The Pandemic Influenza Preparedness (PIP) Framework is an innovative public health instrument that brings together WHO, Member States, industry and other stakeholders to implement a global approach to pandemic influenza preparedness and response. The Framework includes a benefit-sharing mechanism called the Partnership Contribution (PC). PC is collected as an annual cash contribution from influenza vaccine, diagnostics and pharmaceutical manufacturers that use the WHO Global Influenza Surveillance and Response System (GISRS). Funds are allocated for pandemic preparedness capacity-building, response activities during a pandemic, and the implementation of the Framework.

In the WHO South-East Asia Region, Bangladesh, Democratic People’s Republic of Korea, India, Indonesia, Myanmar, Nepal and Timor-Leste directly receive funds from the PIP PC to strengthen laboratory and surveillance and influenza pandemic preparedness planning capacities. This report focuses on how beneficiaries of PIP PC in the SEA Region, including the Regional Office, implemented activities to strengthen capacities in 2019. It also discusses how beneficiaries plan to conduct PIP PC activities in 2020–2021.
Implementation of the Pandemic Influenza Preparedness (PIP) Framework Partnership Contribution Funds in the WHO South-East Asia Region

Annual Report 2019
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Introduction

The WHO South-East Asia Region is home to a quarter of the world’s population in 11 Member States. The rapidly changing economic, social and environmental landscape, coupled with advancing and transitional economies, demonstrate its socioeconomic and health system diversity. The Region faces continuous health security threats, including emerging infectious diseases, outbreak-prone diseases, natural disasters, and unsafe food. Health security threats are not new, but the nature and range of threats are increasingly complex. Issues such as climate change, antimicrobial resistance, and the threat of an influenza pandemic will pose serious threats to security and stability if they are not addressed.

Planning and preparedness are the key to mitigate the adverse impact of health security threats. The Region has made considerable progress in strengthening health emergency preparedness through implementation of the International Health Regulations (IHR) (2005). However, Member States are still vulnerable for severe infectious disease outbreaks and public health emergencies.

Influenza pandemics have been considered the greatest threat to global public health. In 2018, the world observed the centenary of the 1918–1919 influenza pandemic – an event that claimed over 50 million lives. Since then, three more pandemics were declared in 1957, 1968 and 2009, each leading to millions of deaths, and glaring weaknesses in countries’ response mechanisms and health systems being exposed.

With increased economic globalization, urbanization, and population mobility, the next pandemic will spread further, and faster, leading to significant socioeconomic disruptions. This will be felt particularly in low- and middle-income countries (LMICs). According to the World Bank, conservative estimates show that a severe pandemic can reduce the global GDP by up to 1%. Furthermore, the substantial morbidity and mortality due to influenza are widely known. Annually, there are an estimated 1 billion cases of influenza, of which 3–5 million are severe cases, and 290 000–650 000 lead to influenza-related respiratory deaths.

Given that 2019 was the tenth anniversary of the 2009 pandemic, and 2018 was the centenary of the 1918 pandemic, there has been a renewed focus on strengthening country capacity for pandemic preparedness and response. It is accepted that another pandemic will occur, however when and where it emerges is unknown.

The Pandemic Influenza Preparedness Framework

The Pandemic Influenza Preparedness (PIP) Framework is an innovative public health instrument that brings together WHO, Member States, industry and other stakeholders to implement a global approach to pandemic influenza preparedness and response. Its goals are to improve and strengthen the sharing of influenza viruses with human pandemic potential, and to increase the access of developing countries to vaccines and other pandemic response supplies.
The Framework includes a benefit-sharing mechanism called the Partnership Contribution (PC). The PC is collected as an annual cash contribution from influenza vaccine, diagnostics, and pharmaceutical manufacturers that use the WHO Global Influenza Surveillance and Response System (GISRS). Funds are then allocated for pandemic preparedness capacity-building, response activities during a pandemic, and the management and implementation of the Framework.

The implementation of the PIP PC has been guided by two strategic implementation plans – the PIP PC High-Level Implementation Plan (2014–2017) (HLIP I), and the PIP PC High-Level Implementation Plan 2018–2023 (HLIP II). These plans guide the use of PIP PC funds towards capacity-building in order to improve global pandemic preparedness over its dedicated time period. Their development and implementation have relied on engaging a broad range of stakeholders including the PIP Advisory Group (AG), GISRS, industry, and civil society organizations.

For capacity-building, activities are implemented according to six outputs in the High-Level Implementation Plan (HLIP) II 2018–2023 – Laboratory & Surveillance (L&S), Burden of Disease (BOD), Regulatory Capacity-Building (REG), Risk Communications and Community Engagement (RCCE), Planning for Deployment (DEP), and Influenza Pandemic Preparedness Planning (IPPP). WHO’s country-level and regional support to Member States is provided through biennial workplans corresponding to WHO’s Country Cooperation Strategies (CCS) with a stepwise approach to improving capacities over the six-year implementation period. These outputs directly relate to core capacities outlined in the IHR.

Technical and financial investments into these countries by PC investments alongside other investments from the private sector, foundations, civil society, and multilateral agencies all play a critical role. Collectively, these resources contribute to strengthened IHR core capacities for emergency preparedness and response, and global pandemic preparedness. Therefore, it is important to invest in both pandemic influenza preparedness and building IHR core capacities.

Evidence from HLIP I (2014–2017) has shown five IHR core capacities that have been positively impacted by PIP investments, including surveillance, response, preparedness, risk communications, and laboratory core capacities. Additionally, PIP priority countries have reported greater improvement in their capacities compared with other countries. This shows the collateral and broader benefit of working on pandemic influenza preparedness as a corollary for broader health security capacity-building.

In the WHO South-East Asia (SEA) Region, seven Member States directly receive funds from the PIP PC to strengthen L&S and IPPP capacities: Bangladesh, the Democratic People’s Republic of Korea, India, Indonesia, Myanmar, Nepal and Timor-Leste. This PC is one part of the collective global investment into health security. Activities described in this report have improved overall global, regional, and national pandemic preparedness. Some have directly strengthened country capacities, while others have benefited all countries in the Region (including non-recipient countries), through implementation at the regional level.
Implementation of PIP support at the country and regional level

Laboratory and surveillance

- Bangladesh
- Democratic People’s Republic of Korea
- Indonesia
- Myanmar
- Nepal
- Timor-Leste

Influenza Pandemic Preparedness Planning

- Democratic People’s Republic of Korea
- India
- Indonesia
- Myanmar
- Nepal
- Timor-Leste
Bangladesh is a priority country for respiratory infections such as influenza as well as other emerging infectious diseases. This risk posed by these infections is exemplified by the ongoing humanitarian emergency and resulting health emergency in Cox’s Bazaar within the forcibly displaced Myanmar nationals. PIP support has been integral for Bangladesh to strengthen capacities for influenza prevention and control, which, in turn, has led to systemic improvement for other health hazards.

**Strengthening rapid response**

Substantial work has been done to enhance rapid response teams (RRT) and their capacity to respond to outbreaks of respiratory infections. This has been complemented by orienting RRTs and other surveillance site staff on procedures for event-based surveillance for respiratory infections – namely, influenza. Trainings have been conducted in key regional centres including Chattagram, Rajshahi, Khulna, Barishal, Rangpur and Cox’s Bazaar, with nearly 300 personnel trained in the last two years.

The strengthening of event-based surveillance systems and RRTs is a key tenet under IHR (2005) as it allows health-care workers to rapidly detect emerging disease clusters and other public health threats. Bangladesh is a model for the incorporation of the health-care worker with the surveillance system.
Virus isolation and testing

Virus isolation, specimen collection, testing and specimen transport are key areas of PIP support for Bangladesh. Ongoing procurement of key laboratory supplies for the NIC and regional laboratories has ensured laboratories have the tools for accurate virus isolation, testing, and sequencing. This has been coupled with training for laboratory technologists in specimen collection, sample testing using real-time polymerase chain reaction (RT-PCR), handling, and transport.

Through this, Bangladesh has been strengthening its capacities to identify influenza in physical samples and share these samples across its influenza laboratory network in a timely fashion. Furthermore, Bangladesh has organized an infectious substance shipping training held by the International Air Transport Association to improve their capacity to share influenza virus samples among the GISRS network.

Rapid Response Teams

Bangladesh has focussed on enhancing rapid response teams (RRT) and their capacity to respond to outbreaks of respiratory infections. It included not only the host Bangladesh population, but also the forcibly displaced Myanmar nationals at Cox’s Bazaar. It helped orienting RRTs and other surveillance site staff on procedures for event-based surveillance for respiratory infections – namely, influenza. Trainings have been conducted in key regional centres including Dhaka, Barishal, Rangpur and Cox’s Bazaar, with nearly 300 personnel trained in the last two years. The strengthening of event-based surveillance systems and RRTs were much needed capacity to rapidly detect emerging disease clusters and other public health threats. Bangladesh is a model for the incorporation of the health-care worker with the surveillance system.
Democratic People’s Republic of Korea

PIP funds are one of the largest sources of external funding for the Democratic People’s Republic of Korea’s Ministry of Public Health. Combined with national funds, WHO’s corporate funds, and other sources of donor funds, they have had a significant impact on strengthening laboratory diagnostic capacities, streamlining and systematizing laboratory and epidemiological surveillance, and strengthening pandemic influenza preparedness.

ILI and SARI surveillance

The Democratic People’s Republic of Korea has an extensive population-based influenza surveillance system, with 46 facilities reporting influenza-like illness (ILI) data, and 66 reporting severe-acute respiratory illness (SARI) data to the central laboratory. Prior to the significant investment in their sentinel surveillance system, clinical data was the primary source of pathogen-specific data.

However, there has been a progressive integration of epidemiological and laboratory reporting practices – evidenced by comprehensive monthly influenza reports – giving decision-makers at the National Influenza Centre (NIC), Ministry of Public Health, and Central Hygienic and Anti-Epidemic Institution (CHAEI) a more accurate representation of epidemiological trends around the country.

Additionally, they have commenced reporting their influenza data to WHO’s global platforms FluNet and
FluID in December 2018, demonstrating a significant step forward in their reporting and data sharing practices.

Laboratory diagnostics

With laboratory-based influenza surveillance already established – including advanced training being provided for diagnostic techniques and virus isolation by the Centre for Health Protection in Hong Kong – the Democratic People’s Republic of Korea is moving towards systematizing their laboratory processes with a view to achieve the active status for their NIC. A key milestone towards achieving this was their successful participation in WHO’s Global External Quality Assessment Programme as well as their scoring 100% in the 2019 panel.

Recommendations from a comprehensive laboratory assessment are being aligned with both the NIC’s self-developed biennial plan to strengthen laboratory functions as well as WHO’s terms of reference for NICs. While challenges remain in the sustainable procurement of
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Partnership Contribution Funds in the WHO South-East Asia Region

laboratory consumables – a factor affecting vital laboratory functions – recourse mechanisms to resolve these issues have been identified.

**Updating pandemic plans**

To align all these efforts, there has been a substantial high-level push to update the Pandemic Influenza Preparedness Plan in line with updated WHO guidance. Multiple sectors have been engaged through technical workshops including the ministries of health, agriculture, and trade, demonstrating a focus on implementing a One Health approach to pandemic influenza preparedness. A clear roadmap for the preparation, finalization and implementation of the plan was developed, with simulation exercises being scheduled to further test this revised plan. The aim is for it to be finalized and operational by the end of 2020.

**Figure 1:** National Pandemic Influenza Preparedness Planning Workshop, Pyongyang, Democratic People’s Republic of Korea
India

India was a new addition to the list of priority countries in the WHO South-East Asia Region to receive support under the PIP Framework Partnership Contribution. Notably, they are currently being supported to update and test their Pandemic Influenza Preparedness Plan under the Influenza Pandemic Preparedness Planning output of HLIP II.

Like other recipient countries in the Region, support under the PIP Framework has been key for India to establish national momentum in this area. As a result, the Ministry of Health and Family Welfare has initiated the process to update and test their pandemic influenza preparedness plan with technical assistance from the WHO Country Office, Regional Office and the Global Influenza Programme.

One Health collaboration

Collaboration between the human and animal health sectors is a key foundation of pandemic preparedness capacity-building in India. A tabletop simulation exercise conducted early in 2019 highlighted the importance of integrating the One Health approach – an integrated approach of human, zoonotic and environmental health – into routine influenza activities. In particular, it stressed intersectoral collaboration and reporting for poultry and human health. In conjunction with support for laboratory surveillance on migratory birds, India is moving towards stronger collaboration between the human and animal sectors.
Identifying priorities for pandemic influenza preparedness

With funding support from the Pandemic Influenza Preparedness (PIP) Framework Partnership Contribution, WHO supported the Indian Ministry of Health and Family Welfare (MoHFW) to rewrite the country’s influenza pandemic preparedness plan, based on WHO guidance and lessons learned from the 2009 H1N1 influenza pandemic and seasonal influenza outbreaks.

As a first step towards the new plan, the MoHFW and WHO hosted a two-day workshop in December 2019 in New Delhi. The workshop included experts from the India’s Ministry of Health and Family Welfare (MoHFW), Ministry of Defense, other relevant ministries, state governments, professional bodies, WHO and UNICEF. The experts represented disciplines namely public health, virology, epidemiology, surveillance, clinical medicine, animal health, disaster management and emergency medical relief. The participants discussed potential challenges of an influenza pandemic in India.

Workshop participants highlighted the need for strong community engagement and intersectoral collaboration for an effective pandemic response. They also underscored the importance of involving private health-care providers, building on existing influenza surveillance systems, and linking with India’s crisis management frameworks. Critical components in a preparedness plan would include surveillance for early detection and monitoring, risk assessment to guide appropriate response interventions, business continuity plans to ensure that essential services remain available throughout the pandemic, and targeted communication to ensure that the public understands and accepts the interventions made.
Indonesia

Influenza is a priority hazard in Indonesia, especially considering the prevalence of A(H5N1) and the risk of its genetic reassortment into a virus with pandemic potential. Strengthening and streamlining the pandemic preparedness process has been high on the agenda for Indonesia.

‘Whole-of-society’ preparedness

Building on progress from the previous implementation period, steps have been taken to further improve Indonesia’s pandemic influenza and emergency planning at the national and provincial levels, particularly adapting WHO guidance to a country-specific context. High-level advocacy has been matched with national pandemic preparedness workshops that have brought together key stakeholders from multiple-sectors, demonstrating the operation of the “whole-of-society” approach to preparedness. This has been filtered down to the community level whereby provincial-level contingency plans have been developed and tested through table-top exercises, ensuring local contexts are being accounted for in the pandemic preparedness process. This is particularly relevant for key technical areas such as surveillance at the human-animal interface, risk communication and non-pharmaceutical interventions in at-risk communities, and health facility planning.
Establishing influenza severity thresholds

In June 2019, the NIHRD held workshops to introduce the Pandemic Influenza Severity Assessment (PISA) methodology to epidemiologists and data managers from around Indonesia. The aim of this workshop was for staff to understand and implement PISA into routine influenza surveillance functions, assess the severity of influenza epidemics and pandemics, and inform public health preparedness, response and recovery measures in Indonesia.

Using multiple data sources from their extensive influenza surveillance system, participants reviewed the different threshold setting measures, and identified key parameters through which severity could be assessed routinely. These severity thresholds would inform risk assessments and key policy decisions on planning and response interventions.

Additionally, this workshop served as an opportunity for participants to strengthen data management processes across their influenza surveillance system. Current standard operating procedures were reviewed to ensure data quality and standardized data management at the national and subnational level. This will further strengthen the use of surveillance data for public health and epidemic decision-making.

Sentinel surveillance

Indonesia has an extensive and functional influenza surveillance network comprising of 27 ILI sentinel sites, six SARI sentinel sites, six regional laboratories, and a National Influenza Centre. Great efforts have been directed towards streamlining surveillance and data management practices. A comprehensive evaluation of the ILI sentinel system was conducted to assess its functionality and long-term sustainability. This was coupled with ILI surveillance refresher trainings in the Eastern and Western regions, and a SARI system review meeting involving staff from SARI sentinel sites to conduct information sharing and ensure good practices are maintained across the network.

They are now introducing the Pandemic Influenza Severity Assessment methodology into routine influenza surveillance functions following the joint training conducted with WHO, US CDC, and the WHO Collaboration Centre for Reference and Research on Influenza in Melbourne, Australia, to enable the assessment of the severity of influenza epidemics and pandemics using novel threshold setting methods. Given that the system is being sustained
by the Ministry of Health, strengthening staff capacities using PIP support alongside
strengthening the system itself is demonstrating the national commitment for influenza
surveillance.

**Laboratory strengthening and virus sharing**

Diagnostics and virus isolation have been a key feature of the laboratory strengthening
programme undertaken by the WHO Country Office and the National Institute for Health
Research and Development (NIHRD). Virus isolation trainings in collaboration with WHO
collaborating centres, and a review of the RT-PCR testing algorithm for influenza have
helped increase staff competencies at the national and regional level to collect, test and
classify samples, and communicate results to relevant stakeholders. Furthermore, given
that virus sharing is one of the pillars of the PIP Framework, Indonesia has been regularly
sharing influenza isolates to WHO collaborating centres in Australia and Japan for further
characterization. Additionally, Indonesia shared its 200th case of A(H5N1) with NIID for
further characterization and research. This is demonstrating their strong capacity to identify
and characterize influenza viruses with pandemic potential, and rapidly share information
with WHO and the wider public health community.

*Figure 2:* Pandemic Influenza Severity Assessment Workshop, Jakarta, Indonesia
Myanmar has benefited greatly from PIP support to enhance influenza detection and monitoring in the sentinel surveillance network, ensuring laboratory capacities enable successful outbreak detection; and strengthening intersectoral preparedness and core capacities for pandemic preparedness. Additionally, Myanmar has a history of strong collaboration with GISRS, particularly the WHO collaborating centres in Australia and Japan.

**Streamlining surveillance**

With eight established ILI and SARI sentinel sites around the country, Myanmar is working towards streamlining surveillance functions and ensuring consistency across its sentinel sites. Ongoing support has been provided to staff in data entry, analysis and reporting to FluNet. Furthermore, Myanmar is taking a novel approach to expanding the reach of their syndromic surveillance system.

Along with targeting harder-to-reach regions through hands-on training for sample collection, transport and data entry for basic health staff, the Country Office has been working with the Myanmar Medical Association and General Practitioners’ Society to engage general practitioners in ILI sentinel surveillance activities. Combined with comprehensive staff training through the Myanmar Field Epidemiology Training Programme, this would significantly expand the reach of their sentinel surveillance and substantially improve early warning of potential ILI clusters in vulnerable communities.
Testing emergency operation centres for an influenza pandemic

The Ministry of Health and Sports with support from the WHO Country Office and Public Health England delivered a three-part capacity-building programme aimed at strengthening their Health Emergency Incident Management System. This programme consisted of an incident managers training, emergency operations centre (EOC) training, and a tabletop simulation exercise to test their Pandemic Influenza Preparedness Plan on their EOC capacities.

The Incident Managers and EOC Training provided a foundation on command and control in health emergency operations, the WHO Emergency Response Framework, and the role of Emergency Operations Centres in pandemic response. Additionally, WHO has been supporting the Ministry of Health and Sports to develop their Health Emergency Operations Centre Plan as a component of their National All-Hazards Preparedness and Response Plan.

This training culminated in a tabletop exercise testing SOPs to activate and deactivate their EOCs, strategic risk communications, risk assessment, and national and regional command and coordination. This exercise demonstrated synergy with efforts to strengthen IHR core capacities identified in their Joint External Evaluation, with key recommendations being incorporated into the pandemic influenza preparedness plan that is currently being revised.

Diagnostics and shipping

Through increased collaboration with the GISRS network, Myanmar has integrated their laboratory and epidemiological surveillance and virus-sharing capacities, demonstrating their improved capacities for early detection and sample characterization. A comprehensive assessment of their NIC using the WHO NIC Laboratory Assessment Tool was conducted, observing virus isolation, laboratory detection of influenza, and biosafety procedures.

Additionally, laboratory staff from the NIC and ILI and SARI sentinel surveillance sites received training on infectious substance shipping by the International Air Transport Association and World Courier India. These capacities have been operationalized through Myanmar’s routine sharing of influenza samples from the NIC to the WHO Collaborating Centre in Japan in line with the Operational Guidance on Sharing Seasonal Influenza Viruses. This is demonstrating Myanmar’s continued commitment to sharing influenza viruses with the GISRS network for further characterization and research under the PIP Framework.
**After-action reviews**

Conducting after-action reviews (AAR) following acute disease events is crucial under the IHR Monitoring and Evaluation Framework. Together with Public Health England, the WHO Myanmar Country Office conducted an AAR Facilitation Workshop for staff from various departments within the Ministry of Health and Sports directing participants on how to conduct an AAR. Directly following this workshop, an AAR was conducted for the 2019 influenza season – with key recommendations stemming from this review on areas of risk communications, outbreak response, clinical management, surveillance and data management, and coordination. The results from this and future AARs will be crucial in informing a more effective response during the next influenza season as well as in responding to a future pandemic.

*Figure 3: WHO and Public Health England After-Action Review Workshop, Yangon, Myanmar*
Nepal has demonstrated how best to operationalize the ‘One Health’ approach for pandemic preparedness and response readiness. Given that historically there have been frequent outbreaks of A(H5N1) among poultry, there is a key focus on influenza collaboration and investigation at the human-animal interface. Additionally, stakeholders from the animal health and environmental sectors are heavily involved in influenza preparedness and response readiness activities at both the national and subnational levels. This is further facilitated by the strong collaboration between WHO and the Food and Agricultural Organization (FAO) of the United Nations in the country.

**Mass-casualty management**

Following the devastating impacts of the 2015 earthquake, strengthening mass-casualty management and hospital preparedness is one of the key priorities for Nepal’s disaster and health emergency management programmes. The development of a Hospital Disaster Preparedness and Response Plan for the hub hospital network in the Kathmandu Valley was complemented with a seasonal influenza training module to further strengthen influenza response and mass-casualty management procedures among hub hospitals. This was in conjunction with efforts to review and update the National Pandemic Preparedness and
Investigating the first human Influenza A(H5N1) case

Nepal is no stranger to outbreaks of Influenza A(H5N1) in poultry, with eight distinct clusters identified in poultry in February and March 2019 alone. However, in March, the first human case of A(H5N1) was identified in a young male in Kathmandu. This was the first live test for Nepal to respond to a human case of highly pathogenic avian influenza.

The response was led by the Ministry of Health and Population together with the Ministry of Agriculture and Livestock Development, demonstrating a ‘One Health’ approach to the response. Inputs in the epidemiological investigation and risk assessment were provided by the WHO Country Office, Regional Office, and WHO Collaborating Centre in Japan.

An after-action review was conducted and focused on five key areas: 1) exposure and risk assessment; 2) early detection; 3) treatment; 4) infection prevention and control; and 5) transmission.

This process enabled key stakeholders to critically review their response vis-à-vis preparedness efforts, in turn identifying areas for further improvement. Most notably, this included strengthening information sharing and coordination between (a) human and animal health authorities, (b) Epidemiology and laboratory divisions of the human health sector, coordinating risk communication messages in vulnerable communities and high-risk groups.

Response Plan that was developed in collaboration with the World Bank to ensure Nepal is eligible for pandemic emergency facility funding.

Outbreak response workforce

Complementing this has been a significant investment in increasing staff numbers and capacity for response. Clinicians as well as staff in medical colleges were trained in their role for disease surveillance, preparedness, and response to infectious hazards in collaboration with UNICEF, with particular focus being given to seasonal influenza and other high threat respiratory pathogens. In collaboration with the IHR National Focal Point, a national pool of trainers has been developed alongside a comprehensive learning resources package and quality assurance programme to facilitate national and subnational capacity-building for pandemic preparedness and response.
WHO and FAO have helped facilitate response training and tabletop simulation exercises at the human-animal interface to further strengthen their multisectoral collaboration mechanisms. This capacity-building programme is moving Nepal one step forward towards sustaining their pandemic influenza training and capacities for outbreak detection and response in the long term.

**Incorporating EWARS**

To ensure widespread coverage for their influenza surveillance system, Nepal is working towards integrating their ILI and SARI sentinel surveillance network with their network of Early Warning Alert and Response System (EWARS) sites. Staff across the sentinel surveillance and EWARS network have been oriented on new reporting formats and practices. This will enable even greater coverage for disease surveillance, and also ensure that ILI and SARI cases are accurately reported in their weekly bulletins on time. A more comprehensive review of the influenza surveillance system is planned for the next biennium (2020–2021) with a view of harmonizing existing surveillance networks and ensuring accurate coverage across all provinces.

**Figure 4:** Number of H5N1 outbreaks in poultry in 2019 (as at April 2019)
Timor-Leste

Linking NAPHS

In 2018, Timor-Leste conducted its joint external evaluation of IHR core capacities. As a result, they have been using the revision of their pandemic influenza preparedness plan as a platform to advance IHR core capacities through its integration with their National Action Plan on Health Security (NAPHS).

The aim of this process was for their pandemic influenza preparedness plan to have as its foundation both generic core capacities targeted in their JEE (e.g. standard operating procedures for command and control) complemented by influenza-specific capacities (leveraging and adapting this structure for pandemic influenza response). As such, the newly revised pandemic influenza plan is contributing to a broader all-hazard approach to health emergency preparedness, thereby enabling and strengthening health system resilience.

In effect, Timor-Leste is acting as a model for the Region on how to create stronger linkages between pandemic influenza preparedness and IHR core capacity building.

Expanding the surveillance network

PIP support has been integral for Timor-Leste to establish and strengthen both their ILI and SARI sentinel surveillance system, and their laboratory detection capacities. Considering that their first site was established in 2014, and now they have a fully functional network of eight sites, their capacities have improved dramatically. These sites furthermore act as proxy surveillance sites for other priority
Joint investigation of a potential AI outbreak in chicken farms

In May 2019, reports came to the National Veterinary Diagnostic Laboratory of a cluster of poultry deaths in chicken farms in the Liquica Municipality, close to the capital city of Dili. This triggered the intersectoral collaboration of the One Health Working Group as there were concerns of an acute zoonotic influenza event.

The Ministry of Health, Ministry of Agriculture and Fisheries, and the Diagnostic Laboratory decided to conduct a joint investigation of this event – with a rapid response team consisting of staff from the three agencies being deployed to the village in question. An epidemiological investigation was conducted to ascertain potential transmission at the human-animal interface, with samples from both humans and affected poultry being taken and sent for further testing.

While no influenza was detected in poultry or humans, this outbreak demonstrated the success of Timor-Leste’s veterinary surveillance system, joint investigation protocols, cluster notification procedures, and veterinary laboratory diagnostics procedures. It has also demonstrated how PIP support has had collateral benefits to all-hazard core capacity-building.

hazards including antimicrobial resistance, high-risk zoonotic infections, and acute food safety events. Coupled with a review of the ILI/SARI sentinel surveillance system conducted in 2018, regular coordination meetings and refresher trainings have been conducted with site coordinators, epidemiologists, clinicians and nurses using standardized training material.

Quality management

This has been coupled with the simultaneous strengthening of laboratory detection capacities, quality management system and external collaboration. Their SOPs have been reviewed and updated for influenza testing, with a Laboratory Quality Management Workshop conducted to reorient technical and administrative staff on laboratory operations. Furthermore, continuous collaboration with both the WHO collaborating centres in Melbourne and Hong Kong and surveillance and laboratory assessment by the WHO Regional Office have helped assess the improvement of laboratory functions. This has contributed not only to Timor-Leste sharing their influenza data to both FluNet and FluID, but also to the efficient detection and characterization of influenza viruses and other priority hazards.
The Regional Office has supported efforts across the South-East Asia Region to strengthen seasonal influenza and pandemic preparedness capacities in both PIP-recipient and non-recipient countries. PIP funds have been used in synergy with other resources and donor investments to focus on countries with limited capacities. As a result, the health system infrastructure has been significantly improved, coupled with an increase in human resource capacities and numbers through training and continuous support.

**Regional Laboratory Network**

The Regional Office has been working with Member States and WHO Country Offices to strengthen laboratory capacities, particularly around molecular detection, virus isolation, biosafety, safe virus sharing and quality assurance. Technical laboratory and NIC assessment missions were conducted in the Democratic People’s Republic of Korea, Myanmar, Maldives and Timor-Leste.

The WHO NIC Laboratory Assessment Tool (LAT) was used to identify areas for improvement, optimize standards, and provide recommendations for long-term quality assurance. Additionally, staff were trained in using this tool to conduct a self-assessment, thereby maintaining an internal quality assessment process for countries to follow in the future. This was complemented by a webinar on “PCR Evaluation in Lao People’s Democratic Republic” delivered to the laboratory network in the WHO Regional Office for South-East Asia (SEARO), thereby sharing best
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Risk communications capacity-building pilot

In 2019, SEARO launched a Regional Risk Communication Strategy for Public Health Emergencies, which aims to have sustainable risk communication systems in place in countries. This required understanding public perceptions of hazards such as influenza. It also requires risk communication capacities as well as national risk communication plans.

SEARO, therefore, began by conducting video-based research on public perceptions of influenza in two cities, Delhi and Kathmandu. It has also adapted the concept of combined capacity-building and plan writing workshops developed by the WHO Regional Office for Europe, aligned the curriculum to IHR (2005), and piloted the package in two Member States, Nepal and Timor-Leste.

These workshops have focused on five key areas: (1) community engagement; (2) risk communication systems; (3) internal and partner coordination; (4) public communication; and (5) misinformation and risky behaviour.

With technical support from WHO headquarters, participants worked towards developing a National Risk Communications Plan for public health emergencies in line with IHR core capacities for risk communications. This was particularly important as it brought together public health and risk communications experts, demonstrating synergy in their functions and plans.

practice learning with laboratory staff. Under the WHO Global External Quality Assessment Programme for Influenza detection by PCR, all SEA Region countries participated, reported in a timely fashion, and scored 100% in their PCR evaluations.

Virus sharing

With virus sharing one of the pillars of the PIP Framework, the Regional Office has been supporting countries to ship influenza viruses to WHO collaborating centres. Infectious substance shipping training was provided to priority countries in addition to country-level trainings being provided by the International Air Transport Association and World Courier India. This was coupled with a webinar being delivered by WHO headquarters on the “Influenza Virus Traceability Mechanism and Sharing Influenza Viruses with Human Pandemic Potential” as a learning activity to the SEARO Laboratory Network. In 2019, the Region shared four A(H5N1) virus specimens to the GiSRS network, demonstrating continuous collaboration with WHO collaborating centres and virus sharing.
Regional engagement and collaboration

Regional engagement and collaboration has been a hallmark strategy for the Regional Office, particularly given the shared responsibility for public health emergency preparedness with the Regional Office for the Western Pacific (WPRO) under IHR (2005), and the Asia-Pacific Strategy for Emerging Disease and Public Health Emergencies (2010) (APSED III) as a biregional mechanism of supporting IHR implementation.

Two key events have highlighted SEARO’s continuous regional engagement on pandemic influenza preparedness: (1) The 2019 PIP Regional Coordination and Implementation Meeting held in New Delhi, India; and (2) The 13th Bi-Regional Meeting of National Influenza Centres and Influenza Surveillance in the Western Pacific and South-East Asia Regions held in Ulaanbaatar, Mongolia.

The regional coordination meeting provided PIP PC recipient countries with the opportunity to review implementation progress for the current biennium, particularly surrounding progress against PIP deliverables and indicators. It also allowed for the Regional Office and WHO headquarters to further facilitate operational planning for 2020–2021 in order to build on progress made in the current biennium, and advance implementation of sustainability measures in recipient countries.

2019 was the 10th anniversary of the 2009 H1N1 pandemic, an event that thoroughly tested the global health security system. As such, the Bi-Regional NIC Meeting, hosted by WPRO in Ulaanbaatar, Mongolia, featured a key theme of advancing pandemic preparedness in the two regions. A total of 103 participants attended, including Member State delegates, temporary advisers, observers, and WHO Secretariat members from the Geneva headquarters, the two regional offices, and from country Offices.

Examples of using pandemic preparedness to drive overall health security strengthening were presented from various countries, including improvements to surveillance systems, vaccination strategies, and aligning pandemic preparedness plans to IHR implementation. Updates were also provided on regional and global collaboration efforts, especially with the advent and implementation of the Global Influenza Strategy 2019–2030, and updated WHO guidance on pandemic preparedness.

Participants brainstormed key influenza and pandemic preparedness priorities for the medium and long term using a back-casting approach for planning and setting future priorities. Key messages seen from those discussions were to understand and anticipate future data needs to inform epidemic decision-making, strengthening intersectoral collaboration to ensure a “whole-of-society” approach to pandemic preparedness and response, and standardizing the approach to testing health security systems through FETP exchange programmes and multicountry simulation exercises. Both regions are encouraged to facilitate further collaboration for the alert, preparedness and response needs of Member States, as well as to maintain and improve regional information sharing platforms for pandemic preparedness and response.
Figure 5: Risk Communications Strategy Pilot Implementation Workshop, 2019
Next steps

Aligning global strategies

With 2020 signalling the start of the next biennium for activity implementation under the PIP PC High-Level Implementation Plan (2018–2023), this presented the Region with an opportunity to build on achievements made in the current biennium and further strengthen health security capacities.

In early 2019, all WHO headquarters, regional and country implementation teams undertook a comprehensive operational planning process to identify and plan for activities to be implemented in the upcoming biennium. The strategic foundations of this process were to ensure synergy of activity planning vis-à-vis key global frameworks including the PIP Framework, HLIP II, the Global Influenza Strategy (GIS), and the “triple billion goals” of the WHO Thirteenth General Programme of Work (GPW13).

The Global Influenza Strategy (2019–2030) was developed with the vision to attain the highest possible influenza prevention, control and preparedness levels to safeguard the health of all people through better global tools and stronger country capacities. Since the release of the 2011 report reviewing the functions of the IHR in relation to the 2009 pandemic, there has been a strong global movement to advance IHR compliance and strengthen core capacities for pandemic preparedness and health security.

Furthermore, there have been considerable advancements in influenza prevention, control and preparedness; for example, the expansion of GISRS, the adoption of the PIP Framework, and the development of new analysis tools such as PISA and the Tool for Influenza Pandemic Risk Assessment (TIPRA). However, there is an urgent need for “better tools to prevent, detect, control and treat influenza”.

The key principle of the strategy is to approach influenza holistically through tailored national programmes with the goal of strengthening seasonal influenza prevention and control, and preparedness for future pandemics. It is important to note that this is not a standalone strategy but one that was designed to build on global assets and success, and featured “cross-walk” with key global frameworks (i.e. the PIP Framework, GPW13 and the IHR). In doing so, this ensures a comprehensive approach to health security capacity-building.

2020–2021 biennium

Using pandemic preparedness as a driving force, countries in this Region have identified key strategic priorities for building influenza surveillance, laboratory testing and vaccination capacities; including (1) advancing decision-making capabilities; (2) upgrading systems and catalysing innovation; (3) continuously improving core systems; and (4) enhancing regional collaboration and information sharing. The activities proposed by recipient countries and the Regional Office in the 2020–2021 PIP Workplan reflect these priorities along with progress made from previous bienniums, and the strategic foundations of the aforementioned global strategies.
For example, countries that have worked towards establishing or expanding their ILI or SARI surveillance system are proposing activities that would streamline and/or “right-size” the functions of the surveillance system to ensure the efficient flow of information for decision-making. Furthermore, countries that have updated and/or are in the process of updating their national pandemic influenza preparedness plan will use the next biennium to test and further refine this plan through simulation exercises and after-action reviews.

Finally, countries that have established and refined their influenza testing capabilities (both technical and human resource) in their national laboratories and NICs are planning on expanding to regional or district laboratories, and streamlining functions to ensure a wider coverage of their laboratory network with a more efficient specimen transport system.

The 2020–2021 workplan will continue to support countries through laboratory surveillance, and Influenza Pandemic Preparedness Planning Outputs of HLIP II. In line with regional priorities, Member States will be supported to review, update, finalize, test and endorse their National Pandemic Influenza Preparedness Plans in line with WHO guidance. This will include incorporating National Vaccine Deployment Plans and other operational components such as those for risk communications. This will facilitate further linkages between pandemic influenza planning and other disease preparedness initiatives to enable broader health security system strengthening.
Given that there has been a strong emphasis on establishing and strengthening influenza surveillance systems in previous years, the new biennium will focus more in streamlining surveillance functions, information management, and data for decision-making. A key aspect of this is reviewing influenza surveillance and detection capacities through a regional landscape analysis. This will include reviewing laboratory detection capacities to strengthen national and regional laboratory networks. Additionally, supporting Member States to generate thresholds and conduct influenza severity assessments using the PISA methodology is a priority for the region to strengthen epidemic response decision-making capacities.

**Sustainability**

In addition to building on progress from the previous biennium, there is a greater push towards sustainable implementation of PIP funds. Sustainability in this context is referring to a country’s ongoing maintenance of its pandemic influenza preparedness activities, and ensuring full or partial country ownership of its basic public health functions. This allows the country to focus on system-critical activities and strategic implementation. External funding for pandemic preparedness is limited, and not intended to replace routine government health system functions. HLIP II has sustainability as a planning principle, and being in the middle stage of implementation means that recipient countries are working towards incorporating sustainability principles into activity implementation.

However, one of the key challenges faced by the Region in implementing sustainability is sensitizing Member State leadership to enable active participation and commitment to pandemic preparedness planning. This would require consistent high-level advocacy to ensure long-term sustainability of key public health functions is a goal.

Key examples in the new workplan include running national training-of-trainer workshops for rapid response teams, sentinel surveillance site staff, and laboratory staff; linking pandemic influenza preparedness and NAHPS funding into annual budget cycles; and subsidizing and/or funding specimen transport within the country and virus sharing across GISRS. This has been coupled with the PIP Secretariat developing both process and outcome indicators to monitor the progress and success of sustainability. These could include the percentage of countries that will incorporate activities into future budget cycles, and the percentage of countries that have progressively reduced their reliance on PIP PC funds.

**Conclusion**

With the aim of better protecting one billion more people from health emergencies, WHO is continuing its intense support for pandemic influenza preparedness and health security capacity-building. Influenza is indiscriminate about its impact on all countries, communities and individuals. As more influenza viruses with pandemic potential continue to emerge, countries are constantly improving their capacity to respond to the uncertainty and risk and are in a much better position to mitigate its impact than ever before.

Significant progress has been made in improving capacities, and the continued collaboration between Member States, WHO and all international partners is leading to a world better prepared for all health emergencies.
The Pandemic Influenza Preparedness (PIP) Framework is an innovative public health instrument that brings together WHO, Member States, industry and other stakeholders to implement a global approach to pandemic influenza preparedness and response. The Framework includes a benefit-sharing mechanism called the Partnership Contribution (PC). PC is collected as an annual cash contribution from influenza vaccine, diagnostics and pharmaceutical manufacturers that use the WHO Global Influenza Surveillance and Response System (GISRS). Funds are allocated for pandemic preparedness capacity-building, response activities during a pandemic, and the implementation of the Framework.

In the WHO South-East Asia Region, Bangladesh, Democratic People's Republic of Korea, India, Indonesia, Myanmar, Nepal and Timor-Leste directly receive funds from the PIP PC to strengthen laboratory and surveillance and influenza pandemic preparedness planning capacities. This report focuses on how beneficiaries of PIP PC in the SEA Region, including the Regional Office, implemented activities to strengthen capacities in 2019. It also discusses how beneficiaries plan to conduct PIP PC activities in 2020–2021.