shrestha
Migrant Health Intern
IOM Regional Office for Asia and the Pacific
International Organization for Migration
Email: arushrestha@iom.int

Ms K. Montira Inkochasan
Senior Regional Migration Health Programme Assistant
Email: minkochasan@iom.int

Ms Maeva PEEK
Regional Thematic Specialist for Migration Health (a.i.)
IOM Regional Office for Asia and the Pacific
International Organization for Migration
Bangkok – Thailand
Email: mpeek@iom.int

Ms Kathryn Clarkson
Head of Delegation, Country Cluster for Thailand, Cambodia, Laos and Viet Nam
International Federation of Red Cross and Red Crescent Societies
Bangkok, Thailand
Email: kathryn.clarkson@ifrc.org

Mr John Fleming
Regional Health Coordinator for Asia Pacific
International Federation of Red Cross and Red Crescent Societies
Bangkok, Thailand
Email: John.FLEMING@ifrc.org

Dr Anjali Borhade
Director
Disha Foundation
Gurgaon, Haryana, 122 003
Email: foundation.disha@gmail.com

Dr Neil Buhne
Regional Director
UN Development Coordination Office (UNDCO)
Rajdamnern Nok Avenue Bangkok 10200
Email: neil.buhne@un.org

Dr Khin Devi Aung
Regional Health Specialist
Immunization and Health Systems
UNICEF East Asia and Pacific Regional Office
Bangkok
Email: kdaung@unicef.org

Dr Michelle Dynes
Immunization Demand Specialist
UNICEF East Asia and Pacific Regional Office
Bangkok
Email: mdynes@unicef.org

Dr Piush Kayastha
ECHO Kathmandu
European Commission
Directorate-General for European Civil Protection and Humanitarian Aid Operations – Nepal
Email: Piush.Kayastha@echofield.eu

Dr Ridwan Gustiana
Immunization Specialist
UNICEF East Asia and Pacific Regional Office
Bangkok
Email: rgustiana@unicef.org

Ms Teresa Ferrari
Regional Leader- East Asia
World Vision International
Email: Teresa_Ferrari@wvi.org

Dr Thidar Pyone
UK Health Security Agency
Email: Thidar.Pyone@phe.gov.uk

Ms Vanda Lengkong
Regional Head of Disaster Risk Management
Plan International
Asia Pacific Regional Office
Klongtoey-Nua, Watana, Bangkok Thailand
Email: vanda.lengkong@plan-international.org

Dr Vincent Kahi
Senior Regional Public Health Officer
Asia and Pacific Region
UNHCR's
Email: kahivi@unhcr.org

Dr Yasir Arafat
Senior Regional Health and Nutrition Adviser, Asia
Save the Children
Email: yasir.arafat@savethechildren.org

Camilla Burkot
Technical Adviser to the Ambassador for Regional Health Security and Principal Health Specialist
Indo-Pacific Centre for Health Security
Email: Camilla.Burkot@dfat.gov.au

Mr Günter Boussery
Senior Health Specialist
Health section, Immunization & HSS
UNICEF Regional Office for Sourth Asia
Email: gboussery@unicef.org

Mr Patrick Anthony Drury
GOARN
Email: druryp@who.int

Dr Siddhartha Saha
Director
Influenza Program (South Asian Region)
U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
Email: wmk5@cdc.gov

WHO Secretariat

WHO Country Offices

Bangladesh

Dr Anthony ESHOFONIE
Team Leader
Health Security and Emergency Response
WHO Country office for Bangladesh
Email: eshofoniea@who.int

Dr Hasan Mohiuddin AHMED
NPO
Surveillance & Public Health Informatics
WHO Country office for Bangladesh
Email: ahmedha@who.int

Bhutan

Mr Kencho Wangdi
National Professional Officer (Health Emergencies)
WHO Country office for Bhutan
Email: wangdik@who.int

DPR Korea

Dr Anupurba Chowdhury Roy
Technical Officer (Lab Specialist)
WHO Country office for DPRK
Email: roya@who.int

India

Dr Nhu Nguyen Tran Minh
Team Leader
Health Security and Emergency Response
WHO Country office for India
Email: tranminhn@who.int

Dr Ritu Chauhan
NPO (International Health Regulations),
WHO Country office for India
New Delhi, India
Email: chauhanr@who.int

Indonesia

Dr Arturo Pesigan
Deputy Head
WHO Country office for Indonesia
Jakarta, Indonesia
Email: pesigana@who.int

Dr Endang Widuri Wulandari
Scientist,
WHO Country office for Indonesia
Jakarta, Indonesia
Email: wulandarie@who.int

Maldives

Dr Faiha Ibrahim
National Professional Officer
WHO Country office for Maldives
Male, Maldives
Email: ibrahimf@who.int

Myanmar

Ms Tamara Curtin Niemi
Consultant
WHO Country office for Myanmar
Email: curtinniemit@who.int

Dr Mya Yee Mon
National Professional Officer (Disease Survl & Epidemiology)
WHO Country office for Myanmar
Email: yeemonm@who.int

Nepal

Dr Allison Gocotano
Technical Officer
WHO Country office for Nepal
World Health Organization
Kathmandu, Napal
Email: gocotanoa@who.int

Dr Md Khurshid Alam Hyder
Public Health Administrator
Office of the WHO Representative in Nepal
World Health Organization
Kathmandu, Napal
Email: hyderk@who.int

Sri Lanka

Dr Sapumal Dhanapala
National Professional Officer
WHO Country office for Sri Lanka
World Health Organization
Colombo, Sri Lanka
Email: dhanapalas@who.int

Thailand

Dr Richard Brown
Programme Officer (Border Health)
WHO Country office for Thailand
World Health Organization
Bangkok, Thailand
Email: brown@who.int

Dr Paul Spencer White
Epidemiologist
WHO Country office for Thailand
World Health Organization
Bangkok, Thailand
Email: whitep@who.int

Timor-Leste

Mr Dongbao Yu
Medical Officer Epidemiologist
WHO Country office for Timor-Leste
World Health Organization
Dili, Timor-Leste
Email: yud@who.int

Dr Vinay Bothra
Health Policy Advisor (Universal Health Coverage)
WHO Country office for Timor-Leste
World Health Organization
Dili, Timor-Leste
Email: bothrav@who.int

Dr Thelge Sudath Rohana Peiris
Technical Officer
WHO Country office for Timor-Leste
World Health Organization
Dili, Timor-Leste
Email: peirist@who.int

SEARO

Dr Jos Vandelaer
Regional Emergencies Director
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
World Health Organization
New Delhi, India
Email: vandelaerjo@who.int

Dr Manoj Jhalani
Director
Health System Development
Regional Office for South-East Asia (SEARO)
World Health Organization
New Delhi, India
Email: jhalanim@who.int

Dr Sunil Kumar Bahl
Coordinator
Immunization & Vaccine Development
Regional Office for South-East Asia (SEARO)
World Health Organization
New Delhi, India
Email: bahls@who.int

Dr Bhupinder Kaur Aulakh
Executive Officer to the Regional Director
Regional Office for South-East Asia (SEARO)
World Health Organization
New Delhi, India
Email: aulakhb@who.int

SISWANTO, Siswanto
Senior Adviser (Science Research and Innovation)
Anti-Microbial Resistance
Regional Office for South-East Asia (SEARO)
World Health Organization
New Delhi, India
Email: siswantos@who.int

Dr Nilesh Buddh
Lead (Regional Emergencies)
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: buddhan@who.int

Dr Reuben Samuel
Programme Area Manager
Country Health Emergency Preparedness & IHR
Regional Office for South-East Asia (SEARO)
New Delhi, India
email: samuelr@who.int

Dr Masaya Kato
Programme Area Manager (HIM)
Regional Office for South-East Asia (SEARO)
New Delhi, India
Tel. No.:+91-
Email: katom@who.int

Dr Pushpa Ranjan Wijisinghe
Programme Area Manager (IHM)
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: wijesinghep@who.int

Dr Supriya Bezbaruah
Technical Officer – Risk Communication
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: bezbaruahs@who.int

Dr Dhamri Naidu
Public Health Laboratory Scientist (HTP & AMR)
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: naidood@who.int

Dr Manish Kakkar
Technical Officer (High Threat Pathogens)
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: kakkarm@who.int

Dr Maung Maung Than Htike
Technical Officer -Capacity Development
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: htikem@who.int

Dr W.L. Sugandhika Padmini Perera
Partnership Officer
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: pereras@who.int

Dr Aarti Garg
Technical Officer
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: garga@who.int

Dr Sandip Shinde
Country Preparedness & IHR (CPI) Officer
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: sshinde@who.int

Dr Francis Yesurajan INBANATHAN
Technical Officer, Laboratory
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: inbanathanf@who.int

Dr Sourabh Sinha
Technical Officer
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: sinhaso@who.int

Mr Tika Ram Sedai
Technical Officer (Data Manager)
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: sedait@who.int

Mr John Prawira
Technical Officer (Emergency Medical Teams)
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: prawiraj@who.int

Dr Anil Bhola
Country Preparedness & IHR (CPI) Officer
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: anilb@who.int

Dr P.K. Amarnath Babu
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: babup@who.int

Dr Victor Del Rio Vilas
Technical Officer (GOARN)
WHO Health Emergency Programme
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: delriov@who.int

Dr Ibadat Dhillon
Regional Adviser (Human Resources for Health)
Health System Development
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: dhilloni@who.int

Dr Aparna Singh Shah
Scientist
Health System Development
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: shahap@who.int

Dr Kim Uhjin
Technical Officer – Essential Drugs and Medicines
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: kimu@who.int

Dr Adrien INOUBLI,
Regional Adviser (Medical Products Quality & Regulation)
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: inoublia@who.int

Dr Valeria DE OLIVEIRA CRUZ
Regional Adviser - Health Financing & Governance
Regional Office for South-East Asia (SEARO)
New Delhi, India
Emil: deoliveiracruzv@who.int

Dr Risintha Gayan PREMARATNE
Technical Officer - Malaria
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: premaratner@who.int

Dr Nabeel MANGADAN KONATH
Technical Officer (HIV & Hepatitis)
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: mangadankonathn@who.int

Dr Sudhir Khanal
Technical Officer (Measles)
Immunization and Vaccine Development
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: khanals@who.int

Dr Tondo Opute Emmanuel Njambe
Technical Officer (Immunization)
Immunization and Vaccine Development
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: emmanuelt@who.int

Ms Shamila Sharma
Public Information and Advocacy Officer
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: sharmasha@who.int

Mr Sidharth Pandey
Communication Officer
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: spandey@who.int

Ms Aneesha Bedi
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: bedia@who.int

Mr Pablo Barrera Cruz
Technical Officer
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: barrerap@who.int

Mr PakHyon Chol
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: HPAK@who.int

Mr Vikas Chandra
Programme Management Officer
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: chandravi@who.int

Mr Sunil Kumar Bhambri
Programme Operations Officer
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: bhambris@who.int

Ms Ambika Arora
Executive Assistant
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: aroraa@who.int

Mr Rohit James
Executive Assistant
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: jamesr@who.int

Mr Mayank Bansal
Executive Assistant
Regional Office for South-East Asia (SEARO)
New Delhi, India
Email: bansalm@who.int

Headquarters

Dr Jaouad Mahjour
Assistant Director-General
Emergency Preparedness
World Health Organization
Geneva
Email: mahjourj@who.int

Dr Stella Chungong
Director
Health Security Preparedness
World Health Organization
Geneva
Email: chungongs@who.int

Consultants

Ms Michelle McPherson
Email: mcphersonm@who.int

Ms Shima Roy
Email: roysh@who.int

Mr Thomas Abraham
Email: abrahamt@who.int

Ms Abigail Generalia
Email: generaliaa@who.int

Ms Leila C. Bell
Email: leilacbell@gmail.com

Annex 3

Detailed summary from breakout sessions

Meeting participants took part in breakout groups focusing on 12 different technical areas of the COVID-19 response. The key lessons learnt from the response were shared and priority actions for the regional roadmap identified. A summary of these discussions is detailed below.

Key lessons learnt	Priority actions to guide the regional roadmap
1. Coordination, planning, financing and monitoring	
• Having a high-level, multisectoral leadership, a strong incident management system, an emergency operations centre (EOC) with sufficient infrastructure and trained human resources are required to support response operations. • A whole-of-society and whole-of-government response, built on existing mechanisms, was most successful and should be strengthened for future emergencies. • Legal frameworks, long-term investments in public health emergency response and preparedness, including existing all-hazard response plans, facilitated coordination and response efforts. • The importance of updating response and preparedness plans based on lessons learnt (for example, via intra-action reviews [IAR]) throughout the pandemic. • There is a need for sustained investment in capacity-strengthening throughout the pandemic for regional emergency management teams, laboratories, genomic surveillance, clinical capacity, information and communications technology (ICT), logistics and health infrastructure. • The rapid and early mobilization of response mechanisms allowed for stronger operational readiness and response, including early warning, alert and response mechanisms for rapid containment and mitigation. • Response plans for all levels (national and subnational) should include all-hazard elements that can be adapted and expanded based on the situation and phase of a public health emergency.	• Improve coordination, communication, information-sharing and accountability across the different sectors during multisectoral response at all levels. • Establish partnership frameworks at the regional and national levels to clarify the roles and mandates of each partner during a response. • Develop or review business continuity plans to ensure the continuation of essential services with adequate human resources for all sectors. • Train and upskill human resources across all sectors to support critical functions as surge capacity. • Establish advanced pre-payment mechanisms (insurance/tax-based system) to avoid out-of-pocket expenses for emergency care provided by the private sector. • Encourage governments to regulate the private sector, coupled with adequate public financing mechanisms to procure private services during emergencies. • Establish contingency funds at all levels with adequate guidelines and accountability frameworks to ensure early and sustained response during all budgetary periods.

Key lessons learnt	Priority actions to guide the regional roadmap
• Response plans need to be tested through simulation exercises. • The use of digital tools and technology to support coordination, communication and forecasting of data supported ownership, timeliness and quality of information shared at all levels (lowest implementation level, subnational, national and regional). • Public-private partnerships have been useful and should be implemented at all levels, including local government partnerships with civil society organizations, with clear roles and responsibilities. • The capacity of public finance management at the local/implementation level needs strengthening. • Financing for public health emergencies should include contingency funds for emergency response and financial support for vulnerable populations, with a focus on enabling compliance with public health and social measures (PHSM) requirements. • Civil-military coordination at national and subnational levels has also been useful for the response, for scaling up resources, speeding up the response and providing coverage in hard-to-reach areas for vaccination, logistics, quarantine and isolation. • The systematic engagement of multiple sectors is necessary to respond to multiple/simultaneous acute emergencies (climatological disasters during a pandemic or epidemic). • An agile legal system was critical to provide the legal framework for system changes.	• Continue to build and finance resilient-health systems. • Incorporate monitoring and evaluation into preparedness and response plans. • Monitor the implementation of IAR and joint external evaluation recommendations at the national level and IHR review committee recommendations at the regional level. • Develop and pilot mini IAR focusing on specific response components, such as data, information and communication management systems developed during the pandemic to identify best practices. • Strengthen emergency preparedness at the subnational level. • Evaluate how implementation of IHR core capacities correlated with readiness and ability to respond to the COVID-19 pandemic. • Develop an investment case for augmenting IHR core capacities based on lessons learnt. • Establish regional networks for strengthening partnerships for enhanced production of therapeutics, diagnostics, pandemic response logistics, technical collaboration and knowledge-sharing.
2: Risk communication, community engagement and infodemic management	
• A functional national action plan for RCCE, with SOP and systems, including financing and RCCE experts, is essential prior to an emergency. The plan should include coordination mechanisms across all areas and partners involved in an emergency response. • Communities and individuals should be seen as part of the solution and involved in decision-making, as appropriate.	• Invest in a risk communication and community engagement system as a core part of public health emergency response. • Ensure that there are policy frameworks to increase capacities for RCCE at national and subnational levels with increased support from the regional level.

Key lessons learnt	Priority actions to guide the regional roadmap
• Strong engagement, including two-way listening, with communities and influencers (e.g. civil society organizations, faith-based communities, interest-based communities) is essential for effective RCCE, particularly given the prolonged duration of the pandemic. • Senior policy-makers and legislators need to receive risk communication messages and be sensitized on the science of pandemics. • There should be a single set of information from the government (both health and non-health sectors) and provide all relevant information. This is particularly important given the evolving science of a new disease and the huge amount of information, which led to confusion and mistrust. • Partnership, communication and coordination with key governmental and nongovernmental stakeholders (including private sector) are important. • Successful management of the infodemic, including rumours and misinformation, required constant listening for early identification of rumours and public perceptions, and systematic and speedy amplification of facts through multiple channels, including media, social media, hotlines, local physicians, community/village health workers and community leaders. • The spread of misinformation through encrypted social media was not easy to identify and artificial intelligence tools can be used for this. • Messaging should be contextualized, easy to understand, and delivered through platforms and languages that have the maximum reach for the desired audience.	• Develop policy frameworks to establish a sustainable system for infodemic management, including establishment of a regional infodemic alliance. • Develop policy to ensure there are systems for data collection on public perceptions, attitudes and sociobehavioural issues for appropriate RCCE as well as to inform other response measures (such as PHSM, convincing communities to report for contact tracing and vaccination). • Establish a system for engaging multiple sectors, actors and agencies for a better whole-of-society approach to response. • Have systems in place to coordinate RCCE, including information-, resources- and experience-sharing, across countries; the system should also address language needs for effective collaboration. • Strengthen health and science literacy among decision-makers, the media and the public. • Establish regional centre for excellence for RCCE. • Include non-health actors in RCCE capacity-building activities and ensure RCCE is a key component of medical and public health academic curricula. • Increase RCCE preparedness at the local level to develop and/or enhance community resilience.
3: Surveillance, epidemiological investigation, contact tracing	
• Strong existing public health infrastructure, including EOC, at the subnational level helped significantly in the initial stages and during later phases of the pandemic. • Hospital-based sentinel surveillance sites were helpful in identifying outbreaks. • Providing target numbers for testing at the provincial and lower levels was preferred to providing minimum indicator levels.	• Strengthen the capacity for in-country genomic sequencing in the Region. • Identify the minimum human resources and benchmarks needed across all administrative levels and disciplines to support workforce planning and training. • Develop sustainable and innovative financial arrangements for surveillance systems, including laboratory components.

Key lessons learnt	Priority actions to guide the regional roadmap
• Having field epidemiology training programme (FETP) graduates in the workforce at the subnational level was important for surveillance, investigation and contact tracing. • Multisector surveillance teams were important at all levels. • Surge capacity of health workers, volunteers, police/armed forces and others supported case investigation and contact tracing. • Adapting contact tracing methodologies (including engagement with the community) and systems based on the phase of the pandemic and the capacity to trace was effective, especially as there were delays in implementing global guidelines at the local level. • There is a possibility of capitalizing on the expansion of contact tracing systems and community understanding to increase capacity for tracing other priority diseases, such as tuberculosis. • Sustaining resources for surge capacity for case investigation and contact tracing teams became more difficult over time and as cases declined. • Capitalizing on existing systems, such as influenza testing, surveillance and reporting systems, facilitated better response efforts. • Mobile laboratories, mobile health-care services and health hotlines were useful. • Triangulating data from different surveillance systems was important to guide decision-making but challenging. • Integrated data systems that triangulate data as well as ICT for contact tracing maximized the usefulness and completeness of data at the national and subnational levels and reduced duplication of data entry. • The amount of data and information collected as well as data quality and timeliness was a challenge. • RCCE to improve contact tracing and adherence to quarantine/isolation were important. • Having dashboards accessible to the public was also critical to enhance community understanding of epidemiological data and seroprevalence results.	• Collate the evidence for benchmarks of easily and rapidly scalable resources, ICT and organizational models. • Strengthen systematic approach to synthesize information from multiple surveillance systems to guide risk assessment and timely decision-making on response measures. • Promote and enhance the use of social media for raising awareness across all administrative levels. • Continue to develop capacity and mechanisms for "One Health" approaches for early detection and coordinated response for emerging zoonotic disease and event-based surveillance.

Key lessons learnt	Priority actions to guide the regional roadmap
• Modelling often provided conflicting information and was of limited usefulness given the challenges with data quality, particularly at the local level, and difficulties to model the variance in social behaviour.	
4: Points of entry, international travel and transport	
• Timely and early implementation of measures at PoE, including travel restrictions, testing and quarantine, limited transmission. • Regular risk assessment at PoE that considers surge capacity, rapid scale-up of screening, laboratory testing, epidemiological findings, quarantine and isolation, etc., is important. • Having quarantine facilities near PoEs and using community health workers at PoEs were effective. • Collaboration between relevant authorities (within and between countries) at the border for information-sharing, joint risk assessment and outbreak control and agreements on vaccination certificates, particularly at ground crossings, are required. • Digitized information systems at PoEs with sharing mechanisms for national surveillance systems facilitated risk assessment and situation analysis. • Having administrative and legal processes for the implementation of PHSM at PoEs and having a dedicated quarantine authority are essential. • Non-designated/unofficial porous borders as well as ground crossings posed more significant transmission threats and it was difficult to implement PHSM at PoE. • Clear risk communication for travellers and the community facilitated adherence and understanding of the PHSM. • Development and implementation of contingency plans, which are regularly tested and revised, supported strengthening PoE staff capacity, logistics for IPC measures, referral and vaccination. • The random sample sequencing of travellers for genomic surveillance at PoE contributed to improved risk assessment and understanding of virus transmission.	• Strengthen multilateral and bilateral agreements and coordination mechanisms for data-sharing, cross-border collaboration, repatriation efforts and vaccination (including vaccine certificates and recognition of mix-and-match vaccination), possibly by considering amendments to the IHR. • Continue political commitment for multisectoral involvement in whole-of-government approach, including civil-military collaboration at PoEs. • Develop comprehensive and robust preparedness and response plans, in collaboration with multisector stakeholders, to harmonize resource deployment at national/subnational levels. • Improve investment for PoE capacities (resources, capacity-building, human resources) to improve preparedness. • Reinforce the importance of information interoperability and digital alert systems at PoE for effective decision-making. • Strengthen public-private partnerships for risk-based management at PoE. • Implement evidence-based travel measures which are regularly updated based on evidence and risk assessment. • Continue to enhance capacities for random sampling of travellers for genomic surveillance and share results via global and regional platforms.

Key lessons learnt	Priority actions to guide the regional roadmap
• Recent simulation exercises at PoE were useful to identify gaps and improve response efforts.	• Continue to streamline measures at designated ground crossings and other PoEs, including communication among Member States and transparent and timely risk communication for travellers and timely reporting to WHO as per IHR (2005).
5: Laboratories and diagnostics	
• Having existing national laboratory policies and systems positively contributed to the scale-up of diagnostic capacities for COVID-19, especially for testing at the local level. • Workforces were increased through task-shifting, capacity-building and utilization of health staff, students and volunteers, as well as the creation of national pools of experts. However, sustaining sufficient human resources remains a challenge. • Specimen transport was a challenge, but decentralization of laboratories and mobile laboratories helped to address this. • Strong national quality management, biosafety, biosecurity and regulatory mechanisms were critical for effective monitoring of safe and quality laboratory testing, diagnostic kit validation, and supportive supervision. • Regulatory processes for in vitro diagnostic medical device could be further improved. • Building on existing laboratory information management systems (LIMS), particularly web-based reporting systems, and development of new digital tools were effective in addressing data management needs. However, managing information systems was challenging due to the massive expansion and amounts of data. • There were acute global shortages of reagents and consumables, particularly in the early stages of the pandemic, which put strain on testing capacity. • In-country manufacturing capacities and bilateral engagements with manufacturers and development partners were critical to address supply chain shortages and procurement delays.	• Advocate for tiered national laboratory systems with centralized governance of resilient laboratory networks to effectively manage future national and subnational health emergencies. • Increase support and capacity-building to establish and strengthen integrated national public health laboratory systems. • Establish a diagnostic technical advisory group at national and regional levels for overall laboratory preparedness. • Prioritize laboratory quality management systems and LIMS as core capacities for early and effective laboratory responses. • Develop mechanisms and policies to encourage task-shifting and use of non-medical staff for surge capacity during emergencies, including retention schemes and continuous training (e.g. simulation exercises). • Establish emergency procurement policies, stockpiles and assistance mechanisms from reference laboratories for expedited and uninterrupted supply chain management. • Encourage in-country manufacturing capacities for essential laboratory kits and supplies.

Key lessons learnt	Priority actions to guide the regional roadmap
• Equipment maintenance and calibration is a challenge due to reliance on international or regional support from relevant manufacturers, which were impacted by travel restrictions during the pandemic. • Technologies like rapid diagnostic tests, rapid antigen testing, loop-mediated isothermal amplification and point-of-care nucleic acid amplification tests as well as innovative ideas such as mobile laboratories helped increase access to testing. • Genomic sequencing remains resource-dependent and is suboptimal in several countries. • Submission of sequence data to global platforms was effective, where genomic sequencing was available. • The networks of international reference laboratories, academic/research institutions and WHO collaborating centres have been essential, particularly to support initial diagnostic capacity and genomic surveillance.	• Sustain and enhance coordination mechanisms to leverage resources across different sectors, such as agriculture, education, animal health/veterinary and defence as well as public-private partnerships to better respond to emergencies. • Sustain the capacities and capabilities developed during the pandemic by developing guidance and strategic plans.
6: Infection prevention and control (IPC)	
• As many IPC strategies and policies are disease control-dependent, an integrated national approach/strategy/programme/committee is required. • A lack of a national IPC strategy made implementation of standardized IPC measures and health care-associated infections (HAI) surveillance programmes challenging during the COVID-19 response. • Multisectoral engagement was effective in developing IPC knowledge and implementing effective IPC measures. • Workforce development of HCWs and other affiliated staff at all health facilities as well as a manageable workload is required for IPC and to prevent HAI. • Regular training in the correct use of PPE and compliance with IPC strategies is needed, with training programmes (both virtual and onsite) and training of trainers effective during the COVID-19 response.	• Decisive and visible political commitment and leadership at the highest levels are required to sustain and improve implementation of functional IPC programmes at national and facility levels. • IPC needs to be considered a priority for allocation of national and local health budgets. • Ensure that the minimum requirements for IPC programmes are in place at the national and health-care facility levels in all countries, demonstrated by monitoring key indicators. • Regulations and legal frameworks for IPC requirements and policies through accreditation systems and other accountability mechanisms agreed upon at the international level can be adapted locally.

Key lessons learnt	Priority actions to guide the regional roadmap
• Timely and sustained supplies of PPE and other IPC-related commodities were challenging, especially in countries that are reliant on external manufactures and supplies. Countries with in-country manufacturing capacities were better able to manage supply demands. • Regulatory frameworks to evaluate and monitor the quality of PPE were essential and measures to regulate the price of essential services are needed to ensure continued access. • Suboptimal quarantine and isolation facilities, particularly during early stages of the pandemic, made it challenging to contain the spread of disease. Having separate COVID-19 isolation units limited spread. • Field assessments, case information and hospital readiness assessments identified gaps in IPC and biosafety measures. • The need for PPE and clear IPC measures during case surges was challenging, particularly when health-care facilities were already overwhelmed. • Implementation of waste and dead body management was critical; having existing polices and protocols was useful. • Additional information on the reuse of PPE, particularly in the context of depleted supply channels, is needed. • Some health facility infrastructures, particularly facilities built a long time ago, require updates to increase compliance with evolving IPC best practices. • IPC guidance should be available in local languages for health-care workers and the public. • The root causes of IPC failures and HAI were inexistent or fragmented IPC programmes, poor-quality and inequitable health-care delivery, inadequate health infrastructure and absence or non-implementation of national standards or guidelines.	• Enhance regional capacity to support IPC, including the production of PPE, emergency stockpiles and having a pool of IPC experts. • Develop regional learning platforms on IPC.

Key lessons learnt	Priority actions to guide the regional roadmap
7: Case management, clinical operations and therapeutics	
• Multisectoral command systems comprising public, private and non-health partners were more effective in managing large volumes of cases. • There was a lack of preparedness at health facilities for surges in cases, with limited involvement from private facilities. • Rapid assessment of health facilities and rapid establishing of referral mechanisms and facilities for case management, isolation and quarantine allowed for effective management of cases. • Guidelines and SOP for case management were developed, disseminated, implemented and adapted rapidly based on evolving best practices and outcomes of national and international trials. However, these frequent and rapid changes made compliance difficult. • Integrating real-time clinical data, including mortality data, with epidemiological information was useful for clinical management. However, this integrated data was not always available. • Despite the engagement of non-health sectors, non-working clinicians, trained volunteers and national emergency management teams in surge capacities, there were significant pressures placed on human resources, leading to limitations in trained workers and overwork. • Virtual learning sessions and training of trainers were effective mechanisms to reach more people, but may not have resulted in the same level of knowledge as that attained through face-to-face training. • Adaptations to health-care delivery, including home care with referral and triaging systems, remote provision of expertise, expansion of telemedicine and alternatives to hospitals such as mobile clinics, improved clinical operations. • The use of alternative medicines requires evidence of efficacy.	• Organize policy-level discussions about private partners engagement during a pandemic or other public health emergency. • Strengthen health-care financing to ensure access to health care for all populations. • Strengthen regulation of supply and rational use of essential medicines. • Continue to investigate the evidence base for the use of alternative medicines. • Adapt surge systems from other countries, e.g. pools such as the emergency medical deployment teams (EMDTs) in Nepal and organization and management survey for continuous improvement. • Policy and system reform to improve access to real-time surveillance data from all sectors to support quick and evidence-based decision-making. • Consider regional stockpilling of essential drugs and strengthening of local production capacity to support supply during emergencies • The South-East Asian Regulatory Network can take up the discussions for regulation of drugs. • Continue to evolve ways of working and task-shifting for critical care and patient-centred care.

Key lessons learnt	Priority actions to guide the regional roadmap
• Issues with procurement, use and supply of essential medicines, diagnostics and equipment for critical care led to challenges with clinical management and provision of care. • Issues of stigma delayed health care-seeking behaviour.	
8: Operational support and logistics and supply chains	
• Supply chain mechanisms are complex, require trained human resources, guidelines and high-level leadership. • Additional efforts for the operational support are needed to ensure there are mechanisms and prior arrangements in place to recruit, manage and deploy people during a pandemic. • Regional and global stockpiling needs to be available for timely response. • Additional tools and technology are needed to monitor and project supply and logistic requirements. • Video-conferencing, mentoring and messaging groups supported efforts in operational support and logistics. • Fast tracking of regulatory processes, procurement, custom clearances and distribution is needed. • Items listed in the global supply portal need to be registered in country-specific platforms to facilitate faster clearances. • Multisector coordinated responses were most effective. • Real-time dashboards and logistics reporting systems at the national, subnational and health facility levels supported response efforts. • In-country capacity for production can increase supply and requires regulatory standards and quality assurance protocols for locally produced PPE. • Border closures and global supply shortages affected existing mechanisms for supply distribution, supply chains and logistics.	• Advocate among stakeholders that operational support and logistics are a major part of emergency response. • Ensure national policy development and surge capacity planning for operational support and logistics. • Consider additional training via FETP or other mechanisms to increase operational support and logistics capacity. • Establish and/or strengthen public-private partnerships to ensure readiness to support surge capacity and supply chain systems. • Ensure access to funding for supplies, human resources and equipment for emergency response. • Establish stockpiles at various locations within the Region to avoid shortages and significant delays in dispersal of supplies. • Enhance the use of digital technology, including real-time mapping of key parameters and inventory management, and develop guidance and tools for data analytics and forecasting. • Continue to build internal capacity for manufacturing, distribution and procurement mechanisms for safety items and vaccines. • Strengthen coordination among the various response agencies/partners and public-private partnerships, including policies for donated items.

Key lessons learnt	Priority actions to guide the regional roadmap
9: Maintaining essential health services and systems	
• The pandemic caused significant disruptions in essential health services, including workforce shortages and access to services. • Pandemic preparedness needs to include health systems so that the service delivery architecture, including human resource surge capacity, is considered during a pandemic response. • The pandemic has led to innovative initiatives to maintain health services, including home delivery of treatment/services, multi-month dispensing for chronic conditions, self-testing and use of digital health services. • Surge capacity using volunteers, non-health workers and FETP graduates helped maintain essential health services. • Reconfiguration of health-care institutions, task-sharing and shifting, and community-led initiatives have supported maintenance of essential health services. • Regular monitoring and use of health information systems, real-time assessment of health services and developing interventions to address gaps helped guide the response and maintain health services. • Supply limitations led to adaptations in procurement and supply chain management for essential health products. • Rational use of essential medicines and medical products needs to be monitored throughout a pandemic. • There is a need to identify and prioritize at-risk populations to ensure maintenance of essential health services for those most at risk. • Access to health care was hampered due to stigma around COVID-19; this improved through institutionalized mechanisms for community engagement and contextualized guidance on access to care for both COVID-19 and non-COVID-19 cases.	• Ongoing investment to strengthen resilient health systems should be maintained and further strengthened. • Improve multisectoral coordination for health and non-health systems, strengthening preparedness and response capacity during an emergency. • Develop regulatory frameworks for new service delivery models such as digital health. • Institutionalize mechanisms of engagement with non-health and private stakeholders in emergency response. • Conduct operational research to assess best practice for the maintenance of health service delivery and systems during an emergency response.

Key lessons learnt	Priority actions to guide the regional roadmap
10: Vaccination	
• High-level political commitment at the national level to ensure adequate administrative and financial support at the subnational level was necessary. • Having multisectoral oversight bodies that involve government, private, civil society and partners also supports vaccination efforts. • A National Vaccination and Deployment Plan that has been tested and revised through simulation exercises and readiness assessments supported preparedness for COVID-19 vaccine rollout. • Emergency-use authorization for vaccines was provided quickly in many cases. • Building on existing childhood immunization programmes and previous mass vaccination campaigns ensured coordination among stakeholders at the local level, availability of trained staff and cold chain capacity. • Prioritization of COVID-19 vaccination is putting strain on routine immunization programmes. • Despite many unknowns and multiple COVID-19 vaccines introduced in a short time frame, countries with strong routine immunization programmes had increased confidence and high demand for the COVID-19 vaccination. • There was selective demand for specific COVID-19 vaccines despite others being already on the emergency-use listing. • Various innovative approaches (policies, strategies and activities) have been used to increase reach for target groups for vaccination. • Limited and erratic vaccine supply hampered efforts to vaccinate key populations. • Electronic platforms for registration, recording, reporting and providing vaccine certificates provided real-time data to inform policies and strategies. However, these systems were not always accessible due to technical capacities, digital literacy and access.	• Develop a legal framework for a high-level, multisector coordinating body for future pandemics and health emergencies. • Develop policy to strengthen risk communication capacity for national and subnational leaders and media and communication coordination among government, partners, and civil society organizations. • Further develop international agreements on cross-border immunisation, surveillance, vaccine effectiveness and information sharing, including use of vaccination certificate, particularly among populations near international borders • Ensure that all WHO-approved vaccines are accepted as proof of vaccination at all points of entry for arriving passengers. • Strengthen preparedness plans for vaccination during future pandemics, including efforts to limit the impact to other health programmes, surge staff for vaccination, laboratory capacity and financing • Ensure that preparedness plans are transferable to all vaccine preventable diseases outbreaks, epidemics and pandemics • Increase cold chain capacity, particularly given the likelihood of additional mRNA vaccines for future pandemics • Strengthen AEFI committees and monitoring, and develop causality assessment capacity • Develop vaccine research and development and production capacity

Key lessons learnt	Priority actions to guide the regional roadmap
• The platforms used for COVID-19 vaccination programmes could be extended to childhood immunization programmes. • Evidence-driven approaches to address vaccine hesitancy, demand management and demand creation are needed. • Tailored RCCE provided in response to specific problems identified from real-time social listening was able to identify misinformation that could be quickly addressed. • There was greater attention to AEFI monitoring and vaccine safety for COVID-19 vaccines that has resulted in capacity-building, which will support routine vaccination. • The Regional Technical Advisory Group has supported vaccination efforts.	• Strengthen RCCE for vaccination management and to address misinformation • Invest in Regional data generation and research to generate evidence such as immune status to inform vaccination policies.
11: Public health and social measures (PHSM)	
• Having multisectoral decision-making processes and timely implementation of PHSM was critical. • A whole-of-society approach for implementing and communicating PHSM was most successful. The community and civil society played an important role in this. • Mechanisms for community engagement need to be established and then scaled up during an emergency. • Using two-way listening enabled the tailoring of messages to specific audiences. • Adherence to PHSM at the individual level was difficult to maintain due to pandemic fatigue. • Using a risk-based approach to adjust PHSM at subnational or local levels, for example, based on transmission levels, response capacity or vaccination coverages, was particularly effective. • Evidence-based standards and guidance were needed for some PHSM, for example, for implementing and lifting lockdowns and appropriate quarantine measures.	• Continue to strengthen collaborative mechanisms with high-level decision-makers and multisectoral coordinating bodies to further strengthen risk- and evidence-based decision-making. • Amend legislation to enable more effective and rapid PHSM implementation, while mitigating the negative impacts of PHSM. • Strengthen health information systems and multisource surveillance to enhance the synthesis of information used to inform timely and appropriate decision-making on PHSM. • Continue to generate evidence about the effectiveness and negative impacts of PHSM to inform evidence-based and appropriate PHSM implementation.

Key lessons learnt	Priority actions to guide the regional roadmap
• Mask-wearing was a critical PHSM, particularly in areas with high population density, where physical distancing was challenging. • Supplies of PPE were limited, particularly in the early stages of the pandemic.	
12: Resilient health systems	
• Multisector collaboration was critical. • Resilient health systems also depend on the resilience of other sectors during an emergency. • There were significant disruptions and strain on the health system and delivery of essential health services during the surge of COVID-19 cases. • Existing health system capacities were adapted and expanded to respond to the pandemic. • Using innovative mechanisms, such as telemedicine, allowed for continued access to health-care services. • Triaging COVID-19 patients, including via non-hospital alternatives and dedicated COVID-19 facilities, is required. • Surge staff were critical and sourced by repurposing existing staff and engaging other sectors, including non-health and volunteer workforces. However, trained specialist workers are also critical and were lacking in many countries. • The repurposing of staff for the COVID-19 response resulted in a reduction of other health system activities. • Community health workers had an important role in community engagement and implementing community-based surveillance. • Public-private partnerships have the potential to be extremely important mechanisms to respond to public health emergencies. However, during the pandemic, these were not always adequately utilized, occurring in a reactive and ad hoc manner.	• Plan and invest in health workforce, information systems, adequate critical health infrastructure with a focus on primary care strengthening and health emergency supply chain to ensure a resilient health system. • Promote whole-of-society and whole-of-government approaches plus multisectoral collaborations to guide the emergency preparedness, response and recovery phases. • Optimize and diversify health workforce (e.g. epidemiologists, statisticians, public health nurses and social scientists) and identify and develop mechanisms for surge prior to an emergency. • Leverage the innovations and learnings from the pandemic to ensure that the health systems are “built back better”, including strengthened supply chains (vaccines, medicines, expanding critical health infrastructure). • Establish, integrate and sustain national and subnational mechanisms to engage private-sector practitioners during emergencies, including for surge capacity. • Integrate RCCE, mental health and psychosocial support services in health systems and services. • Alternative medicine systems can be engaged in mobilizing communities and reducing stigma.

World Health Organization
REGIONAL OFFICE FOR South-East Asia