

Global Health Security Agenda Cambodia

Comprehensive Roadmap, 2016-2020

Developed June 2016

Please note that all U.S. government activities will be carried out in a manner that is consistent with each organizations' requirements, budget authorities, and missions of host countries and GHSA partners. All GHSA partner country foreign assistance is subject to availability of funds and appropriations by the governmental processes of GHSA partner countries.

Global Health Security Agenda Roadmap for Cambodia 2016-2020

Instructions for Interpreting the Roadmap

This Roadmap maps current and planned activities against a set of standardized milestones. These milestones were developed to chart the steps countries would need to take to progress through the IHR capacity levels.

For each Action Package the milestones start from the level that corresponds to the score RGC received in the recent JEE (Joint External Evaluation). The JEE score is highlighted in purple, as shown below:

| | | | |
|---|---|--|--|
| 2 | No FETP or applied epidemiology training program is established within the country, but staff participate in a program hosted in another country through an existing agreement (at Basic, | | |
|---|---|--|--|

For ease of comparison, the self-assessed level is highlighted in blue, as shown below:

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|---|---|
| 3 | Designated laboratories are conducting detection and reporting of some priority AMR pathogens |
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Milestones corresponding to lower capacity levels have been hidden in the spreadsheet except for some indicators where certain milestones had not in fact been achieved. In those instances the lower capacity level and corresponding milestones are visible.

Activities were mostly taken from the *Cambodian National Work Plan for Emerging Disease and Public Health Emergency to Achieve IHR Core Capacities (2016-2020)* (the 'National Workplan'), a USG inventory developed by USG agencies at a workshop in February 2016, USAID's Emerging Pandemic Threats 2 workplan and a mapping process of other development partner activities. To the right of the worksheet are the RGC, USG and other agencies involved in the particular activity. To the right of that is a comments section to capture information regarding the scope of the activity, for example, where the activity is limited geographically or where it relates to only a restricted number of pathogens.

The final column uses a traffic light system to indicate whether activities have everything required to proceed - "green";



activities are partially covered - "orange";



or do not have the adequate resources required - "red".



Inside the colored box it is indicated where external resources are involved, i.e. TA, funding, coordination. Where no external support is required then there is a blank green square.

A yellow square indicates that some information was missing.

The years in the spreadsheet follow the National Workplan and follow the calendar year.

The Roadmap is intended to be a working document that can be updated as further activities are planned or changed, or further information comes to hand.



JEE self assessment level
JEE external assessment level

Prevent 1: Antimicrobial Resistance (17 Activities)- Decisive and comprehensive action to enhance infection prevention and control activities to prevent the emergence and spread of AMR, especially among drug-resistant bacteria Nations will strengthen surveillance and laboratory capacity, ensure uninterrupted access to essential antibiotics of assured quality, regulate and promote the rational use of antibiotics in human medicine and in animal husbandry and other fields as appropriate, and support existing initiatives to foster innovations science and technology for the development of new antimicrobial agents

Target: Support work being coordinated by WHO, FAO, and OIE to develop an integrated global package of activities to combat antimicrobial resistance, spanning human, animal, agricultural, food and environmental aspects (i.e. a one-health approach), including: a) Each country has its own national comprehensive plan to combat antimicrobial resistance; b) Strengthen surveillance and laboratory capacity at the national and international level following agreed international standards developed in the framework of the Global Action plan, considering existing standards and; c) Improved conservation of existing treatments and collaboration to support the sustainable development of new antibiotics, alternative treatments, preventive measures and rapid, point-of-care diagnostics, including systems to preserve new antibiotics. As Measured by: (1)Number of comprehensive plans to combat antimicrobial resistance agreed and implemented at a national level, and yearly reporting against progress towards implementation at the international level. (2)Number of countries actively participating in a twinning framework, with countries agreeing to assist other countries in developing and implementing comprehensive activities to combat antimicrobial resistance, including use of support provided by international bodies to improve the monitoring of antimicrobial usage and resistance in humans and animals.

| | Standardised Milestones | Activity | Yr | | | | | RGC | USG | Other donors/ stakeholders | Comment | Funding/ Type of Support |
|---|--|---|----|---|---|---|---|--|-------------------------|--|--|--------------------------|
| | | | 1 | 2 | 3 | 4 | 5 | | | | | |
| Indicator 1 | | | | | | | | | | | | |
| P.3.1 Antimicrobial resistance (AMR) detection | | | | | | | | | | | | |
| 1 | No national plan for detection and reporting of priority AMR pathogens has been approved | | | | | | | | | | | |
| | National AMR advisory committee with clear Terms of Reference (ToR) that meets regularly and includes One Health approach to advise or draft national plan is established. Plan includes key components of laboratory, surveillance, HCAI, and stewardship activities | AMR TWG performs this role | x | x | x | x | x | AMR TWG MOH CDC Infection Prevention and Control Committee DHS PHD | USAID CDC | KOICA TBD | Proposal for technical support under consideration | Coordination |
| | AMR and drug-resistant TB-related documents that contribute to writing a complete National Strategic Plan to address AMR are reviewed and assessed | | | | | | | | | | | |
| | Ministry of Health lead for AMR with clear ToR who coordinates activities with leads for Ministry of Agriculture and Ministry of Health Infection Prevention and Control (IPC) and stewardship is identified | | | | | | | | | | | |
| | Assessment of existing AMR and drug-resistant TB laboratory capacity is completed | | | | | | | | | | | |
| | National AMR action plan for final approval from Ministries of Health and Agriculture is drafted using guidance from the advisory committee and other appropriate stakeholders and data from assessments. Plan includes key components of laboratory, surveillance, HCAI, and stewardship activities | National Action Plan to reduce the threat of AMR in agriculture drafted | x | | | | | MAFF (DAHP, dept of ag engineering, FIA) | | FAO | Only covers animal health | TA Funding |
| National plan is distributed to key stakeholders | Support for implementation of national AMR policy and workplan for human and animal health (support AMR TWG, annual conference, establish AMR committees in hospitals; review preservice training) | x | x | x | x | x | AMR TWG MAFF (DAHP (NaVRI)) MOH CDC | CDC USAID | WHO FAO KOICA TBD | Funding proposal under consideration | TA Funding | |
| 2 | National plan for detection and reporting of priority AMR pathogens has been approved | | | | | | | | | | | |
| | SOPs, protocols, and databases for surveillance data and system for reporting to Ministries of Health and Agriculture, and analysis and reporting back to facilities and to WHO are established | 17 microbiology labs to test and report on 4 priority pathogens; IPC reporting on viral pathogens | x | x | x | x | x | AMR TWG MAFF (DaHP (NaVRI)) NIPH BMLS MoH CDC Provincial labs | CDC | IPC DMDP WHO FAO KOICA TBD | | TA Funding |

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| | AST testing at pilot facilities for country selected WHO priority pathogens is performed | | | | | | | | | | | | |
| | One Health AMR training and mentorship programs for national and county laboratories are established | Review pre-service training; develop continuing education program for health professionals | x | x | x | x | x | | NAVRI NIPH BMLS MoH CDC Provincial labs | USAID TBD CDC TBD | KOICA TBD | Funding proposal under consideration | TA Funding |
| | Internal and external QA programs for designated laboratories are established | | | | | | | | | | | | |
| 3 | Designated laboratories are conducting detection and reporting of some priority AMR pathogens | | | | | | | | | | | | |
| | Internal and external quality assurance testing is performed and results to stakeholders are reported | Ongoing | x | x | x | x | x | | NIPH BMLS MoH CDC Provincial labs | CDC | DMDP | 7 microbiology labs in referral hospitals focusing on microbiology diagnostics under DMDP and 13 labs under SLMTA No animal testing | TA Funding |
| | Steps to strengthen lab capacity to sustainably identify and perform AMR and drug-resistant TB testing are developed | Ongoing | x | x | x | x | x | | NIPH BMLS MoH CDC Provincial labs CENAT NCHADS CNM | CDC USAID | DMDP CHAI FHI360 CHC | 7 microbiology labs in referral hospitals focusing on microbiology diagnostics under DMDP and 13 labs under SLMTA No animal testing | TA Funding |
| 4 | Designated laboratories have conducted detection and reporting of all priority AMR pathogens for at least one year | | | | | | | | | | | | |
| | Sustainable plan for laboratory supply chain is developed and implemented | | | | | | | | | | | | |
| | AST testing is expanded to other clinical facilities | | | | | | | | | | | | |
| | Population-based denominators, such as those recommended by WHO GLASS are collected | | | | | | | | | | | | |
| | Infection-based case data, including enhanced patient clinical information are collected | | | | | | | | | | | | |
| | Strategies for monitoring national AMR and drug-resistant TB burden are developed and implemented | Therapeutic efficacy studies on malaria resistance/ antimalarial drug resistance studies to inform national drug policy and case management | x | x | x | x | x | | CNM | USAID CDC | FHI360 CHC WHO | | TA Funding |
| ARV resistance study | | | x | | | | | | NCHADS | USAID CDC | CHAI | | TA Funding |
| Conduct multi drug resistant TB National survey | | | x | | | | | | CENAT Healthcare facilities (11 sites) | USAID CDC | FHI360 | | TA Funding |
| 5 | Designated laboratories have conducted detection and reporting of all priority AMR pathogens for five years with a system for continuous improvement | | | | | | | | | | | | |
| | Sustainable plan for laboratory supply chain is developed and implemented | | | | | | | | | | | | |
| Indicator 2 | | | | | | | | | | | | | |

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| National AMR action plan for final approval from Ministries of Health and Agriculture is drafted using guidance from the advisory committee and other appropriate stakeholders and data from assessments. Plan includes key components of laboratory, surveillance, HCAI, and stewardship activities | Develop IPC strategy (2021-2025) | | | | | | | | | | | | | | | | | | | | | | | TA and Funding | | |
| National plan is distributed to key stakeholders | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 National plan for HCAI programs has been approved | | | | | | | | | | | | | | | | | | | | | | | | | | |
| National IPC technical guidelines are established | Revise general IPC guidelines; develop SOPs for isolation precautions and SOPs for prevention of nosocomial infection procedures; establish national infrastructure standards; include IPC equipment and consumables in essential medical list; develop standard procurement procedures; develop operational and maintenance procedures for IPC equipment | x | x | x | | | | MOH DHS IPC technical working group (National and PHD/RH level) HCF staff | | WHO | | | | | | | | | | | | | | | | TA |
| HCAI programs, including AMR prevention and airborne infection control, at designated facilities are implemented | Develop appropriate triage and isolation room in identified health care facilities for infectious diseases; routine surveillance of nosocomial infection and needles/sharps injuries | | | x | x | | DHS RH PHD OD | DOD CTR-CBEP | WHO DMDP | 40,000 per facility est | | | | | | | | | | | | | | | | Funding |
| | Provision of basic equipment and minor repairs of wards | | | x | x | x | MOH DHS Hospitals TBC | | ADB | Part of upcoming GMS health security project. Details TBC | | | | | | | | | | | | | | | | TA Funding |
| | Clinician mentors support application of guidelines in hospital wards | | | x | x | | Provincial hospitals | DOD CTR-CBEP | DMDP | Only in those referral hospitals where DMDP supports labs (6 provinces) | | | | | | | | | | | | | | | | TA Funding |
| Infection prevention and control training programs, including both pre-service and in-service, and covering , including AMR prevention, at designated facilities are developed | Revise general IPC training curriculum and train healthcare workers | x | x | x | | | MOH DHS IPC TWG PHD OD RH | | WHO Global Fund DMDP | Gap: no waste management, no training of private facility staff | | | | | | | | | | | | | | | | TA Funding |
| | Train healthcare facility technical staff for operation and maintenance of equipment | | x | x | x | | MOH DHS PHD | | | | | | | | | | | | | | | | | | | Funding |
| | Develop IPC professional training curriculum and conduct training | x | x | x | x | | MOH DHS IPC TWG National hospitals | | WHO Global Fund | | | | | | | | | | | | | | | | | TA Funding |
| | Develop IPC module for medical and health sciences | x | x | x | | | UHS MOH DHS | | WHO | | | | | | | | | | | | | | | | | TA |
| | Training in hospital hygiene and case management | | x | x | x | | MOH DHS Hospitals TBC | | ADB | Part of upcoming GMS health security project. Details TBC | | | | | | | | | | | | | | | | TA Funding |
| | Training on safe injection practice | x | x | | | | MOH DHS | CDC | | | | | | | | | | | | | | | | | | TA Funding |
| 3 Designated facilities are conducting some HCAI programs | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| | Monitoring and evaluation of HCAI prevention programs are conducted | Healthcare facilities carry out self-needs assessment and develop IPC action plan; conduct M&E of IPC center of excellence and identified healthcare facilities for infectious diseases | x | x | x | x | x | | HCFs MOH DHS IPC TWG IPC professionals | | WHO Development partners | | TA |
| | Improvements to HCAI prevention programs are implemented | | | | | | | | | | | | |
| 4 | Designated facilities have conducted all HCAI programs for at least one year | | | | | | | | | | | | |
| | Sustainable plan for IPC supply chain is implemented | Include representative of financing and budgeting (DGFA/ DBF) in national IPC steering and IPC provincial committees; conduct resource mobilisation and advocacy strategy with RGC, donors and others | x | | | | | | IPC Committee MOH DHS PHD RH Ods | | | | |
| | HCAI prevention programs are expanded to other clinical facilities | | | | | | | | | | | | |
| | HCAI prevention programs are incorporated into national regulatory framework, such as accreditation bodies | Include IPC measures in QA questionnaire and hospital accreditation systems | | x | | | | x | IPC and QCAT Steering Committees | | WHO Development partners | | |
| | Strategies for monitoring national HCAI burden are developed and implemented | As a result of M&E efforts listed above, strategies developed in TWG for routine surveillance and reporting of HAI | x | x | x | x | x | | IPC TWG | | | | |
| 5 | Designated facilities have conducted all HCAI programs for five years with a system for continuous improvement | | | | | | | | | | | | |
| | IPC Programs that includes QI training/methodology at designated facilities are established and operationalized | | | | | | | | | | | | |
| Indicator 4 | | | | | | | | | | | | | |
| P.3.4 Antimicrobial stewardship activities | | | | | | | | | | | | | |
| 1 | No national plan for antimicrobial stewardship has been approved | | | | | | | | | | | | |
| | National AMR advisory committee with clear Terms of Reference that meets regularly and includes One Health approach to advise or draft national plan is established. Plan includes key components of laboratory, surveillance, HCAI, and stewardship activities | | | | | | | | | | | | |
| | AMR and drug-resistant TB-related documents that contribute to writing a complete National Strategic Plan to address AMR are reviewed and assessed | | | | | | | | | | | | |
| | MoH lead for antimicrobial stewardship with clear ToR who coordinates activities with leads for MoH AMR and IPC is identified | | | | | | | | | | | | |
| | Assessment of national AMR stewardship policies, including regulatory framework and authority, using a One Health approach is completed | | | | | | | | | | | | |
| | National AMR action plan for final approval from Ministries of Health and Agriculture is drafted using guidance from the advisory committee and other appropriate stakeholders and data from assessments. Plan includes key components of laboratory, surveillance, HCAI, and stewardship activities | | | | | | | | | | | | |
| | National plan is distributed to key stakeholders | | | | | | | | | | | | |
| 2 | National plan for antimicrobial stewardship has been approved | | | | | | | | | | | | |
| | SOPs, protocols, and databases for monitoring antimicrobial consumption in humans and animals are established | Develop guidelines for appropriate use of antibiotics in human, animals and food products | | | x | x | x | | AMR TWG | USAID/ CDC TBD | KOICA TBD WHO | Funding proposal under consideration | |

Key JEE self assessment level
 JEE external assessment level

Prevent 2: Zoonotic Disease- Implementation of guidance and models on behaviors, policies and practices to minimize the spillover, spread, and full emergence of zoonotic disease into or out of human populations prior to the development of efficient human-to-human transmission. Nations will develop and implement operational frameworks- based on international standards, guidelines, and successful existing models- that specify the actions necessary to promote One Health approaches to policies, practices and behaviors that could minimize the risk of zoonotic disease emergence and spread.

Target: Adopted measured behaviors, policies and/or practices that minimize the transmission of zoonotic diseases from animals into human populations.

| Standardised Milestones | Activity | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | RGC | USG | Other donors/ stakeholders | Comment | Funding/ Type of Support | |
|---|---|---|------|------|------|------|-----|---|-------------------------------|---|--|-------------------|
| Indicator 1 | | | | | | | | | | | | |
| P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens | | | | | | | | | | | | |
| 2 | Country has determined zoonotic diseases of greatest national public health concern but does not have animal zoonotic surveillance systems in place | | | | | | | | | | | |
| | Points of contact have been designated for surveillance reporting procedures for confirming priority zoonotic diseases and conditions at target facilities | Update points of contact for surveillance reporting procedures for confirming priority zoonotic | X | X | X | X | X | | | | Coordination | |
| | Procedures for reporting priority zoonotic diseases of PHEIC to the IHR Focal Point and to the district and national levels have been improved | Develop SOP for Procedures for reporting priority zoonotic diseases of PHEIC to the IHR Focal Point | | X | X | X | X | | | | TA Funding | |
| | Functional mechanisms for inter-sectoral collaborations have been established that include animal and human health surveillance units and laboratories | | | | | | | | | | | |
| | Training curriculum, SOPs, tool-kits, best-practices, and procedures have been developed that ensure routine feedback on zoonotic data quality and completeness | Training Develop SOP for Procedures for reporting priority zoonotic diseases of PHEIC to the IHR Focal Point | | X | X | X | X | | | | TA Funding | |
| | Timely and systematic information exchange has been established between animal surveillance units, human health surveillance units and other relevant sectors regarding potential zoonotic risks and urgent zoonotic events | | | | | | | | | | | |
| | Laboratories are stocked with zoonotic diagnostic equipment and supplies for detection of priority zoonotic diseases | | | | | | | | | | | |
| 3 | Zoonotic surveillance systems in place for 1-4 zoonotic diseases/pathogens of greatest public health concern | | | | | | | | | | | |
| | A national, multi-sectoral zoonotic surveillance strategic plan has been developed to enhance timely detection and reporting of zoonotic outbreaks with final approval from Ministry of Health or equivalent | Dissemination and implementation of 5-year zoonotic plan | X | X | X | X | X | MAFF (DAHP (NaVRI), FA) MOH CDC | USAID | FAO Consortium led by UC Davis IPC | Zoonosis strategic plan 2014-2018 exists not signed or approved. Gaps exist in plan. | TA Support to TWG |
| | | Strengthen policies related to promotion of safe livestock trade at border and information sharing (Cambodia and Vietnam) | | X | | | | MAFF (DAHP (NaVRI)) | USAID | FAO | | TA Funding |
| | | Test wildlife and human samples, facilitate testing of livestock samples using PREDICT viral family protocol | X | X | X | | | MAFF (DAHP (NaVRI)) FA MoE UHS NIPH | USAID | FAO Consortium led by UC Davis IPC WCS | | TA Funding |
| | Protocols (that adhere to biosafety/biosecurity measures) for select zoonotic agents have been developed | Develop and publish SOPs for joint/coordinated surveillance activities for priority zoonoses | X | X | X | | | MAFF (DAHP (NaVRI)), MOH (CDC, PHD, OD, health facilities) RUA UHS | CDC DOD CTR-CBEP USAID | IPC WHO WCS OIE FAO DMDP | Will require support to TWG decision-making | TA Funding |

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| | Rabies control strategy implemented; rabies control materials produced | x | x | x | | | | MOH CDC MAFF (DAHP (NAVRI)) | CDC | WHO GARC (Global Alliance for Rabies Control) IPC FAO | | TA Funding |
| Targeted surveillance for reportable and potential epidemic diseases of zoonotic or vector-borne origin in selected regions | Conduct limited syndromic surveillance to identify FVBI pathogens including malaria as well as respiratory and diarrheal diseases and provide timely updates to USG and regional partners in Cambodia, Laos, Malaysia and Vietnam | x | | | | | | CNM MOH CDC NIPH | DOD-GEIS/NMRC-Asia/ NAMRU2 | | | |
| Laboratory training workshops for staff for diagnosing and reporting priority zoonotic diseases have been developed for use at the national level and in selected regions | Agreement finalized to foster collaboration between laboratories in Cambodia in Zoonosis Strategic Plan; enhance laboratory capacities to support coordinated zoonoses control | x | x | x | | | | MAFF (DAHP (NAVRI)) MOH CDC NIPH | DOD CTR-CBEP USAID NAMRU2 | IPC WHO WCS OIE FAO DMDP | Joint lab collaboration | TA Funding |
| | Laboratory training for animal health surveillance | x | x | x | | | | MAFF (DAHP (NAVRI)) | | IPC EU LACANET | | TA Funding |
| | Lab training listed under Detect1 National Laboratory | | | | | | | Kampong Cham National School of Agriculture (KCNSA) | DOD DTRA CBEP (Cooperative Biological Engagement Program) | | | TA Funding |
| Procedures for data analysis to improve public health action have been developed for use at the district and national levels | Research on human behaviours and practices influencing zoonotic disease risk, modeling of spillover and transmission risks based on surveillance data, identify risk prevention strategies | x | x | x | | | | MAFF (DAHP (NAVRI)) MAFF FA RUA UHS NIPH | USAID | IPC WCS EU LACANET AFD ComAcross UC Davis | | TA Funding |
| | Longitudinal sampling of wildlife, at-risk human populations in 2 sites, identification of epi zones and pathways for disease emergence, evolution, amplification and spread | x | x | x | x | x | | MAFF (DAHP (NAVRI)) | USAID | IPC WCS | | TA Funding |
| | Research on H5N1 (incl mutations, transmission and transmissibility, strains) | x | x | x | | | | MAFF (DAHP (NAVRI)) | USAID | IPC WCS | | TA Funding |
| Serologic and molecular diagnostic capacity for prioritized zoonotic diseases in animals and humans has been developed at the sub-national and national level | Established - NAVRI provides molecular detection of influenza (during outbreak investigations). IPC provides the confirmation and duplicate testing as well as contact tracing investigation for H5N1 cases. Testing capacity for all priority zoonoses at all international partner laboratories (IPC, AFRIMS, NAMRU2) | x | x | x | | | | MAFF (DAHP (NAVRI)) | AFRIMS NAMRU2 | EU LACANET IPC FAO | Gap within RGC capacity for other 4 diseases (ie not H5N1) | TA Funding |
| Serological diagnostics capacity has been piloted for at least one of the prioritized zoonotic diseases for humans and livestock in target regional laboratories | | | | | | | | | | | | |
| A national surveillance database to record, monitor, and report zoonotic outbreaks to stakeholders has been established | Exists for H5N1 | | | | | | | | | | Gap | |
| 4 | Zoonotic surveillance systems in place for five or more zoonotic diseases/pathogens of greatest public health concern | | | | | | | | | | | |
| Zoonotic surveillance has been expanded to include additional sites | | | | | | | | | | | | |
| Procedures to investigate and confirm suspected zoonotic outbreaks and other public health events have been developed | Discovery research on small mammals and bats-pathogens - est disease baselines and identify new and emerging diseases across country | x | x | x | | | | Duke- NUS MAFF | DOD CTR-CBEP (Cooperative Biological Engagement Program) NAMRU | | | TA Funding |
| | Develop processes for wildlife diagnosis and establish mechanism for transferring capacity to national government | x | x | x | | | | MAFF. MoE | | EU LACANET IPC WCS | | TA Funding |
| | Improve mechanisms for the timely sharing of information and coordination of risk assessment, response and communication across sectors, including clarifying where ultimate decision-making authority for zoonotic disease outbreaks lie | | | | | | | | | | USG JEE review | |

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| | Establish lab network contingency for outbreak of unknown aetiology | x | x | x | | | | MAFF (DAHP (NAVRI)), MOH (CDC, NIPH) | CDC DOD CTR-CBEP USAID | IPC WHO OIE FAO DMDP | | TA Funding |
| Plans to improve animal and human exposure surveillance, testing capacities, and appropriate risk assessments have been developed | Establish system for surveillance and One Health risk assessment where wildlife may have link to zoonosis events; consider poultry and swine value chain study; evaluate existing livestock farming systems | x | x | x | | | | MAFF (DAHP (NAVRI)) MOH (CDC, PHD, OD, health facilities) | DOD CTR-CBEP USAID | IPC WHO WCS OIE FAO EU LACANET DMDP (Diagnostic Microbiology Development Program) AFD ECOMORE | | TA Funding |
| Linkages between animal-human disease surveillance and reporting mechanisms has been enhanced in a subset of regions | Zoonosis TWG responsible for these linkages. | x | x | x | x | x | | Zoonosis TWG | | | | Coordination |
| 5 | Zoonotic surveillance systems in place for five or more zoonotic diseases/ pathogens of greatest public health concern with system in place for continuous improvement | | | | | | | | | | | |
| | A monitoring and evaluation assessment of diagnostics and surveillance report submission has been completed from core human and animal health facilities to district and national levels | | | | | | | | | | | |
| | Measurable success criteria to document progress of zoonotic surveillance have been defined | | | | | | | | | | | |
| | Partnerships with Ministries of Health and Agriculture, FAO, OIE and other stakeholders to combat zoonotic spill-overs and outbreaks have been established | x | x | x | x | x | | MOH CDC MAFF (DAHP (NAVRI)) MAFF (FA) | USAID CDC DOD DTRA CBEP | FAO UC Davis-led consortium IPC EU | | TA Funding |
| | A preparedness and response plan has been prepared to coordinate animal and health agencies, sectors, and other stakeholders to effectively respond to priority zoonotic outbreaks | | | | | | | | | | | |
| Indicator 2 | | | | | | | | | | | | |
| P.4.2 Veterinary or Animal Health Workforce | | | | | | | | | | | | |
| 3 | Animal health workforce capacity within the national public health system and less than half of sub-national levels. | | | | | | | | | | | |
| | Training workshops for relevant career tracks have been developed | | | | | | | | | | | |
| | FETP trainee recruitment has continued | | | | | | | | | | | |
| 4 | Animal health workforce capacity within the national public health system and more than half of sub-national levels. | | | | | | | | | | | |
| | Support for One Health workforce national training plan | | x | x | x | | | MOH CDC MAFF MoE | | KOICA TBC | Proposal under consideration | |
| | Ensure private sector veterinarians/ village animal health workers are included in workforce development and promote private sector veterinarians and paraprofessionals in zoonotic disease surveillance | | | | | | | | | | USG JEE review | |
| | Provide diagnostic and biosafety training in the animal health sector | x | x | x | | | | NIPH MOH CDC | DOD CTR-CBEP | | | TA Funding |
| | Train Rapid Response Teams (human health), Task force (animal health) and wildlife-responsible authorities in coordinated response | x | x | x | x | x | | MAFF (DAHP (NAVRI)), MOH (CDC, NIPH) | DOD CTR-CBEP USAID | IPC WHO OIE FAO | | TA Funding |
| | Build capacity of One Health unit and vet students and lecturers, est parasitology animal lab, build capacity of lab technicians, training workshops on epidemiology and biosecurity with focus on zoonosis, zoonotic parasites, solid and liquid waste mgt from poultry in farms, support final year students' research. | x | x | x | x | x | | Kampong Cham National School of Agriculture (KCNSA) | DOD CTR-CBEP (Cooperative Biological Engagement Program) | | | TA Funding |
| A plan between the MoH and MoA has been developed to strengthen animal health workforce programs (due to the strong focus on this area we have added in multiple | | | | | | | | | | | | |

Key
■ JEE self assessment level
■ JEE external assessment level

Prevent 3: Biosafety and Biosecurity- Implementation of a comprehensive, sustainable and legally embedded National oversight program for biosafety and biosecurity, including the safe and secure use, storage, disposal, and containment of pathogens found in laboratories and a minimal number of holdings across the country, including research, diagnostic and biotechnology facilities. A cadre of biological risk management experts possesses the skillset to train others within their respective institutions. Strengthened, sustainable biological risk management best practices are in place using common educational materials. Rapid and culture-free diagnostics are promoted as a facet of biological risk management. The transport of infectious substances will also be taken into account.

Target: A whole-of-government national biosafety and biosecurity system is in place, ensuring that especially dangerous pathogens are identified, held, secured and monitored in a minimal number of facilities according to best practices; biological risk management training and educational outreach are conducted to promote a shared culture of responsibility, reduce dual use risks, mitigate biological proliferation and deliberate use threats, and ensure safe transfer of biological agents; and country- specific biosafety and biosecurity legislation, laboratory licensing, and pathogen control measures are in place as appropriate.

| Standardised Milestones | Activity | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | RGC | USG | Other donors/ stakeholders | Comment | Funding/ Type of Support |
|-------------------------|----------|------|------|------|------|------|-----|-----|----------------------------|---------|--------------------------|
|-------------------------|----------|------|------|------|------|------|-----|-----|----------------------------|---------|--------------------------|

Indicator 1
P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal, and agriculture facilities

| | | | | | | | | | | | |
|----------|---|---|---|---|---|---|---|-----------------------------|--|--|--------------------------------|
| 1 | No elements of a comprehensive national biosafety and biosecurity system are in place | | | | | | | | | | |
| | Laboratory Safety and Security Professionals in the Ministries of Health, Agriculture and Defense responsible for inspection/certification of laboratories for compliance with biosecurity and biosafety requirements are identified | x | x | x | x | x | BMLS DHS NIPH MOH CDC MAFF (DAHP (NAVR)) | CDC USAID (EPT2) | WHO FAO | | Additional coordination needed |
| | Human health and animal facilities storing/maintaining especially dangerous pathogens and toxins are identified | | | | | | | | | USG JEE review | |
| | First step towards development of a national BS&S framework to secure and consolidate dangerous pathogens and their associated research at a minimum number of secure facilities | | x | | | | BMLS NIPH MOH DHS | DTRA DOD-CTR-CBEP CDC | | Provide SME on consolidate principles and mechanisms | TA |
| | National legislation, regulations and licenses for biosafety, biosecurity and biorisk management (BRM) are identified and reviewed for alignment with internationally accepted best practices, guidelines, and minimum standards set by countries with established BS&S programs | | x | | | | BMLS NIPH MOH | DTRA DOD-CTR-CBEP CDC | | | TA Funding |
| | External quality assurance and audit system for compliance with national biosafety and quality guidelines established | | | x | x | x | BMLS MOH | | ADB | Part of upcoming GMS health security project. Details TBC | TA Funding |
| | Engagement meeting with Ministries of Health, Agriculture and Defense, and other appropriate government entities and stakeholders to determine laboratory capacities and gaps, and develop next steps aimed at strengthening BS&S compliance with internationally recognized standards is conducted | x | x | x | x | x | BMLS | | | BMLS might benefit from further support in its coordination role. No partner activities planned. | |
| | Assessments of current biosafety and biosecurity practices, and research and teaching methods at human and animal health institutes is conducted | | x | x | | | BMLS NIPH | DOD-CTR-CBEP CDC | WHO Sandia DMDP Mahidol Oxford Research Unit | Sandia completed baseline assessment. Follow up? 16 diagnostic facilities over two years | TA Funding |
| | Biorisk assessment conducted annually | x | x | x | x | x | BMLS NIPH | | | | TA Funding |

| | | | | | | | | | | | | |
|---|--|---|---|---|---|---|--|--|--|--|--|---|
| Biosafety and biosecurity training curriculum, which aligns with international best practices, is developed using country-specific content (e.g., regulations/authorities, agency roles/responsibilities, and case studies) | Develop national biosafety curriculum | x | x | x | | | | BMLS DHS NIPH | DOD AFRIMS DOD CTR-CBEP | WHO Sandia Mahidol Oxford Research Unit | | Government ownership/ plan for institutionalisation |
| 2 Country has conducted a training needs assessment and identified gaps in biosafety and biosecurity training but has not yet implemented comprehensive training or a common training curriculum. General lack of awareness among the laboratory workforce of international biosafety and biosecurity best practices for safe, secure and responsible conduct. Country does not yet have sustained academic training in institutions that train those who maintain or work with dangerous pathogens and toxins. | | | | | | | | | | | | |
| Training programs and oversight to ensure personnel reliability and compliance to Biosafety and Biosecurity rules and regulations are established | Train biosafety officers and all relevant staff in use of BSC (Biosafety Cabinet) | x | x | x | x | x | x | BMLS DHS NIPH Hospitals Provincial labs MoD | NAMRU-2 DOD CTR-CBEP CDC DOD AFRIMS | | TA through SLMTA for 13 prov labs During research studies by AFRIMS | TA Funding |
| | Provide diagnostic and biosafety training in the animal health sector | x | x | x | | | | NIPH MOH CDC | DOD CTR-CBEP | | | TA Funding |
| | Onsite training at 6 government microbiology labs | x | x | x | x | x | x | BMLS Provincial and national labs | DOD CTR-CBEP | DMDP Sandia Mahidol Oxford Research Unit | Onsite training at 6 labs. Other govt labs invited to attend | TA Funding |
| | National biosafety and biosecurity training- established professional training with preexisting and new BS&S curriculums (i.e. laboratory technicians, physicians, veterinarians, hazardous waste disposal technicians etc) in compliance with WHO, international atomic energy agency and OIE standards | | x | | | | | BMLS Provincial and national labs | DOD CTR-CBEP | | | TA Funding |
| | Training on biosafety to viral isolation NPHL lab | | x | | | | | NIPH | CDC | | | TA Funding |
| | Biosafety trainings for animal health | | x | | | | | MAFF (DAHP (NaVRI)) | USAID | FAO IPC | | TA Funding |
| | Biosafety and biosecurity training at influenza surveillance sentinel sites (14) incl specimen sampling, packaging and transport | | x | | | | | NIPH MOH CDC | CDC | | | TA Funding |
| Biosecurity training for wildlife sampling and surveillance by field workers | | x | | | | | MAFF (DAHP (NaVRI)) FA | USAID | WCS FAO | | TA Funding | |
| Training curriculum, SOPs, tool-kits, best-practices, and procedures to ensure compliance with biosafety and biosecurity rules and regulations aligned with international best practices are disseminated | Biosafety SOPs developed | | x | x | x | x | BMLS NIPH Provincial labs MAFF (DAHP (NAVRI)) | CDC-SLMTA USAID (EPT2) DOD CTR-K67CBEP | WHO DMDP FAP I-TECH IPC Sandia Mahidol Oxford University Research Centre | SOPs lacking in virology, biohazardous waste, haematology, biochem, serology, blood bank. IPC shared SOPs for suspected ebola case, H5N1 and MERS. DMDP supported SOPs for microbiology. I- Tech and SLMTA provide partial | | |
| Continuing education and training programs for biosafety and biosecurity aligned with international best practices are developed | | | | | | | | | | | | |
| Engagement meeting to develop sustained training curriculum at academic institutions is completed | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|--------------|-----|--|--|--|
| <p>3 Country has a training program in place with common curriculum; has begun implementation: Country has a training program in place at most facilities housing or working with dangerous pathogens and toxins; Country is developing sustained academic training for those who maintain or work with dangerous pathogens and toxins. Country is developing, or has not yet implemented, a train-the-trainers program for biosafety. Country is developing sustained academic training for those who maintain or work with dangerous pathogens and toxins.</p> | | | | | | | | | | | | |
| <p>Training programs and oversight to ensure personal reliability and compliance to Biosafety and Biosecurity rules and regulations aligned with international best practices are implemented</p> | | | | | | | | | | | | |
| <p>Sustained academic training in institutions that train those who maintain or work with especially dangerous pathogens and toxins aligned with international best practices is implemented</p> | | | | | | | | | | | | |
| <p>4 Country has a training program in place with common curriculum and a train-the-trainers program: Country has a training program in place at all facilities housing or working with dangerous pathogens and toxins; Training on biosafety and biosecurity has been provided to staff at all facilities that maintain or work with dangerous pathogens and toxins; Country has limited ability to self-sustain all of the above.</p> | | | | | | | | | | | | |
| <p>Sustainable training curriculum in biosafety and biosecurity aligned with international best practices implemented</p> | | | | | | | | | | | | |
| <p>Sustainable train-the-trainer program for biosafety and biosecurity aligned with international best practices implemented</p> | <p>Trained biosafety/biosecurity officers provide further training to relevant staff and physicians</p> | x | x | x | x | x | x | BMLS NIPH | WHO | NAMRU2 trains lab technicians as ToT who return to lab with NAMRU mentor | | |
| <p>5 Country has a sustainable training program, train-the-trainers program, and common curriculum. Staff are tested at least annually and exercises are conducted on biological risk protocols: Country is compliant with numbers one through five under "Demonstrated Capacity" and has funding and capacity to sustain all of the above. Review of training needs assessment is conducted annually and refresher training on need areas conducted annually Training on emergency response procedures provided annually.</p> | | | | | | | | | | | | |
| <p>Adequate availability of funding mechanisms are in place to support training programs from the national government</p> | | | | | | | | | | | | |

Key JEE self assessment level
 JEE external assessment level

Prevent 4: Immunization- Effective protection through achievement and maintenance of immunization against measles and other epidemic-prone vaccine preventable diseases (VPDs). Measles immunization is emphasized because it is widely recognized as a proxy indicator for overall immunization against VPDs. Countries will also identify and target immunization to populations at risk of other epidemic-prone VPDs of national importance (e.g., cholera, Japanese encephalitis, meningococcal disease, typhoid, and yellow fever). In the case of some diseases that are transferable from cattle to humans, such as anthrax and rabies, animal immunization should also be taken into account.

Target: A functioning national vaccine delivery system—with nationwide reach, effective distributions, access for marginalized populations, adequate cold chain, and ongoing quality control—that is able to respond to new disease threats.

| Standardised Milestones | | Activity | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | RGC | USG | Other donors/ stakeholders | Comment | Funding/ Type of Support |
|---|--|---|------|------|------|------|------|---------|-------|--|---|-----------------------------|
| Indicator 1 | | | | | | | | | | | | |
| P.7.1 Vaccine coverage (measles) as part of national program | | | | | | | | | | | | |
| 4 | 90% of the country's 12-month-old population has received at least one dose of measles containing vaccine, as demonstrated by coverage surveys or administrative data. 80% of all sub-national (districts/provinces) units covered. | | | | | | | | | | | |
| | Collaborations with WHO, and other international stakeholders focused on development to invest in immunization programs are established | Strengthen routine immunization system and maintain coverage through international partnerships (outreach to disadvantaged populations; improve access in hard to reach locations) | x | x | x | x | x | NIP | | WHO GAVI - via Health Sector Support Program2 | | TA Funding |
| | Coordination with sectors and stakeholders to implement vaccination controls at PoE is established (vaccination status checking) | Prakas in place for enabling health measures at POE. Have checked disease status during disease outbreaks, but not specifically vaccine status MOH may include checking of vaccine status for certain diseases when applicable | | | | | | MOH CDC | | | | |
| | Measurable success criteria to document progress of immunization programs is determined | Already in place (DHS), NIP conducts reviews and EPI coverage survey | x | x | x | x | x | NIP | | WHO GAVI - via Health Sector Support Program2 | | TA Funding |
| 5 | 95% of the country's 12-month-old population has received at least one dose of measles containing vaccine, as demonstrated by coverage surveys or administrative data; or 90% of the country's 12-month-old population has received at least one dose of measles containing vaccine and the trajectory of progress, plans and capacities are in place to achieve 95% coverage by 2020. More than 80% of all sub-national (districts/provinces) units are covered. | | | | | | | | | | | |
| | Sustainable plan for vaccine programs is developed and implemented | Already in place (comprehensive multi-year plan) | | | | | | NIP | | WHO GAVI - via Health Sector Support Program2 | | TA Funding |
| | National plan is strengthened for better integration of financial management for healthcare planning and immunization priorities | Immunisation included in National Health Strategic Plan Immunisation program included in Minimum Package Activity (part of National Health Plan) | | | | | | | USAID | URC | | |
| Indicator 2 | | | | | | | | | | | | |
| P.7.2 National vaccine access and delivery | | | | | | | | | | | | |
| 4 | Vaccine delivery (maintaining cold chain) is available in 60-79% of districts within the country OR Vaccine delivery (maintaining cold chain) is available in 60-79% of the target population in the country; functional vaccine procurement and forecasting lead to no stock outs at the central level and rare stock outs at the district level | | | | | | | | | | | |
| | Information, education, communication materials on vaccine delivery and cold-chain management are developed and disseminated | IEC materials are periodically developed and disseminated | | x | x | x | x | NIP | USAID | WHO GAVI UNICEF KOICA TBD | KOICA proposal for TA, funding, equipment under consideration | TA Funding |

| | | | | | | | | | | | |
|---|--|---|---|---|---|---|----------------|-------|------------------------------------|---|------------|
| Steps to strengthen cold-chain quality assurance and safety measures within vaccine storage and delivery systems are developed | Support for cold chain monitoring, incl recruit more staff, SOPs for equipment maintenance, purchase new equipment | x | x | x | x | | NIP | USAID | WHO GAVI UNICEF KOICA TBD | KOICA proposal for TA, funding, equipment under consideration | TA Funding |
| Trainings and exercises for event or hazard-specific response and management plans with sectors, stakeholders, and other agencies are developed | Management plans (EBM improvement plan) in place Training conducted periodically Training surveillance staff on surveillance and outbreak investigation and response | | | x | x | x | NIP MOH CDC | | WHO GAVI UNICEF | | TA Funding |
| 5 Vaccine delivery (maintaining cold chain) is available in greater than 80% of districts within the country OR Vaccine delivery (maintaining cold chain) is available to more than 80% of the national target population; systems to reach marginalized populations using culturally appropriate practices are in place; vaccine delivery has been tested through a nationwide vaccine campaign or functional exercise; functional procurement and vaccine forecasting results in no stock-outs | | | | | | | | | | | |
| Sustainable plan to ensure vaccine delivery and cold-chain management is developed and implemented | Training capacity for NIP staff | | | | | | NIP | | WHO GAVI UNICEF | | TA Funding |
| | Building partnership and better coordination at sub-national levels | x | x | x | x | x | NIP MOH CDC | | WHO GAVI UNICEF | | TA Funding |
| Strategic framework to nationally prioritize resources and investments in immunization is developed | | | | | | | NIP | | WHO | | |

Key



JEE self assessment level

JEE external assessment level

Detect 1: National Laboratory System- Effective use of a nationwide laboratory system capable of safely and accurately detecting and characterizing pathogens causing epidemic diseases, including both known and novel threats, from all parts of the country. Laboratory capacity should have the ability for expanded deployment, utilization, and sustainment of modern, safe, secure, affordable and appropriate diagnostic tests or devices.

Target: Real-time biosurveillance with a national laboratory system and effective modern point-of-care and laboratory-based diagnostics.

| Standardised Milestones | Activity | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | RGC | USG | Other donors/ stakeholders | Comment | Funding/ Type of Support | |
|---|--|------|------|------|------|---|---|------------------------------|-------------------------------|---------|---|---------------|
| | | | | | | | | | | | | |
| D.1.1 Laboratory testing for detection of priority diseases | | | | | | | | | | | | |
| 1 National laboratory system is not capable of conducting any core tests. | | | | | | | | | | | | |
| Engagement meeting with MoH, MoA, stakeholders and partners to determine national laboratory priorities that will be adopted and disseminated for priority diseases are conducted | National list of priority diseases endorsed | x | | | | | MOH CDC MAFF (DAHP (NavRI)) BMLS NIPH | CDC DOD CTR-CBEP USAID | WHO FAO DMDP | | TA | |
| | Mentor AET graduate within BMLS to develop lab surveillance system that includes a notifiable pathogen list | x | x | x | | | BMLS | CDC | | | TA | |
| | Annual data collection on national lab diagnostic and confirmatory lab capacity | x | x | x | x | x | BMLS MOH CDC NIPH | CDC | WHO DMDP FAO | | TA | |
| | Support for Kantha Bopha hospital lab - equipment and training | x | | | | | | | IPC | | TA Funding | |
| | Refurbish RCAF lab in Prey Veng | | x | x | | | RCAF | DOD CTR-CBEP | | | TA Funding | |
| | Train and provide mentorship to six laboratories in diagnostic microbiology media production, and establish, through the Diagnostic Microbiology Development Program (DMDP), a small scale Central Media Making Laboratory (CMML). | | x | x | | | MOH NIPH Provincial labs | DOD CTR-CBEP | DMDP | | | TA Funding |
| | Preservice training for TB diagnostics; intensified case finding of TB HIV/AIDS (isonizid therapy and TB infection control); provision of TB culture and DST; training to 33 labs on maintenance of GeneXpert; coaching for smear microscopy for 26 operational districts | x | x | x | x | | | CENAT | CDC USAID | FHI360 | | TA Funding |
| | Microbiology laboratory training and in-country research capacity: Limited capacity for training of MoH and MoND staff as per Biosafety and Biosecurity section, in addition to ongoing internal staff professional development. Potential for further engagement, contingent on evolution of national plan and funding sources. | | | | | | MoH (NIPH, CNM), MoND, MoEducation, MoFinance, ?MoAgriculture | | GEIS/NAMRU2 | | | |
| | Inservice training for malaria diagnostics and treatment, parasitology, wet work and microbiology | x | x | x | x | x | CNM RCAF HCfs | CDC DOD AFRIMS | | | NAMRU2 approach is conduct 2 trainings p.a with district personnel as ToT and NAMRU mentors those trainees at site | TA Funding |
| | Plans are completed to target human and animal health laboratories for capacity-building and essential functioning to meet diagnostic and confirmatory requirements for priority diseases | | | | | | | | DOD CTR-CBEP (GEIS/NAMRU2) | | | TA Funding |
| Inservice training for lab diagnostics | x | x | | | | MAFF (DAHP (NavRI)) NIPH | USAID | UC Davis FAO IPC | | | TA Funding | |
| Novel viral family screening tools implemented in local labs with training of animal and human health lab staff | x | x | | | | NIPH MAFF (NAHP (NavRI)) MAFF RUA MOH CDC UHS | USAID | FAO IPC UC Davis | | | | |

Key JEE self assessment level
 JEE external assessment level

Detect 2/3 : Real Time Surveillance - A functioning public health surveillance system capable of identifying potential events of concern for public health and health security, and country and regional capacity to analyze and link data from and between strengthened real-time surveillance systems, including interoperable, interconnected electronic reporting systems. Countries will support the use of interoperable, interconnected systems capable of linking and integrating multi-sectorial surveillance data and using resulting information to enhance the capacity to quickly detect and respond to developing biological threats. Foundational capacity is necessary for both indicator-based (including syndromic) surveillance and event-based surveillance, in order to support prevention and control activities and intervention targeting for both established infectious diseases and new and emerging public health threats. Strong surveillance will support the timely recognition of the emergence of relatively rare or previously undescribed pathogens in specific countries.

Target: Strengthened foundational indicator- and event-based surveillance systems that are able to detect events of significance for public health, animal health and health security; improved communication and collaboration across sectors and between sub-national (local and intermediate), national and international levels of authority regarding surveillance of events of public health significance; improved country and intermediate level/regional capacity to analyze and link data from and between strengthened, real-time surveillance systems, including interoperable, interconnected electronic reporting systems. This can include epidemiologic, clinical, laboratory, environmental testing, product safety and quality, and bioinformatics data; and advancement in fulfilling the core capacity requirements for surveillance in accordance with the IHR and the OIE standards.

JEE self assessment of core capacity

| Standardised Milestones | Activity | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | RGC | USG | Other donors/ stakeholders | Comment | Funding/ Type of Support |
|-------------------------|----------|------|------|------|------|------|-----|-----|----------------------------|---------|--------------------------|
|-------------------------|----------|------|------|------|------|------|-----|-----|----------------------------|---------|--------------------------|

Indicator 1

D.2.1 Indicator and event-based systems in place

| 4 | Indicator and event-based surveillance system(s) in place to detect public health threats | | | | | | | | | | |
|--|--|---|---|---|---|-----|---------------------------|----------------------------|--|--|----------------|
| Guidelines implemented for event confirmation, verification, assessment and notification | Develop inventory of SOPs for different diseases, use/implementation of SOPs, interdigitate | x | x | | | | MOH CDC | CDC | WHO | currently focused on MOH CDC but could broaden. | TA |
| | Strengthen disease surveillance through following sub-activities: -Cambodia Early Warning Response Network (CamEWARN) -review and revise training materials -evaluate surveillance and response training -disseminate surveillance manual -formalizing monitoring of media/internet sources -promoting active public reporting using new technologies (e.g. smartphones, social media) -fostering reports from new partners, including healthcare workers in private facilities | x | x | | | | MOH CDC | CDC | WHO | | TA and funding |
| | incorporate private sector into surveillance system | | | | | | | | | JEE recommendation | Funding |
| | Develop curriculum and training for supervision and coaching of disease surveillance | | x | x | x | x | MOH CDC | | | | Funding |
| | Ongoing capacity building to provincial RRT, incl video training and car/ equipment/ operational budget | x | x | x | x | x | MOH CDC | | WHO ADB | | TA and funding |
| | Training on event based surveillance to clinicians | | x | x | x | x | MOH CDC | | WHO | | TA and funding |
| | Training support to community health workers and health officers on surveillance and outbreak response | x | x | x | | | MAFF (DAHP) | USAID | FAO ADB IPC | | TA and funding |
| | Review hotline system | | x | | | | MOH CDC | CDC | WHO InSTEDD iLab Skoll Google | | TA and funding |
| | Capacity building for disease surveillance at market disease hotspots - strengthen NaVRI Outbreak Mobile Response Unit | x | x | x | x | x | MAFF (DAHP (NaVRI)) | | IPC WCS EU LACANET | Covers 6 regional priority pathogens: rabies, leptospirosis, anthrax, JEV, scrub typhus, trichinella | TA and funding |
| | Improve the quality of indicator-based surveillance data by providing ongoing training to reporters on the use of syndromic case definitions and rigorous, systematic assessments of data capture at the local level | | | x | x | x | MOH CDC and others TBC | | ADB | Part of upcoming GMS health security project. Details TBC | TA and funding |
| Technical assistance to ensure quality routine malaria surveillance and data collection | x | | | | | CNM | USAID | URC PSI Malaria Care | | TA | |

| | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|--------------------|-----------------------|---|----------------|
| Enhanced understanding of the surveillance requirements for key diseases of security concern | Surveillance of melioidosis | | x | x | x | | Provincial health NIPH | DOD CTR-CBEP | | | TA and funding |
| | Conduct integrated longitudinal surveillance of influenza (incl subtyping of Flu A positive samples in poultry and swine) and EIDs | x | x | x | | | MAFF (DAHP (NaVRI)) | USAID | FAO IPC | | |
| | Maintain influenza sentinel surveillance system - ILI and SARI. | x | x | x | x | x | Sentinel sites MOH NIPH | CDC | WHO | | TA and funding |
| | Implement blood safety program incl emphasis on lab safety and surveillance for blood-borne pathogens | x | x | x | | | | U.S. PACOM | | | |
| Policies, regulations, and communication procedures established at designated PoE as required by the IHR in Annex 1 | Finalize and disseminate multisectoral Public Health Emergency Contingency Plan for Sihanouk seaport and Pochentong airport, incl case management guidelines | x | x | | | | MAFF, Mo Env, Mo Industry, Mo Interior, Mo Finance, Immigration Police, Mo Commerce, Mo Defense, Mo of Public Works and Transport, Port and Airport authorities, PHD, health centres and hospitals, private sector (shipping, | | ADB (for seaport) WHO | ADB support TBC | |
| | Develop protocols for surveillance and vector control in and near the POE and provide training for quarantine officers, designated POE authorities and expert agencies on the protocols. | | | | x | | | | | ADB support TBC | |
| 5 | In addition to surveillance systems in country, using expertise to support other countries in developing surveillance systems and provide well-standardized data to WHO and OIE for the past five years without significant external support | | | | | | | | | | |
| Sharing of surveillance activities is coordinated and supported through government commitment, stakeholders and partnerships, including neighboring countries | Regional, cross-border and intersectoral information sharing and coordination of outbreak control among regional neighbours | | x | x | x | x | TBC | | ADB | Part of upcoming GMS health security project. Details TBC | TA and funding |
| | Support for the Research Coordinated Network | x | x | x | | | | U.S. PACOM | | | TA and funding |
| Indicator 2 | | | | | | | | | | | |
| D.2.2 Surveillance is an interoperable, interconnected, electric real-time reporting system | | | | | | | | | | | |
| 3 | Country has in place an interoperable, interconnected, electronic real-time reporting system, for either public health or veterinary surveillance systems. The system is not yet able to share data in real-time. | | | | | | | | | | |
| Interoperable information systems for laboratory services within laboratories and through data exchange and integration across local and national laboratories and health services supporting public health threat detection and response activities based on the national surveillance strategy are operationalized | Strengthen linkages between NAVRI epidemiology and lab info systems | | x | x | | | BMLS MOH CDC NIPH MAFF (DAHP (NAVRI)) | USAID DOD CTR-CBEP | FAO WHO DMDDP ADB | | TA Funding |
| | Strengthen linkages between surveillance system and lab info systems | | | | | | | | ADB | USG JEE review | |
| Platform and capacity for data integration, analysis and use across all levels and domains of the national health surveillance system promoting national and international data use and exchange for early detection and rapid response for public health threat are operationalized | Strengthen routine information sharing within and between govt agencies; maintain effective surveillance systems through field and lab reporting, rumor follow up, monitoring unidentified disease events | | x | | | | MOH CDC NIPH DHS MAFF (DAHP (NaVRI)) | CDC USAID | WHO FAO IPC | | TA Funding |
| | Create a surveillance data validation system (CamEWARN/ILI/SARI) | | x | | | | MOH CDC | | WHO ADB | | |
| | Promote use of CamLIS data- upload reports | x | x | x | x | x | MOH CDC | CDC | WHO | | |

| | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|--|
| In addition to surveillance systems in country, using 5 expertise to support other countries in developing surveillance systems | | | | | | | | | | | |
| Sharing of surveillance activities is coordinated and supported through government commitment, stakeholders and partnerships, including neighboring countries | | | | | | | | | | | |

| Detect 4: Workforce Development- Prevention, detection, and response activities conducted effectively and sustainably by a fully competent, coordinated, evaluated and occupationally diverse multi-sectorial workforce. | | | | | | | | | | | |
|--|---|------|------|------|------|------|--|-------------------------|--|--|--------------------------|
| Target: State parties should have skilled and competent health personnel for sustainable and functional public health surveillance and response at all levels of the health system and the effective implementation of the IHR (2005). A workforce includes physicians, animal health or veterinarians, biostatisticians, laboratory scientists, farming/ livestock professionals, with an optimal target of one trained field epidemiologist (or equivalent) per 200,000 population, who can systematically cooperate to meet relevant IHR and PVS core competencies. | | | | | | | | | | | |
| Standardised Milestones | Activity | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | RGC | USG | Other donors/ stakeholders | Comment | Funding/ Type of Support |
| Indicator 1 | | | | | | | | | | | |
| co | | | | | | | | | | | |
| 2 | Country has multidisciplinary HR capacity (epidemiologists, veterinarians, clinicians and laboratory specialists or technicians) at national level | | | | | | | | | | |
| | Database of in-country multi-disciplinary SMEs is developed | x | | | | | MOH, CDC Department of Personnel | | | | |
| | National, multi-sectoral strategic plan is developed to enhance the multidisciplinary workforce with final approval from Ministry of Health or equivalent | x | | | | | MOH, CDC MAFF Department of Personnel | USAID CDC | WHO SEAOHUN KOICA TBC | Proposal for TA and funding to be considered | |
| | Curriculum development and provision of masters degrees for agriculture | x | x | x | x | x | Royal University of Agriculture MAFF | | FAO | FAO TCP TBD | |
| | Pre-service training on One Health approach in animal and human health sectors. Faculty to attend regional masters program. Faculty, vet and med students join surveillance activities. | x | x | x | x | | UHS Royal University of Agriculture MAFF MAFF (DAHP (NaVRI)) FA MOH CDC | USAID CDC (TBD) | SEAOHUN TBC KOICA TBC IPC UC Davis ADB OIE FAO | Proposal for TA and funding to be considered Collaboration in coordination with FAO-TCP | |
| | Relevant public health multidisciplinary workshops and curriculum are conducted with universities and partners, including human resource requirements for IHR | x | | | x | | MOH DHS IPC Professional UHS | | WHO Development partners | | |
| | Blood safety training | | x | x | | | Provincial blood center staff NBTC | CDC | KOICA TBC | Proposal for TA and funding to be considered | |
| | Laboratory epidemiology training introduced | | x | x | x | | MOH CDC | CDC | WHO KOICA TBD | Proposal for TA and funding to be considered | |
| | Inservice curriculum (blood component) for midwives and doctors | x | | | | | UHS NTBC | CDC | Red Cross Australia | | TA and funding |
| 3 | Multidisciplinary HR capacity is available at national and intermediate level | | | | | | | | | | |
| | Recruitment program to enhance the multidisciplinary public health workforce is developed with stakeholders | | | | | | MOH CDC | | WHO | | TA and funding |
| | Train-the-trainer programs in relevant public health disciplines are developed | | x | x | x | | MOH MAFF (DAHP (NaVRI)) | CDC TBC DOD CTR-CBEP | KOICA TBD WHO DMDP FAO | Proposal for TA and funding to be considered | |
| | Leadership and management training program to increase management capacity of health program coordinators to assess necessity, quality and impact of programs | x | x | x | | | MOH | CDC TBC | KOICA TBD | Proposal for TA and funding to be considered | |

JEE self assessment of core capacity



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| ↓ | Partnerships with international organizations are established to enhance university curriculum for public health disciplines | Regional masters program with One Health focus developed | x | x | x | x | x | | | | | | | | | | | | | | | | | | | | | | | | | | | EU ComAcross CIRAD Toulouse Vet Uni FMV Katsesart Uni | Regional project focused on Cambodia and Laos | TA and funding |
| | | International organisations support masters degree in agriculture and ongoing support for UHS program | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ↓ | 4 | Multidisciplinary HR capacity is available as required at relevant levels of public health system (e.g. epidemiologist at national level and intermediate level and assistance epidemiologist (or short course trained epidemiologist) at local level available) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Collaborations are encouraged with WHO, FAO, World Bank, OIE, and other international stakeholders focused on the development of workforce capacity | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ↓ | 5 | Country has capacity to send and receive multidisciplinary personnel within country (shifting resources) and internationally | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| ↓ | 2 | No FETP or applied epidemiology training program is established within the country, but staff participate in a program hosted in another country through an existing agreement (at Basic, Intermediate and/or Advanced level) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | Routine communication connectivity with international, national, and sub-national public health focal points is established | As part of table top simulation exercises referred to at R2.3 below | | | | | | | | | | | |
| | Authorities for activation and deactivation of the national PHEOC are identified | Include in draft SOPs for EOC referred to above | | | | | | | | | | | |
| | PHEOC facility location and funding mechanisms for PHEOC are identified | Completed | | | | | | | | | | | |
| | Technical assistance with the receipt, inventory, installation and testing of PHEOC equipment systems are provided | EOC's logistics (telecommunication equipment, food, transport, support personnel etc) determined | x | | | | | MOH CDC | CDC | WHO | WHO can apply some outbreak response funds | Funding | |
| | Database of PHEOC SMEs for preparedness and response are developed | Develop comprehensive list of experts for multihazards under the National Action Plan by compiling sector specific lists developed by response national authorities | | x | | | | NCDM | | | | | |
| 5 | In addition to activities for “demonstrated capacity”, exercises are conducted two or more times per year to test EOC activation | | | | | | | | | | | | |
| | Discussion and operations-based exercises conducted jointly with MoH | Implement or test the multihazard PHEPR in an actual emergency or simulation exercise | | | | | x | MOH CDC Other agencies | | WHO | WHO can apply some outbreak response funds and test in real life scenario | TA Funding | |
| | | Exercise to test the updated Pandemic Preparedness and Response Plan (PPP) | | x | | | | MOH CDC Other agencies | | WHO | | TA Funding | |
| R.2.2 Emergency Operations Centre Operating Procedures and Plans | | | | | | | | | | | | | |
| 1 | No EOC plans/procedures for Incident Management Structure (or equivalent) are in place | | | | | | | | | | | | |
| | National baseline assessment of public health emergency management (PHEM) capacities, including PHEOC infrastructure, PHEM workforce, and PHEM systems is completed | | | | | | | | | | | | |
| | Legal authorities for the Ministry of Health PHEOC to manage public health responses are confirmed | | | | | | | | | | | | |
| | 5-year strategic plan for PHEM capacity enhancement is developed with MoH | | | | | | | | | | | | |
| | Multi-year annual budget to sustain its PHEM capacities is developed with MoH | | | | | | | | | | | | |
| | National policies that enable processes for public health emergency management activities are collected and analyzed | | | | | | | | | | | | |
| 2 | EOC plans/procedures describing incident management structure (IMS) or equivalent structure are in place; plan describes key structural and operational elements for basic roles (including Incident management or command, Operations, Planning, Logistics and Finance) | | | | | | | | | | | | |
| | Country's priority public health threats and hazards are documented and risk assessment is completed | Profile risks (Identify types of hazards Cambodia is likely to experience in coming years) and map national resources for IHR relevant hazards and priority risks - conduct a National Threat and Hazard Identification and Risk Assessment (THIRA) | | | | | x | NCDM MOH CDC | | Cambodia Red Cross ADB WHO | | Coordination TA Funding | |
| | | Conduct risk assessment for each public health event at national level | | | | | | MOH CDC | | WHO | | TA | |
| | | Create an annual summary report of the public health events based on the risk assessment results | | x | x | x | x | MOH CDC | | WHO | | TA | |
| | | Conduct risk assessment for each public health event at subnational level | x | x | x | x | x | MOH CDC MAFF | | WHO FAO OIE | | TA | |

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| | Develop epidemiological risk modeling capacity | x | x | x | | | MAFF (DAH and FA) | USAID | IPC | | TA Funding | |
| Missions, mandates, capabilities, and capacities of participating agencies for PHEOC functioning and response are developed Key PHEOC planning documents are developed | Expand National Contingency Plan for Responding to Flood Disaster 2015 to develop a multihazard Public Health Emergency Preparedness and Response (PHEPR) Plan and SOPs incl emerging infectious diseases, food safety, chemical and radiation emergencies | | | x | | | NCDM Other agencies | USAID CDC | WHO ADB TBC | National level collaboration with WHO/US CDC to develop SOPs for different diseases | TA Funding | |
| | Engage the interministerial technical working group to develop a national public health response plan that reflects a whole of govt approach to responding to priority public health threats | | | | | | | | | JEE recommendation | | |
| | Review and update the Pandemic Preparedness and response Plan (PPP) as integrated part of public health emergency plan | | x | | | | NCDM Other agencies | | WHO | | TA Funding | |
| | Conduct Pacific Angel 16, which includes a Subject Matter Expert Exchange on public health emergencies, including preparedness | x | | | | | Royal Cambodian Armed Forces | U.S. PACOM, Pacific Air Forces DOD U.S. Pacific Fleet | | | | |
| | Develop EOC Plan (handbook), incl EOC activation SOP, train staff in IMS and position specific duties | | | | | | | | | | JEE recommendation | |
| | SOPs for outbreak investigation and response finalized incl administrative and logistic SOP, report protocol | | x | | | | MOH CDC | CDC | WHO | Currently MOH CDC focused, but could broaden | | TA Funding |
| 3 | In addition to meeting requirements of “limited capacity”, EOC plans are in place for functions including public health science (epidemiology, medical and other subject matter expertise), public communications, partner liaison | | | | | | | | | | | |
| | Logistical plans to link laboratory and surveillance capabilities to the incident management center at PHEOC are developed | | x | x | | | MOH CDC CBRN Taskforce NCDM | | WHO | | | |
| | National CONOPS (concept of operations) that define the relationship between the national disaster management organization and the national PHEOC are identified | | x | x | | | MOH CDC CBRN Taskforce NCDM | | WHO | | | |
| 4 | In addition to meeting “developed capacity”, the following EOC plans are in place: concept of operations; Forms and templates for data collection, reporting, briefing; Role descriptions and job aids for EOC functional positions | | | | | | | | | | | |
| | EOC roles and responsibilities plans to key stakeholders are disseminated | x | | | | | MOH CDC | | | | | |
| | Establish Risk Communication Committee- draft roles and responsibilities, meet twice per year | | x | x | x | x | MOH CDC CBRN Task Force | | UNICEF | | | |

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| | Risk communications strategy and/or operational plan are disseminated | Conduct AI Risk Communication school forum | | x | | | | | | MAFF (DAHP) MOH CDC Provincial department of education | USAID | FAO | 5 provinces | | |
| | | Consultative workshop to develop strategy and specific response plan with Risk Communication Committee | | x | | | | | | MOH CDC | | WHO UNICEF | | | |
| 5 | In addition to meeting “demonstrated capacity”, response plans are in place that describe scaled levels of response with resource requirements for each level and procedures for acquiring additional resources | | | | | | | | | | | | | | |
| | National legislation or directives for PHEOC and other entities to manage public health emergencies are developed and/or improved | Develop policy/ SOPs for coordination between IHR NFP and relevant sectors | | x | | | | | | MOH CDC CBRN Taskforce | | WHO | | | TA |
| | National public health response fund and the policies for utilization of this fund are identified | EOC logistics and outbreak response fund established | | | | | | | | | | | | | |
| | Current legislation, regulation and other national policies that authorize emergency management activities are assessed | Draft CDC Law formally endorsed for implementation | | x | x | | | | | MOH CDC - legislation department | | WHO | | | |
| | | Develop MoUs between public health and other concerned ministries | | | | x | x | | | MOH CDC - legislation department | | | | | |
| | | Develop subdecree / Prakas on isolation and quarantine of people with suspected emerging or specific infectious diseases | | x | x | | | | | MOH CDC - legislation department | | | | | |
| | Measurable success criteria to document progress of PHEOC capacity are identified | Annual outbreak investigation and response exercise provides framework for measuring capacity development | | | | | | | | MOH CDC | CDC | WHO | | | |
| | | Hold regular meetings (2-4x per year) with relevant ministries to review IHR NFP functions and SOPs for improvement | | x | x | x | x | x | | MOH CDC CBRN Taskforce NCDM | | WHO | | | |
| | R.2.3 Emergency Operations Program | | | | | | | | | | | | | | |
| 1 | No exercises have been completed | | | | | | | | | | | | | | |
| | Discussion and operations-based exercises conducted jointly with MoH. | Conduct joint risk assessment exercise between MOH and other relevant sectors | | x | x | x | x | x | | MOH CDC | CDC | WHO | | | |
| | | Develop comprehensive, multi-year public health emergency management training and exercise program | | | | | | | | | | | JEE recommendation | | |
| 2 | Table top exercise has been completed to test systems and decision making | | | | | | | | | | | | | | |
| | Table-top trainings and exercises for event or hazard-specific response and management plans with sectors, stakeholders, and other agencies are participated in | Table top exercises and simulations between Vietnam and Cambodia incl national, regional, local participants , involve AET and CAVET graduates | | | | | | | | MAFF | USAID DOD CTR-CBEP | | Focus on VN/Camb border. Discussing DTRA support. | | TA Funding |
| | | Table top exercise on outbreak investigation and response | | x | | | | | | MOH CDC MAFF (DAHP) | CDC USAID | WHO FAO ADB | | | |
| | | Conduct Exercise CARAT Health Engagement to address HADR-related disease control and force health protection | | x | | | | | | Royal Cambodian Navy | DOD Navy Environmental and Preventative Medicine Unit 6 | | | | |
| | | Conduct an exercise to test the effectiveness of SOPs defining CONOPS between EOC and NDMC | | | | x | x | | | MOH CDC CBRN Taskforce NCDM | | WHO | | | |

Key

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| JEE self assessment level |
| JEE external assessment level |

Respond 2: Linking Public Health and Law Enforcement- Development and implementation of a memorandum of understanding (MOU) or other similar framework outlining the roles, responsibilities, and best practices for sharing relevant information between and among appropriate human and animal health, law enforcement, and defense personnel. Ensure validation of the MOU through periodic exercises and simulations to test rapid, multi-sectorial response to potential public threat incidents. In collaboration with FAO, International Criminal Police Organization (INTERPOL), OIE, WHO, individual Biological and Toxin Weapons Convention State Parties, the United Nations Secretary-General's Mechanism for Investigation of Alleged Use of Chemical and Biological Weapons (UNSGM), and other relevant regional and international organizations as appropriate, countries will develop and implement model systems to conduct and support joint criminal and epidemiological investigations to identify and respond to suspected biological incidents of deliberate origin.

Target: In the event of a biological event of suspected or confirmed deliberate origin, a country will be able to conduct a rapid, multisectorial response, including the capacity to link public health and law enforcement, and to provide and/or request effective and timely international assistance, including to investigate alleged use events.

| Standardised Milestones | Activity | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | RGC | USG | Other donors/ stakeholders | Comment | Funding/ Type of Support |
|-------------------------|----------|------|------|------|------|------|-----|-----|----------------------------|---------|--------------------------|
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Indicator 1

R.3.1 Public Health and Security Authorities, (e.g. Law Enforcement, Border Control, Customs) are linked during a suspected or confirmed biological event

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| 2 | Points-of-contact and triggers for notification and information sharing have been identified and shared between public health, animal health and security authorities | | | | | | | | | | | |
| | An International Joint Investigations Workshop has been conducted to improve understanding of baseline public health, animal health, and security/law enforcement capabilities by relevant multi-sectorial agency counterparts. | Linkages established with identified international networks-re chemical and radiological emergencies | x | x | x | x | NACW (National Authority for Prohibition of CBRN Weapons) | | | | | |
| | Triggers for sharing information on biological threats or other incidents of concern (chemical, radiological) with relevant multi-sectorial agencies have been developed. | Amend Law on Prohibition of Chemical, Nuclear, Biological and Radiological Weapons | | | x | x | NACW (National Authority for Prohibition of CBRN Weapons) | | | | | |
| | | Formal endorsement of CDC law | x | x | | | MOH CDC legislation dept | | WHO ADB TBC | | | |
| | | Develop SOPs for specific emergencies (chemical, biological, radiological) and organise training on SOPs through table top and field training exercises | x | | | | NACW (National Authority for Prohibition of CBRN Weapons) | ODC PACOM | | | | |
| | | Develop nuclear emergency laws | x | x | | | Ministry of Industry | | | | | |
| | An informal communications process to share information related to biological threats or other incidents of concern (chemical, radiological) has been developed. | Completed | | | | | | | | | | |
| | Logistical plans to include multi-sectorial agencies in the Public Health Emergency Operations Center (PHEOC) have been developed. | Identify and designate health facilities for chemical and radiological emergency response, provide training | | | x | | MOH CDC Hospitals | | WHO ADB TBC | | | |
| | | Develop list of in-country chemical and radiation experts; provide training | | | x | x | Ministry of Mines and Energy MoE | | | | | |

