

TERMS OF REFERENCE FOR CONSULTANTS

A. Outline of the Terms of Reference for Consultants

1. The terms of reference (TOR) for consultants describe the main tasks under this transaction technical assistance (TA) facility. The TA facility will require 108 person-months of international and 388 person-months of national consultant inputs.
2. The Asian Development Bank (ADB) will engage consultants on an individual basis using the individual consultant selection method and as part of a consulting firm for the range of deliverables outlined below. ADB will engage the consultants following the ADB Procurement Policy (2017, as amended from time to time) and its associated project administration instructions and/or TA staff instructions.
3. Training, consultations, surveys, and workshops will be organized by ADB or by the consultants in accordance with ADB Procurement Policy (2017, as amended from time to time) as appropriate. The team will coordinate closely with governments during TA implementation.
4. All TORs shall include a provision for all consultants to monitor and report corruption, suspected fraud, waste, or misuse of project resources throughout the end-to-end processes of the vaccine roll-out including procurement, storage, and distribution.

B. Consultancy Firm

5. **One vaccine system eco-system strengthening firm (60 person-months international, 49 person-months national).** The firm will support seven developing member countries (DMCs) in Southeast Asia (Cambodia, Indonesia, Lao People's Democratic Republic [Lao PDR], the Philippines, Thailand, Timor-Leste, and Viet Nam) design and develop implement Asia Pacific Vaccine Access Facility (APVAX) projects whether rapid response component and project investment components, including possible additional financing of the current or future APVAX projects. It will also support the design and development of post-coronavirus disease (COVID-19) health security projects and programs. The firm shall also support the implementation of APVAX projects in the seven DMCs. It will also support the documentation and dissemination of COVID-19 vaccination innovative approaches and best practices among Southeast Asia DMCs. The firm shall support the development of country-level and region-wide dashboards of COVID-19 vaccine deployment and other key health security indicators including the potential customization of existing dashboards.
6. The contract will be output-based (lump-sum) in nature, linked to the deliverables enumerated below.
7. The firm will deliver the following outputs:
 - (i) Development of COVID-19 vaccine projects under APVAX and/or health security projects of ADB including:
 - a. assisting ADB project teams in the preparation of report and recommendation of the President and linked documents: including Vaccines Needs Assessment, Project Administration Manual, Summary Poverty Reduction and Social Strategy, Risk Assessment and Risk Management Plan, and any other needed documents; and
 - b. participating in capacity building workshops or seminars for relevant DMC government officials.

- (ii) Tracking and evaluation of vaccine deployment and APVAX projects:
 - a. country-level and regionwide dashboards of COVID-19 vaccine deployment and other key health security indicators country-level and regionwide dashboards of COVID-19 vaccine deployment and other key health security indicators;
 - b. global best practices in strengthening the monitoring and evaluation of COVID-19 vaccinations in selected DMCs; and
 - c. support selected DMCs develop and implement rapid post-vaccination evaluation including designing the measurement instruments (including indicators) and data processing and analytical tools and provide recommendations in updating and enhancing the vaccination plan. This support will prioritize Cambodia, Indonesia, and the Philippines, and other DMCs with APVAX projects.
- (iii) Disease and Diagnostic Surveillance reports:
 - a. supporting governments conduct health system assessments on introducing improvements to disease surveillance systems, and health laboratory systems of Indonesia and the Philippines. The assessments will consider diagnostic and treatment capacities, human resources, adequacy of medical supplies, financing, capability of risk communication and capability of subnational reporting, and decision making; and
 - b. providing recommendations on strengthening national strategies and action plans of disease surveillance systems and health laboratory systems of other DMCs that can better address the COVID-19 outbreak and potential outbreaks of other communicable diseases.
- (iv) Vaccine Logistics recommendations:
 - supporting Indonesia, the Philippines, and other Southeast Asia DMCs with APVAX projects identify barriers and bottlenecks of logistics systems and supply chain of vaccines including those requiring ultra-cold chain logistics in different geographical, socioeconomic, urban–rural, and other settings; and
 - conducting assessments on the feasibility, cost effectiveness, and appropriateness of the different options and approaches in strengthening the vaccine logistics and supply chain systems of selected DMCs.
- (v) Human Resources for Health (HRH) supporting Vaccine Eco-system and Health Security recommendations:
 - a. providing inputs on mobilizing HRH support vaccination plans of DMCs, including harnessing private sector HRH and retired HRH with emphasis in providing inputs to Cambodia, Indonesia and the Philippines;
 - b. conducting studies on feasibility, cost effectiveness and appropriateness of the different options and approaches in expanding HRH;
 - c. identifying barriers and bottlenecks in HRH expansion; and
 - d. supporting the development and implementation of HRH strategies in at least two DMCs (to be determined later).
- (vi) Vaccine Regulation recommendations:
 - a. providing inputs in strengthening government agencies regulating vaccines, medicines, and other products and equipment needed for addressing disease outbreaks;
 - b. conducting a review of how Southeast Asia DMCs implement monitoring of adverse events following immunization (AEFI) and provide recommendations on improving country-level and regionwide monitoring of AEFIs. This review will begin with the monitoring system of Cambodia, Indonesia and the Philippines, followed by other Southeast Asia DMCs; and
 - c. providing support to selected DMCs implement interventions strengthening their respective AEFIs monitoring systems.

- (vii) Vaccine supply and deployment recommendations:
 - a. conducting a global vaccine supply market projections including various vaccine supply scenarios taking into account latest vaccine development, expansion of vaccine coverage to those under 18 years and old, and the mutation into virus strains and the spread of these strains;
 - b. providing inputs in deploying vaccines both nationally and sub-nationally to Southeast Asia DMCs, with focus on supporting Cambodia, Indonesia, the Philippines, and other DMCs that are preparing APVAX projects;
 - c. conducting studies on the feasibility, cost effectiveness, and appropriateness of the different options and approaches in deploying vaccines; and
 - d. identifying barriers and bottlenecks in rapidly deploying vaccines in different geographical, socioeconomic, urban–rural, and other settings.
- (viii) Vaccine call centers paper, detailing how to mobilize call centers and similar companies, agencies, or organizations to support vaccine deployment.
- (ix) Addressing vaccine hesitancy paper, describing global best practices of incentives and disincentives that address vaccine hesitancy and their appropriateness in Southeast Asia DMCs.
- (x) Vaccine manufacturing recommendations, including:
 - a. analyzing the status of development, manufacturing, and supply status of COVID-19 candidate vaccines;
 - b. providing inputs in enhancing vaccine manufacturing capacity in selected Southeast Asia DMCs including but not limited to Indonesia, Malaysia, the Philippines, Thailand and Viet Nam;
 - c. conducting studies on the feasibility, cost effectiveness, and appropriateness of the different options and approaches in expanding vaccine manufacturing in selected DMCs;
 - d. identifying barriers and bottlenecks in expanding vaccine manufacturing in selected DMCs;
 - e. developing strategies that will support selected DMC vaccine manufacturers obtain vaccine technology from major global developers and manufactures of COVID-19 vaccines; and
 - f. identifying financing, production, and other manufacturing gaps of DMC vaccine manufactures that ADB could potentially help address.

8. The firm will submit an inception report not later than 1 week after mobilization. The report will detail progress made on all the required outputs and details of mobilization, activities undertaken, personnel inputs, and any operational issues that need to be addressed. The firm shall submit regular progress reports (not to exceed 5 pages) that detail activities undertaken, issues that need resolution, and progress toward achieving each output. Outputs will be delivered in a yet to be determined schedule. Toward the end of the contract, the consultants will submit a draft final report that comprises the completed outputs from the scope. This will be subject to review by ADB within 4 weeks of submission, prior to delivery of a final report within 2 weeks.

9. The indicative team members for the consulting firm are enumerated below. The consulting firm will identify a team leader among the international consultants detailed below.

10. **Disease surveillance expert (international, 6 person-months, intermittent).** The disease surveillance expert is expected to have a degree in medicine or a master's degree in public health, epidemiology, health policy, health system, or related field. The expert shall have at least 10 years of experience in setting up and/or implementing disease surveillance systems.

Experience in working on assignments with private sector partnership to complement public sector disease surveillance systems will be given additional weight. Experience working with international organizations and/or multi-country surveillance systems is a plus.

11. **Health laboratory expert (international, 6 person-months, intermittent).** The health laboratory expert is expected to have a degree in medicine or a master's degree in public health, microbiology, molecular biology, virology, or related field. The expert shall have at least 10 years of experience in setting up and/or managing health laboratories addressing communicable diseases. Experience in working on assignments with private sector partnership to complement public health laboratory systems will be given additional weight. Experience working with international organizations and/or multi-country health laboratory systems is a plus.

12. **Health logistics and supply chain expert (international, 6 person-months, intermittent).** The health logistics and supply chain expert is expected to a degree in medicine, economics, business, management, engineering, pharmacy, or related field. The expert shall have at least 10 years of experience in health-related logistics and supply chain. Experience with international firms doing logistics across countries in Southeast Asia will be given additional weight.

13. **Health regulations expert (international, 6 person-months, intermittent).** The health regulations expert is expected to have a medical degree, pharmacy, public health, epidemiology, law, health policy, health system, or related field. The expert shall have at least 10 years of experience in regulating health products or engaging health regulatory agencies. Experience in working in international organizations working in the health sector will be given additional weight.

14. **Vaccination deployment expert (international, 6 person-months, intermittent).** The vaccine deployment expert is expected to have a medical degree or a master's degree in business, management, engineering, pharmacy, or related field. The expert shall have at least 10 years of experience in vaccine deployment. Experience with international organizations supporting vaccine manufacturing and working on assignments with private sector partnership to complement public sector support will be given additional weight.

15. **Vaccination manufacturing expert (international, 6 person-months, intermittent).** The vaccine manufacturing expert is expected to have a medical degree or a master's degree in business, management, engineering, pharmacy, or related field. The expert shall have at least 10 years of experience in vaccine manufacturing. Experience with international organizations supporting vaccine manufacturing and working on assignments with private sector partnership to complement public sector support will be given additional weight.

16. **Human resources for health expert (international, 6 person-months, intermittent).** The HRH expert is expected to have a medical degree or a master's degree in public health, health policy, health system, human resources, or related field. The expert shall have at least 10 years of experience in developing and/or implementing international or national HRH strategies or working in HRH-related reforms. Experience in working on assignments with private sector partnership to complement public sector support will be given additional weight.

17. **Monitoring and evaluation expert (international, 6 person-months intermittent).** The consultant will have an advanced degree in public health, statistics, demography, economics, or epidemiology. The consultant should have preferably 10 years of relevant experience with a strong research background in the area of health, population, and poverty.

The consultant should have experience in analyzing data from household surveys, health facility surveys, and administrative health-related data. The consultant should have experience with measuring quality of healthcare service, utilization of healthcare services, client satisfaction, poverty, benefit incidence, national health accounts, and expenditure tracking. Knowledge of and experience working with national health-related information systems, datasets, and surveys is preferred.

18. **Data analysts (international, 8 person-months, up to 2 positions, intermittent).** The expert will be a professional with a master's degree in mathematics, statistics, or equivalent. Certifications or other qualifications in data sciences will be given a preference. The expert should have demonstrated experience of statistical analysis, sampling, and managing and analyzing large data sets, with at least 10 years of general experience, and 3 years of relevant experience. Demonstrated ability to use GIS and mapping software will be a preferred.

19. **Web developer expert (international, 4 person-months, intermittent).** The web developer will be a professional with master's degree in information technology, computer sciences, or related fields, with at least 8 years' experience relevant in mobile telecommunications.

20. **Pool of health system experts (national, 49 person-months, up to 7 positions, intermittent).** The health system experts are expected to have a medical degree or a master's degree in public health, epidemiology, research, various social science disciplines, health policy, health system, or related field. At least 5 years of experience with health service delivery, vaccine programs, or communicable disease programs is required. Experience with multilateral development banks and other development partners will be an advantage. Experience in monitoring and evaluation systems will also be an advantage.

C. Individual Consultants

(i) International (4)

21. **Digital health expert (international, 12 person-months, intermittent).** The digital health expert will have around 10 years of relevant experience in designing and implementing digital health interventions with relevant academic degree. Experience in supporting interoperability of health information systems, electronic disease surveillance, frontline health service delivery data capture, and health system monitoring and evaluation will be an advantage. Experience in working on assignments with private sector partnership to complement public sector support will be given additional weight. The consultant shall review existing vaccine information systems in Southeast Asia DMCs and will provide recommendations on addressing gaps and weaknesses. The consultant shall support Cambodia, Indonesia, the Philippines, and other Southeast Asia DMCs with APVAX projects ensure that their respective vaccine information systems track vaccine spoilage, waste management, AEFI, and other needed information. The consultant shall also review vaccine logistics information system of Cambodia, Indonesia, the Philippines, and other Southeast Asia DMCs with APVAX projects, and determine how they relate to vaccine information systems and provide recommendations in ensuring interconnectivity between the two systems. The consultant shall review how Cambodia, Indonesia, the Philippines, and other Southeast Asia DMCs with APVAX projects are implementing vaccine certificate and will provide a document on establishing a nationwide vaccine certificate system. The consultant shall provide inputs in the development of COVID-19 vaccine projects under APVAX and/or health security projects of

ADB. The consultant will also participate in capacity building workshops or seminars for relevant DMC government officials.

22. Health communications expert (international, 12 person-months, intermittent). The health communications expert is expected to have a medical degree or a master's degree in communications, health promotions, public health, behavioral science hospital management, health policy, health system or related field. The expert shall have at least 10 years of experience in designing and/or implementing health communications and/or promotion campaigns. Experience in working in government or in assignments with private sector partnership to complement public sector support will be given additional weight. The consultant shall assess current DMC strategies in demand generation and addressing vaccine hesitancy of COVID-19 vaccine and will provide recommendations in addressing identified weaknesses and gaps. The consultant shall provide recommendations in expanding the use of social media and other communication channels in Indonesia and the Philippines. The consultant shall support the implementation of improved health communication strategies in at least two DMCs (to be determined). The consultant shall provide inputs in the development of COVID-19 vaccine projects under APVAX and/or health security projects of ADB. The consultant will also participate in capacity building workshops or seminars for DMC government officials.

23. Health financing expert (international, 12 person-months, intermittent). The health financing expert is expected to have a master's degree in economics, mathematics, statistics, public health, health financing, health policy, health system, or related field. The expert shall have at least 10 years of experience in designing and/or implementing health financing systems, and minimum of 5 years of experience of working with government or international organizations. Experience in working on assignments with private sector partnership to complement public sector support will be given additional weight. The consultant will assess the current financing schemes for COVID-19 vaccinations of Southeast Asia DMCs, including private sector financing. The consultant will conduct assessments of demand side factors in ensuring access to COVID-19 vaccines, and other related health security individual-level interventions. In assessing demand side factors, the consultant will look at determinants of health care utilization such as costs, financing, social norms including gender-related barriers to health care, and other actual or perceived barriers using latest available data from household surveys. The consultant will prepare a consolidated report or country-specific background reports to inform ADB project teams. The consultant shall provide inputs in the development of COVID-19 vaccine projects under APVAX and/or health security projects of ADB. The consultant will also participate in capacity building workshops or seminars for DMC government officials.

24. Private health sector expert (international, 12 person-months, intermittent). The private health sector expert is expected to have a master's degree in accounting, finance, public health, hospital economics, management, health policy, health financing, health system or related field. The expert shall have at least 8 years of experience setting and/or implementing private sector engagement in the health sector. Experience in working with government or international organizations is a plus. The consultant will prepare documents identifying and sharing best practices in engaging the private sector in vaccine deployment and other health security interventions. The consultant will advise selected DMCs on the feasibility, cost effectiveness, and appropriateness of the different options and approaches in harnessing the private sector in addressing COVID-19 and future disease outbreaks with emphasis on options appropriate to Indonesia, the Philippines, Thailand, and Viet Nam. The consultant shall also provide inputs to DMCs in identifying barriers and bottlenecks in private sector engagement. The consultant shall also support the implementation of private sector strategies in at least two

DMCs (to be determined). The consultant shall provide inputs in the development of COVID-19 vaccine projects under APVAX and/or health security projects of ADB. The consultant will also participate in capacity building workshops or seminars for relevant DMC government officials.

(ii) National (up to 76 positions)

25. **TA coordinator (1 national position, 24 person-months, intermittent).** The senior project coordinator will support the overall coordination of activities under the TA. The consultant will ensure and support the preparation of technical documents under the TA. These include but are not limited to reports, knowledge products, meeting minutes and/or proceedings, presentations, and briefing/background notes. The consultant will also provide inputs by reviewing documents submitted in relation to the TA. The consultant will report to the designated staff and will work closely with the other consultants. The consultant should have a background in medicine, public health, public administration, and other related fields. A master's degree would be preferred. Previous experience in a multilateral organization or international civil society organization would be an advantage.

26. **Coordination specialists (2 national positions, 40 person-months at 20 person-months each, intermittent).** The consultants will assist in monitoring commitments and disbursements under the TA. The consultant will support monitoring consultancy and procurement contracts to ensure progress of consultant outputs and disbursement; liaise and provide guidance and support to all consultants and consulting firms in the delivery of all aspects of the TA; assist in organizing TA-related events, workshops, and training sessions; prepare initial draft monitoring reports; provide initial research and data gathering; familiarize with rules, procedures, and requirements for contract administration; and other related tasks as may be reasonably requested by the TA implementation team. The consultant will work closely with the TA coordinator and other consultants and will report to the designated staff. The candidate should have a background in accountancy, contracts administration, and/or project implementation. A degree in accountancy, business administration, public administration, or other related fields would be preferred. Previous experience working on ADB projects would be an advantage.

27. **Pool of procurement experts (national, 14 total person-months of up to 7 positions, intermittent).** The procurement experts will support the conduct of procurement due diligence of APVAX projects, and the monitoring of compliance with any procurement-related conditions. The pool of experts will be managed and supervised by an assigned ADB staff. The DMCs that will be supported include Cambodia, the Lao PDR, Indonesia, the Philippines, Thailand, Timor-Leste, and Viet Nam. The procurement experts should have degrees in project management, law, contracts/procurement, management or equivalent, and 10 years of general work experience. In addition, the consultant should have at least 8 years of procurement-related experience in development projects funded by ADB and/or other international financial institutions, preferably in the health sector.

28. **Pool of financial management experts (national, 16 total person-months of up to 7 positions, intermittent).** The financial management experts will support the conduct of financial management due diligence of APVAX projects, and the monitoring of compliance with any financial management-related conditions. The pool of experts will be managed and supervised by an assigned ADB staff. The DMCs that will be supported include Cambodia, the Lao PDR, Indonesia, Philippines, Thailand, Timor-Leste, and Viet Nam. They are expected to have degrees in finance, financial management or related field with qualifications such as chartered accountant, certified public accountant or chartered financial analyst and at least 8 years of

experience in the financial management and analysis of government projects. Financial management analysis of health sector projects in health sector is preferred. Experience in working with government or international organizations is a plus.

29. Pool of gender and/or social development experts (national, 21 total person-months of up to 7 positions, intermittent). The pool of national experts will support DMCs APVAX projects by ensuring compliance with social safeguards and gender commitments of the projects. The experts shall support the gender-related due diligence and the implementation of any gender action plans. The experts shall also support the collection of sex-disaggregated data for baselines, assessing potential project impact on men and women, proposing proactive gender designs for design and monitoring framework (DMFs) and developing gender action plans, as well as work relevant to TA's output 3, which would require specific gender expertise. The pool of experts will be managed and supervised by an assigned ADB staff. The supported DMCs will include Cambodia, the Lao PDR, Indonesia, the Philippines, Thailand, Timor-Leste, and Viet Nam. A master's degree in development studies, public policy, economics, social sciences, anthropology, gender studies, behavior science, sociology or other related fields would be preferred. Experience with multilateral development banks and other development partners will be an advantage. Experience with innovative programs would also be an advantage.

30. Pool of environmental and/or safeguards experts (national, 21 total person-months of up to 7 positions, intermittent). The pool of national experts will support DMCs APVAX projects by ensuring compliance with environmental safeguards commitments of the projects. The experts shall support the environmental due diligence and the implementation of any environmental safeguards action plans. The pool of experts will be managed and supervised by an assigned ADB staff. The supported DMCs will include Cambodia, the Lao PDR, Indonesia, the Philippines, Thailand, Timor-Leste, and Viet Nam. A master's degree in engineering, development studies, social sciences or other related fields would be preferred. Experience with multilateral development banks and other development partners will be an advantage. Experience with innovative programs would also be an advantage. The pool of experts will be managed and supervised by an assigned ADB staff.

31. Pool of health security experts (national, 70 total person-months of up to 7 positions, intermittent). The pool of national experts will support DMCs strengthen regulatory oversight, enhance safety and effectiveness monitoring and tracking of adverse events, and improve vaccine logistics and supply, and other health security interventions. The experts are also expected to support DMCs implement COVID-19 vaccination-related and health security interventions. All the experts in the pool should have at least 5 years' experience in economic analysis, policy design, pandemic response, public health administration, epidemiological analysis, medicine, hospital management, health system project design and implementation, health education, and biostatistics modeling. A master's degree in health policy, public health, epidemiology, medicine, pharmacy, governance, development studies, economics, biomedicine, education, behavioral science, sociology, or other related fields would be preferred. Experience with multilateral development banks and other development partners will be an advantage. Experience with health service delivery, vaccine programs, and communicable disease programs would also be an advantage. The consultants shall provide inputs in the development of COVID-19 vaccine projects under APVAX and/or health security projects of ADB. The pool of experts will be managed and supervised by an assigned ADB staff. The supported DMCs will include Cambodia, the Lao PDR, Indonesia, the Philippines, Thailand, Timor-Leste, and Viet Nam.

32. Pool of national monitoring and evaluation/pharmacovigilance experts (national, 14 total person-months of up to 7 positions, intermittent). The pool of national experts shall review the implementation status of the vaccination deployment of DMCs. The consultants shall support DMCs implement interventions strengthening their respective pharmacovigilance and AEFIs monitoring systems. The consultants shall provide inputs in the development of COVID-19 vaccine projects under APVAX and/or health security projects of ADB. The pool of national experts will have degrees in medicine, pharmacy, epidemiology health systems, health security, public health, data analytics, technology, law, social sciences, or a related field. They should have 5 years of experience in regulating health products or engaging will conduct reviews of how Southeast Asia DMCs implement monitoring of AEFI and provide recommendations on improving country-level and regionwide monitoring of AEFIs. The pool of experts will be managed and supervised by an assigned ADB staff. The supported DMCs will include Cambodia, Lao PDR, Indonesia, Philippines, Thailand, Timor-Leste, and Viet Nam.

33. Pool of health communication experts (national, 28 total person-months of up to 7 positions, intermittent). The health communications experts shall coordinate with the international health communications expert in assessing the current the strategies of their respective DMCs in demand generation and addressing vaccine hesitancy of COVID-19 vaccine and will provide recommendations in addressing identified weaknesses and gaps. The consultants for Indonesia and the Philippines shall coordinate with the vaccine eco-system strengthening firm in providing recommendations in expanding the use of social media and other communication channels in Indonesia and the Philippines. Each of the consultants shall support the implementation of improved health communication strategies in their respective DMCs. The consultants shall provide inputs in the development of COVID-19 vaccine projects under APVAX and/or health security projects of ADB. The health communications experts are expected to have a medical degree or a master's degree in communications, health promotions, public health, behavioral science hospital management, health policy, health system, or related field. The experts shall have at least 5 years of experience in working with health communications and/or promotion campaigns. Experience in working in government or in assignments with private sector partnership to complement public sector support will be given additional weight. The pool of experts will be managed and supervised by an assigned ADB staff. The supported DMCs will include Cambodia, the Lao PDR, Indonesia, the Philippines, Thailand, Timor-Leste, and Viet Nam.

34. Pool of health logistics and supply chain experts (national, 21 total person-months of up to 7 positions, intermittent). The health logistics and supply chain experts will support the international consultant prepare documents providing inputs, including global best practices, in logistics and supply chain of vaccines including those requiring ultra-cold chain logistics. In coordination with the vaccine eco-system strengthening consulting firm, the consultants will advise DMCs on the feasibility, cost effectiveness and appropriateness of the different options and approaches in strengthening their respective logistics and supply chain systems. The consultants will also support their respective DMCs in implementing enhancements of their respective health logistics and supply chain systems. The consultants shall provide inputs in the development of COVID-19 vaccine projects under APVAX and/or health security projects of ADB. The health logistics and supply chain experts are expected to have degrees in medicine, economics, business, management, engineering, pharmacy, or related field. The expert shall have at least 5 years of experience in health-related logistics and supply chain. The pool of experts will be managed and supervised by an assigned ADB staff.

35. Pool of economic analysts (national, 10 total person-months of up to 7 positions, intermittent). The economic analysts will support the conduct of economic analysis as part of

the due diligence of APVAX projects. The pool of experts will be managed and supervised by an assigned ADB staff. The DMCs that will be supported include Cambodia, the Lao PDR, Indonesia, Philippines, Thailand, Timor-Leste, and Viet Nam. They are expected have at least 10 years of experience in conducting economic analysis and minimum of 5 years of experience of working with government or international organizations. The experts should have conducted at least one economic analysis in the health sector. The consultants shall provide inputs in the development of any future COVID-19 vaccine projects under APVAX and/or health security projects.

36. Human resources for health experts (national, 12 person-months of 2 positions with 6 person-months each, intermittent). Each of the two HRH experts is expected to have a medical degree or a degree in public health, health policy, health system, human resources, or related field. The expert shall have at least 10 years of experience in developing and/or implementing national HRH strategies or working in HRH-related reforms. The consultant will coordinate with the vaccine eco-system strengthening consulting firm in advising Indonesia and Philippines on the feasibility, cost effectiveness, and appropriateness of the different options and approaches in expanding HRH for COVID-19 vaccination. The consultants shall provide inputs in identifying barriers and bottlenecks in HRH expansion in either Indonesia or the Philippines. The consultant shall support Indonesia and the Philippines in the implementation of HRH strategies related to COVID-19 vaccines and health security interventions. The consultants shall provide inputs in the development of any future COVID-19 vaccine projects under APVAX and/or health security projects of Indonesia or the Philippines.

37. Health financing experts (national, 12 person-months of 2 positions with 6 person-months each, intermittent). Each of the two health financing experts is expected to have a master's degree in economics, mathematics, statistics, public health, health financing, health policy, health system or related field. The expert shall have at least 10 years of experience in designing and/or implementing health financing systems, and minimum of 5 years of experience of working with government or international organizations. The consultants will work with international health financing expert in assess the current financing schemes for COVID-19 vaccinations of either Indonesia or the Philippines. The consultants shall support each of the two countries develop and implement health financing reforms related to COVID-19 vaccines and health security interventions. The consultants shall provide inputs in the development of any future COVID-19 vaccine projects under APVAX and/or health security projects of Indonesia or the Philippines.

38. Private health sector experts (national, 12 person-months of 2 positions with 6 person-months each, intermittent). Each of the two private health sector experts is expected to have a master's degree in accounting, finance, public health, hospital economics, management, health policy, health financing, health system, or related field. The experts shall have at least 8 years of experience setting and/or implementing private sector engagement in the health sector. Experience in working with government or international organizations is a plus. The consultants will support the international private sector consultant in advising Indonesia and the Philippines on the feasibility, cost effectiveness and appropriateness of the different options and approaches in harnessing the private sector in addressing COVID-19 and future disease outbreaks. The consultants shall support the implementation of private sector strategies in either Indonesia or the Philippines. The consultants shall provide inputs in the development of any future COVID-19 vaccine projects under APVAX and/or health security projects of Indonesia or the Philippines.

39. **Digital health experts (national, 12 person-months of 2 positions with 6 person-months each, intermittent).** Each of the two digital health experts will have around 10 years of relevant experience in designing and implementing digital health interventions with relevant academic degree. Experience in supporting inter-operability of health information systems, electronic disease surveillance, frontline health service delivery data capture, and health system monitoring and evaluation will be an advantage. Experience in working on assignments with private sector partnership to complement public sector support will be given additional weight. The consultants shall work with the international digital health expert in reviewing existing vaccine information systems of either Indonesia or the Philippines. Each of the consultant shall support either Indonesia or the Philippines implement their vaccine information systems. The consultants shall provide inputs in the development of any future COVID-19 vaccine projects under APVAX and/or health security projects of Indonesia or Philippines.

40. **Disease surveillance experts (national, 12 person-months of 2 positions with 6 person-months each, intermittent).** Each of the two disease surveillance experts is expected to have a degree in medicine or a master's degree in public health, epidemiology, health policy, health system, or related field. The expert shall have at least 8 years of experience in setting up and/or implementing disease surveillance systems. In coordination with the vaccine eco-system strengthening consulting firm, each of the expert will either support Indonesia or the Philippines develop and implement improvement strategies of the respective disease surveillance systems of Indonesia and the Philippines. The consultants shall provide inputs in the development of any future COVID-19 vaccine projects under APVAX and/or health security projects of Indonesia or the Philippines.