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IHR-PVS National Bridging Workshop – Cambodia

23-25 August 2023



Siem Reap, Cambodia



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TABLE OF CONTENTS

TABLE OF CONTENTS	1
ABBREVIATIONS & ACRONYMS	2
INTRODUCTION	4
Background	4
Objectives of the workshop and expected outcomes	5
REPORT ON THE SESSIONS	6
Opening Session	6
Session 1: The One Health Concept and National Perspectives	8
Session 2: Navigating the Road to One Health – Collaboration Gaps	10
Session 3: Bridges along the Road to One Health	13
Session 4: Crossroads – PVS Pathway and IHR MEF reports	15
Session 5: Road Planning	16
Session 6: Fine-tuning the road-map	17
Session 7: Way forward	20
WORKSHOP OUTPUTS	21
Output 1: Assessment of levels of collaboration for 15 key technical areas	21
Output 2: NBW ROADMAP - Objectives and actions identified per technical areas	22
WORKSHOP EVALUATION	28
APPENDIX	29
Annex 1: Workshop agenda	29
Annex 2: List of participants	33

ABBREVIATIONS & ACRONYMS

AI	Avian Influenza
AMR	Antimicrobial Resistance
CAEW	Community Agricultural Extension Worker
CamEMS	Cambodia Event Monitoring System
CAMBOHUN	Cambodia One Health University Network
CAVET	Cambodian Applied Veterinary Epidemiology Training
DDG	Director General
DG	Deputy Director General
ECTAD	Emergency Centre for Transboundary Animal Diseases in FAO
FAO	Food and Agriculture Organization of the United Nations
FETP	Field epidemiology training programme
FORT	Food Outbreak Investigation and Response Team
GDAHP	General Directorate for Animal Health and Production
HE	His/Her Excellency
HQ	Headquarters
IHR	International Health Regulations (2005)
IMCC	Inter-Ministerial Coordination Committee
JEE	Joint External Evaluation
MAFF	Ministry of Agriculture, Forestry and Fisheries
MEF	Monitoring and Evaluation Framework
MoE	Ministry of Environment
MoH	Ministry of Health
MoU	Memorandum of Understanding
NAHPRI	National Animal Health and Production Research Institute
NAPHS	National Action Plan for Health Security
NBW	National Bridging Workshop
PA	Protected Area
PHEIC	Public Health Emergency of International Concern
PVS	Performance of Veterinary Services
RGC	Royal Government of Cambodia
RUA	Royal University of Agriculture
SET	Surveillance Evaluation Tool
SOP	Standard Operating Procedures
TOR	Terms of Reference
TOT	Training of Trainers
TWG	Technical working group
UNEP	United Nations Environment Programme

US-CDC	United States Centers for Disease Control and Prevention
WG	Working group
WHO	World Health Organization
WOAH	World Organisation for Animal Health

INTRODUCTION

BACKGROUND

- The World Health Organization (WHO), the World Organisation for Animal Health (WOAH), the Food and Agriculture Organization (FAO) and the United Nations Environment Programme (UNEP) together known as the Quadripartite, are the main international organizations responsible for proposing references and guidance for the public health, animal health and environment sectors respectively. This Quadripartite has been active promoters and implementers of an intersectoral collaborative approach between institutions and systems to prevent, detect, and control diseases among animals and humans.
- WHO Member States adopted a legally binding instrument, the International Health Regulations (IHR, 2005), for the prevention and control of events that may constitute a public health emergency of international concern. Various assessment and monitoring tools have been developed by WHO such as the IHR Monitoring and Evaluation Framework (MEF), which includes inter alia the State Party Self-Evaluation and Annual Reporting (SPAR) and the Joint External Evaluation (JEE) Tool.
- WOAHA is the international organisation responsible for developing standards, guidelines and recommendations for animal health and zoonoses; these are laid down in the WOAHA Terrestrial and Aquatic Animals Codes and Manuals. WOAHA has also developed the Performance of Veterinary Services (PVS) Pathway, which is composed of a range of tools to assist countries in the evaluation of the capacities of their veterinary services and in addressing the main gaps.
- FAO is committed to support member countries in strengthening the capacity of their animal health systems to reduce the risk and impact of animal health threats. FAO also promotes a One Health approach as part of agri-food system transformation to anticipate, prevent, detect and control diseases that spread between animals and humans, tackle antimicrobial resistance, ensure food safety, prevent environment-related human and animal health threats, as well as combatting many other challenges impacting food security,
- UNEP is the leading global environmental authority that sets the global environmental agenda and specifically joined the Quadripartite Alliance to strengthen the environmental dimension of One Health. Recognizing the significance of the environment in the One Health framework, UNEP recently joined as fourth partner hosting the National Bridging Workshops in the region.
- The WHO IHR-MEF and the WOAHA PVS Pathway approaches provide the ability for countries to determine strengths and weaknesses in their respective functions and promote prioritization and pathways for improvement. Furthermore, they engage countries in a routine monitoring of their overall level of performance and help to determine their needs for compliance with internationally adopted standards.
- The joint use of WHO IHR-MEF tools and PVS Pathway can result in better alignment of capacity building approach and strategies between human and animal health services of a country. The National Bridging Workshop (NBW) is a three-day workshop which brings together stakeholders from both sectors to work on the linkages between these frameworks and develop joint planning to improve their collaboration.
- The workshop follows a methodology developed by WHO and WOAHA and used in more than countries. The method used is very dynamic and interactive, based on group exercises with a gamified approach and user-friendly materials which enables the identification of synergies, the review of gaps and the development of a joint roadmap between the two sectors.

OBJECTIVES OF THE WORKSHOP AND EXPECTED OUTCOMES

The main objective of the NBW is to provide an opportunity to human health, animal health and environmental health services of the country to review their current collaboration gaps in key technical areas and to develop a joint roadmap of corrective measures and strategic investments to improve the collaborative work at the animal-human-environment interface. The NBWs focus on the following strategic objectives:

- **Increased awareness and understanding** on the IHR-MEF and the WOAAH PVS Pathway, their differences and connections
- **Improved understanding of the One Health approach** and the need for multisectoral collaboration at the animal-human-environment interface.
- **Diagnosis of current strengths and weaknesses** in the collaboration between animal health, human health, and environmental health services for 15 key technical areas
- **Identification of practical next steps** and activities and development of a joint national roadmap to strengthen collaboration and coordination between the three sectors.

The agenda of the workshop is available at [Annex 1](#).



The NBW road poster illustrates the process, with actors from relevant sectors coming together to embark on 7 sessions that lead to the development of a joint NBW Roadmap

REPORT ON THE SESSIONS

From 23 to 25 August 2023, the NBW of Cambodia was held in Siem Reap. The workshop was hosted at the kind invitation of the Government of Cambodia, with organizational support from WHO, WOAAH, FAO and UNEP.

The workshop was attended by 87 participants from key national institutions for One Health with representatives from national, provincial and local district levels. The workshop used an interactive methodology and a structured approach with user-friendly materials, case studies, videos and facilitation tools. All participants received a *Participant Handbook* which comprised of all necessary information such as the objectives of the workshop, instructions for working group exercises, expected outcomes of each session etc. Sessions were structured in a step-by-step process as detailed in the following pages of this report.

OPENING SESSION

Welcoming of the participants and opening remarks were provided by Ms. Rebekah Bell, FAO Representative in Cambodia, Ms Marie-Yon Strucker, UNEP Regional One Health Consultant, Dr Nargiza Khodjaeva, WHO Representative in Cambodia, Dr Andre Furco, WOAAH Regional Representative, Prof Chou Monidarin, Deputy Director General of the General Directorate of Environmental Protection, Ministry of Environment (MOE), Dr Krang Sidonn, Deputy Director of the Department of Communicable Diseases Control, Ministry of Health (MOH) and H.E. Dr Sen Sovann, Secretary of State, Ministry of Agriculture, Forestry and Fisheries (MAFF).

FAO: FAO promotes a One Health approach as part of agri-food system transformation to anticipate, prevent, detect and control diseases that spread between animals and humans, tackle antimicrobial resistance, ensure food safety, prevent environment-related human and animal health threats, as well as combatting many other challenges impacting food security. Cambodia has showed its long-standing toward implementation of One Health approach and it is critical to maintain the momentum and develop a roadmap that enhances collaboration between the three sectors.

UNEP : This is the 50th NBW globally and the 3rd with UNEP participation. We increasingly recognize the need for an integrated approach to balance the health of people, animal and ecosystems and promoting a whole of society approach that promotes further collaboration. We look forward to linking to environmental frameworks including the National Biodiversity Strategy and Action Plan (NBSAP) for Cambodia. The Triple Planetary Crisis of climate change, biodiversity loss and pollution and waste threatens our lives, livelihoods, health and wellbeing. No sector can achieve success on its own and thus we must foster more partnerships and collaborations across the sectors.

WHO: COVID-19 was a reminder that when health is at risk, everything is at risk. It is thus critical to follow a One Health approach and we congratulate the Royal Government of Cambodia (RGC) on the establishment of the Inter-ministerial Coordination Committee (IMCC) for One Health. Key duties will include provision of technical coordination on the One Health national strategy with a holistic approach to gender and environmental sustainability. We are proud that the RGC is showing a strong commitment to the One Health approach and leading the way in the region.

WOAH: WOAHA re-emphasized that managing outbreaks and pandemics is not possible alone and requires collaboration across the sectors. This NBW is an opportunity for the three key sectors to review the current collaboration, identify gaps and key technical areas and develop a road map that can jointly reduce risk at the human, animal and environment interface in Cambodia.

The three representatives of MOE, MOH and MAFF all welcomed the NBW as an opportunity to further strengthen the collaboration under a One Health approach. Dr Sen Sovann highlighted that the new Government has already identified 6 priority programmes, including comprehensive expansion of healthcare services and coordination mechanisms of production, especially for agriculture. The NBW and outcomes will be crucial to address these two of 6 priorities. Prof Monidarin recognized that Cambodia faces many environmental challenges including pollution, and solid waste including plastic, industrial and medical waste, which all have an impact at the human, animal and environment interface and should be considered for the One Health approach. Dr Sidonn spoke to the ongoing collaborations specifically for zoonosis and the recent success of the Pandemic Fund proposal. Cambodia was only one of two countries that was successful in the Western Pacific WHO region to secure funds that will support One Health activities. Dr Sen Sovann stressed the need to consider the three UN conventions on climate change (UNFCCC), biological diversity (UN CBD) and to combat desertification (UNCCD) and their linkage to the broader One Health agenda in Cambodia. The establishment of the IMCC is an important step for leadership, coordination and addressing gaps and the outcome of this NBW should be usable for the IMCC to shape national policy for OH. He also emphasized that the One Health programme belongs to Cambodia, and Cambodia is the owner with the support of development partners and the Quadripartite who provide direction. Finally, the Ministries thanked the Quadripartite for their organization of the NBW and their technical support on One Health as well to other development partners for their support.

SESSION 1: THE ONE HEALTH CONCEPT AND NATIONAL PERSPECTIVES

The workshop approach and methodology were presented by Dr Mario Ignacio Alguerno (PVS Pathway Programme Officer and NBW Programme technical focal point, WOAHP Headquarters). It was stressed that the meeting was neither an evaluation nor a training, but a workshop aimed at developing a national roadmap to improve the collaboration between the sectors.

Dr Jessica Kayamori Lopes (Technical Officer, Food Safety and Zoonotic Diseases, WHO Regional Office for the Western Pacific) introduced the One Health Concept, its history, rationale and purpose and how it became an international paradigm. The presentation also introduced the workshop in the global and national context by providing high level background information on the collaboration between WHO, WOAHP, FAO and UNEP.

The three sectors presented their structure, priorities and challenges, as well as ongoing One Health activities and collaboration as follows:

The MOH promotes and engages multi-sectoral and multi-disciplinary collaboration to respond to emerging and re-emerging diseases, including program-specific areas for zoonotic diseases, AMR and food safety. Structure and organogram of MOH was introduced, including National Working Group for Zoonotic Diseases, AMR, multisectoral Foodborne Outbreak Investigation and Response Team (FORT) and coordination mechanisms with other sectors. Activities on the Annual IHR review workshop, disseminating Multi-sectoral Action Plan on AMR 2019-2023 in 2019, National Epidemiology Conference, and joint field investigations on avian influenza A/H5N1 and methanol poisoning were highlighted in the meeting.

The veterinary services and One Health implementation under MAFF were presented by the General Directorate of Animal Health and Production (GDAHP). Capacity building for veterinary services has been strengthened for national and sub-national levels, including village animal health workers, through Cambodian Applied Veterinary Epidemiology Training (CAVET) since 2012. Animal disease reporting system is ongoing in close collaboration with MOH at all levels and the development partners (FAO and WOAHP).

Under One Health approach, GDAHP has been contributing on influenza and other zoonotic diseases, AMR, “Healthy Livestock, Healthy village, Better Life” via Technical Working Groups and Inter-ministerial One Health Committee. Multisectoral coordination mechanism focuses on joint risk-based surveillance of people, livestock and wildlife at high-risk interfaces for zoonotic disease transmission, risk communication, legislation, policy and strategy support, cross-border and bilateral meetings, laboratory, outbreak investigation and response, guidelines and SOPs development, zoonotic disease prioritization, and AMR activities.

The mission of MOE is to lead and manage environmental protection, biodiversity conservation, appropriate and sustainable use of natural resources for the long-term benefit of the people. There are six departments under MOE, involving various sectors and disciplines.

Functions of MOE include developing policies and strategic plans for sustainable development, implementing programs, raising public awareness, dissemination of information related to environmental protection and natural resource management to the public, solid waste management, pollution control and AMR. Strategic environmental assessments of public and private investment projects are also implemented, and environmental protection is managed for water, air and soil quality control, sound and vibration control, and radiation and electromagnetic emission control.

Collaboration is in place with other sectors, local communities and international organizations to ensure environmental protection, biodiversity conservation, appropriate and sustainable use of natural resources and sustainable living.

Outcomes of Session 1:

At the end of the session, the audience agreed that:

- Multisectoral collaboration between animal health, human health and environment sectors happens, but mainly during outbreaks; with a better coordination mechanism and preparedness, much more could be done at the human-animal-environment interface.
- The three sectors have common concerns and challenges and conduct similar activities. Competencies exist and can be pooled. This needs to be organized through a collaborative approach.
- WHO, WOAHA, FAO and UNEP are active promoters of One Health and can provide technical assistance to countries to help enhance multisectoral collaboration at the central, local and technical levels.

SESSION 2: NAVIGATING THE ROAD TO ONE HEALTH – COLLABORATION GAPS

Participants were divided into six working groups of mixed participants from each sector and from different levels (Central, provincial, district). Groups were provided with a case study scenario (Table 1) based on diseases relevant to the local context developed in collaboration with national representatives.

Table 1: Scenarios used for the different case studies

<p><u>Disease X (wildlife [Banteng - <i>Bos Javanicus</i>] die-off and reports of sick people who are in contact)</u></p> <p>During Khmer New Year (April), multiple posts in social media appear with images of dead and decomposing carcasses of the wild cattle species Banteng (<i>Bos Javanicus</i>) in its natural habitat of open dry deciduous forest covering parts of Stung Treng and Preah Vihear provinces. These posts spread very quickly. While Banteng (<i>Bos Javanicus</i>) die-off has been reported earlier, recently several cattle in the region have also died of similar symptoms, including a farmer who died of hemorrhagic and unusual pneumonia symptoms. The community health worker who treated the farmer is now experiencing similar symptoms and has been isolated at the Stung Treng provincial hospital, while his family is under observation for possible onset of symptoms. Testing for known pathogens were all negative. News media reported that the local people are scared about risks to their health.</p>
<p><u>Antimicrobial Resistance (AMR)</u></p> <p>The National Public Health Laboratory (NPHL) is detecting increasing number of co-occurrence of Colistin Resistance (<i>mcr-1</i>) and extended-spectrum β-lactamase encoding genes in <i>Escherichia coli</i> isolated from urinary tract infection in humans in Phnom Penh. A veterinary laboratory in Phnom Penh also reported increasing number of similar resistance pattern in <i>E. coli</i> associated with mastitis in dairy cows in two commercial dairy farms located in the Takeo province.</p>
<p><u>Rabies</u></p> <p>A stray dog which was known to have bitten two cows and was behaving aggressively towards people was reported to have bitten some children in the same neighbourhood. It was shot dead by Police in the outskirts of Battambang two days ago. The carcass of the dog was destroyed before the Veterinary authorities were able to take the head of the dog for confirmation of diagnosis.</p>
<p><u>Avian Flu H5N1</u></p> <p>Two persons were admitted at the Prey Veng Hospital with pneumonia. Laboratory testing by RT-PCR resulted positive for H5N1 subtype of avian influenza. One of the patients is a semi-commercial broiler producer who sells his birds three times a week at the local live bird market. The other patient reported having visited the same market 7 days prior to disease onset and having bought four chickens. The virus has been also found in carcasses of a few Asian Openbill (cormorant) in Cambodia, an endangered bird species. Carcasses of pigs have been found in the nearby Boeng Snae lake as people dispose of them in the open air.</p>
<p><u>Salmonellosis</u></p> <p>90 people in the capital sought medical attention when they suffered high fever, nausea, diarrhoea and severe abdominal pain, 12-36 hours after eating breakfast at a prominent hotel. Of these, 7 (5 children and 2 elderly) were hospitalised. All recovered within a week. The Managing Director of the hotel said that it sourced its eggs from a reputable supplier, and that the hotel stored its eggs according to food safety standards.</p>
<p><u>River ecosystem collapse</u></p> <p>A major die-off event of fish, birds and other freshwater species has been reported in the Mekong river, which is located at the border between two provinces. In a stretch of a total 55 km, the river ecosystem has collapsed entirely. Dead organisms and foam patches with a strong odor are continuing to float down the river, which will affect down-stream villages and cities. This major die-off event has been covered by national and international media and has gone viral on the internet.</p> <p>There are reports of livestock along the river showing botulism-like symptoms. Initial investigations have shown an increased level of salinity in the water. In the region there are untreated wastewater discharges of local communities and few factories. Reports of unsustainable land use practices in watershed that suggest possible water contamination. The situation might be connected to climate change impacts.</p>

Using the experiences from previous events, the groups discussed how they would have realistically managed these situations, and evaluated the level of collaboration between the relevant sectors for 15 key technical areas: coordination, investigation, surveillance, communication, etc. These activities/areas of collaboration were represented by color-coded *technical area cards*: green for “good collaboration”, yellow for “some collaboration”, and red for “collaboration needing improvement” (Figure 1).



Level of collaboration (circle your group's result):			
Coordination at high level:	GREEN	ORANGE	RED
Coordination at local level:	GREEN	ORANGE	RED
Coordination at technical level:	GREEN	ORANGE	RED
Legislation and regulation:	GREEN	ORANGE	RED
Finance:	GREEN	ORANGE	RED
Communication and media:	GREEN	ORANGE	RED
Communication with stakeholders:	GREEN	ORANGE	RED
Field investigation:	GREEN	ORANGE	RED
Risk assessment:	GREEN	ORANGE	RED
Joint surveillance:	GREEN	ORANGE	RED
Laboratory:	GREEN	ORANGE	RED
Response:	GREEN	ORANGE	RED
Education and training:	GREEN	ORANGE	RED
Emergency funding:	GREEN	ORANGE	RED
Human resources:	GREEN	ORANGE	RED



Figure 1: Participants working on a case scenario are evaluating the level of collaboration between the sectors for 15 key technical areas with feedback to plenaries.

During an ensuing plenary session, each group presented and justified the results of their work. Output 1 summarizes the results from each disease group.

Outcomes of Session 2:

- Areas of collaboration were identified, and joint activities discussed.
- Level of collaboration between the three sectors for 15 key technical areas was assessed (Output 1).
- The main gaps in the collaboration were identified.

SESSION 3: BRIDGES ALONG THE ROAD TO ONE HEALTH

Documentary videos introduced the international legal frameworks followed by human health ([IHR 2005](#)) and animal health ([WOAH standards](#)) as well as the tools available to assess the country's capacities: the annual reporting and JEE tools for public health services and PVS Pathway for veterinary services. The differences and connections between these tools were explained. Further discussions on complimentary tools and initiatives comprised the below:

The National Action Plan for Health Security (NAPHS) and its multisectoral nature is critical to ensure national capacities in health emergency prevention, preparedness, response and recovery are planned, built, strengthened and sustained. The NAPHS supports countries in building and sustaining national IHR capacities that have been identified as a priority following IHR assessments including the JEE and will also integrate priorities coming from the IHR-PVS NBW.

WOAH emphasized the importance of the use of the WOA standards and of the PVS Pathway in the implementation of the OH approach. The new PVS Pathway website was presented during this session, as well as a preview of the PVS Information System under development. A state of play of Cambodia's engagement to the PVS Pathway was presented, and the recommendations for next steps were discussed.

The Surveillance Evaluation Tool (SET) is a comprehensive evaluation of all aspects of a national animal disease surveillance system to guide development of surveillance capacities. Evaluation by SET was conducted on 31 July-10 August 2023, with team members consisting of technical staff from General Directorate of Animal Health and Production (GDAHP), FAO Emergency Centre for Transboundary Animal Diseases (ECTAD) in Cambodia and Regional Office for the Asia and the Pacific. Major strengths and recommendations were presented in the meeting.

UNEP presented 2 initiatives in Cambodia, which should be further bridged to IHR and PVS as environmental component in the future: National Ecosystem Assessment (NEA) Cambodia, as well as the National Biodiversity Strategy and Action Plan (NBSAP) for Cambodia, which could be harmonized to incorporate One Health in it.

The National Ecosystem Assessment (NEA) Initiative is a global effort coordinated by UNEP-WCMC aimed at enabling countries to assess the status and drivers of change in biodiversity and ecosystem services. Specifically focusing on Cambodia, the NEA Initiative collaborates with the Royal University of Phnom Penh (RUPP) as the implementing agency and the Secretariat of the National Council for Sustainable Development (MoE). In Cambodia, the NEA initiative assesses multiple ecosystem types, including terrestrial, freshwater, coastal, and marine ecosystems. The assessment places particular emphasis on three key areas: the Eastern Plain, the northern regions of Tonle Sap Lake, and the coastal and marine zones. The results of the NEA Cambodia are expected by the end of the year 2023 and may provide a useful basis for better understanding the status and health of ecosystems in the country and linkages to One Health Work in the future.

A large matrix (IHR-PVS matrix), cross-connecting the indicators of the IHR MEF (in rows) and the indicators of the PVS Evaluation (in columns) was set-up and introduced to the participants (Figure 2).

Through an interactive approach, working groups were invited to plot their *technical area cards* onto the matrix by matching them to their corresponding indicators. A plenary analysis of the outcome showed clear gap clusters and illustrated that most gaps were not disease-specific but systemic.



Figure 2: Mapping of the gaps by positioning the selected cards from all six on the IHR-PVS matrix provides a snapshot of the status of collaboration across technical areas in Cambodia

The main gaps (clusters) identified were discussed, this time on a systemic level (all diseases combined). Overall, we could see that while ‘Coordination at Central Level’ scored above average (except for the management of food-borne diseases), and workforce (explored through ‘Human resources’ and ‘Education and Training’) can be improved but seems already consistent, significant gaps are reported in the collaboration across most technical areas. Notably, some key areas such as finance, surveillance, communication, laboratory, response or risk assessment scored low.

New working groups were made for the second half of the workshop, this time by technical area, to cover all aspects of collaboration where improvement is needed:

- Group 1: Communication
- Group 2: Coordination
- Group 3: Laboratory and Surveillance
- Group 4: Emergency Response and Field Investigation
- Group 5: Education and Training
- Group 6: Finance, Legislation and Human Resource

Additionally, each group were asked to also integrate ‘Human Resources’ aspects related to their designated technical areas.

Outcomes of Session 3:

- Understanding that tools are available to explore operational capacities in each of the sectors was improved.
- Understanding of the contribution of the veterinary sector to the IHR was improved.
- Understanding of the bridges between the IHR MEF and the PVS Pathway was improved. Reviewing together the results of capacities assessment might help in identifying synergies and optimize collaboration.
- Understanding of the environment sector’s synergies with IHR MEF and PVS Pathways was strengthened
- Understanding that most gaps identified are not scenario-specific but systemic was ascertained.

SESSION 4: CROSSROADS – PVS PATHWAY AND IHR MEF REPORTS

New technical area working groups with representation from all previous groups were organized as per the distribution detailed above.

The matrix was used to link the identified gaps to their relevant indicators in the IHR MEF and in the PVS Pathway. Each working group then opened the assessment reports (JEE, PVS Evaluation and SET) and extracted the main findings and recommendations relevant to their technical area (figure 3).



Figure 3: Group are considering the gaps and recommendations made in the Joint External Evaluation (JEE) and in the PVS reports related to the technical areas they are in charge of.

Outcomes of Session 4:

- Participants got a good understanding of the assessment reports for both sectors, their purpose and their structure, and explored links between both assessment reports and environmental protection efforts in Cambodia.
- The main gaps relevant to each technical area and related to coordination and collaboration between sectors were extracted.
- Similarly, main recommendations from the existing reports were extracted.

SESSION 5: ROAD PLANNING

Using the same working groups as for the previous session, participants were asked to identify, for each technical area, priority activities that the sectors should implement to improve their collaboration in the future. This brainstorming used several items as information sources:

- The report sheets from Session 2, which highlight the key gaps for all technical areas and for the different diseases / case studies used.
- The key gaps and recommendations extracted from the JEE, PVS and SET reports during Session 4.
- The technical activity cards, which give several examples of possible joint activities.
- Most importantly, the experiences of all the participants in working on a daily basis in the human health, veterinary and environmental health sectors of Cambodia.



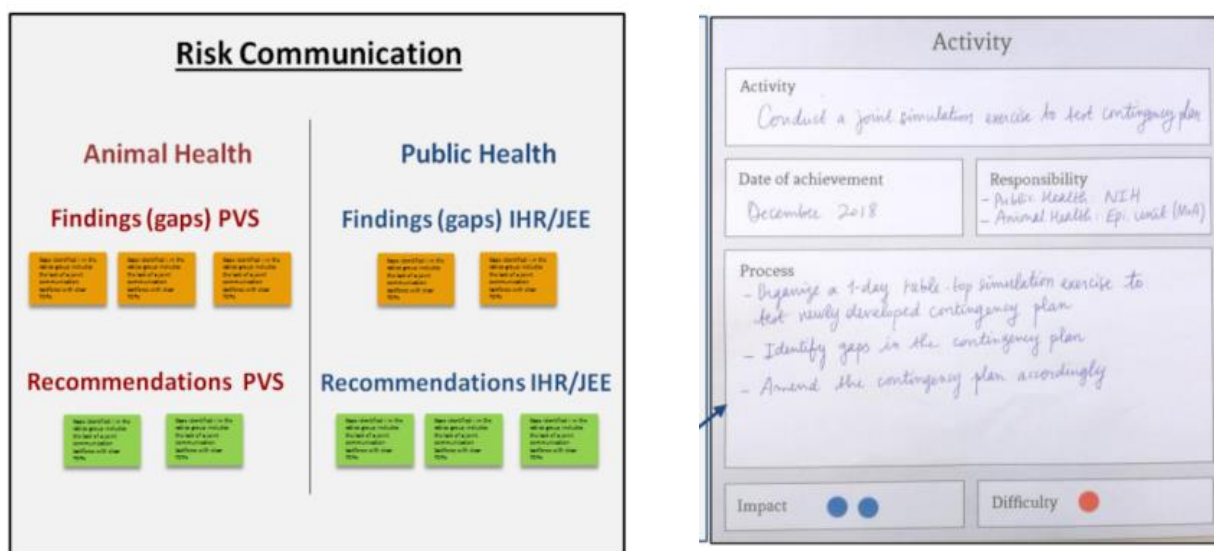
Figure 4: The group working on 'education and training' is using the results of the previous sessions to identify joint activities to improve the collaboration between the sectors in this domain.

Outcomes of Session 5:

- Clear and achievable activities were identified to improve multisectoral collaboration between the sectors for all technical areas selected.

SESSION 6: FINE-TUNING THE ROADMAP

After brainstorming, activities had been discussed and validated with international and national facilitators, participants were asked to fill the *Activity Cards* for each activity, detailing the desired date of implementation, the responsible lead focal points, as well as the detailed process of implementation of an activity, the importance of the identifying an activity that is as operational as possible, with very clear and precise actionable steps.



The difficulty of implementation and the expected impact of each activity were evaluated using red and blue stickers respectively using a semi-quantitative scale (1 for less difficult to implement or less impact to 3 for most difficult to implement or high impact).

Activity cards that were linked (by theme, or by process) were then regrouped under one *Objective card*, to start structuring the roadmap.

A World Café exercise was then organized to enable participants to contribute to the action points of all technical areas (Figure 5). Each group had a rapporteur whose duty was to summarize the results of their work to the other groups. Each group rotated between the different boards to contribute and provide feedback on all technical areas. Rotating groups used the post-it note pad to leave their comments on the objectives and activities of other groups when they felt that an amendment or a clarification was necessary.

At the end of the World Café, each group returned to their original board and the rapporteur summarized the feedback received. Groups were given enough time to address changes or additions suggested by the other participants. Objectives and activities were fine-tuned accordingly.

Overall, the five groups identified a total of 10 key objectives and 33 activities. The detailed results are presented in [Output 2](#).



Figure 5: Participants fill the objective and activity cards to be inserted in the NBW roadmap. The group working on ‘communication’ prioritized 2 objectives and 7 activities. Through a World Coffee exercise, participants from other groups provide comments on post-it, which were taken into account for the finalization of the roadmap.

Prioritization of Objectives

To prioritize the objectives identified by the technical working groups, participants were given five small white stickers each, to identify which five objectives (and their constituting activities) they considered as of highest priority.

A total of 281 votes were cast, with objective ‘develop national one health surveillance’ ranked highest with 47 votes, followed by ‘strengthening OH-RRT at national and intermediate level’ with 43 votes. 2: Raising awareness and knowledge on one Health at localities’ (53 priority votes). Another objective also reached a high score, and was related to Field Investigation, Response and Emergency Funding ‘Objective 9: A institutionalized legal framework for a One Health approach in terms of investigating, responding, and controlling of zoonoses related emergencies (43 priority votes). Each objective received more than 14 votes, highlighting the fact that all components of the roadmap are considered as a priority by a portion of participants.

Objective	Votes
Develop Joint National One Health surveillance (laboratory, epi)	47
Strengthening OH-RRT at national level and intermediate level	43
To Improve and Synergy among Relevant Ministries, Stakeholders in Coordination of Implementing OH Activities	37
To establish sustainable financial mechanisms for OH	35
To develop joint OH training program on disease surveillance investigation and response for relevant ministry/institutes to training of frontline participant	32
Strengthening Inter-sectoral Communication and Community Engagement at National / Sub-national level on One Health	27
Strengthen Environment Dimension of One Health for Cambodia by Scientific Evidence	18
To build the capacity of students trainers and faculty members on OH	14
To improve competency workforce for OH	10
Generate an Enabling Coordination and Collaboration for Effective Risk Communication and Community Engagement Implementation on OH Issues	9
To ensure legal framework for supporting OH implementation	9

Outcomes of Session 6:

- Harmonized, concrete and achievable roadmap to improve the coordination and collaboration between the animal health, human health and environmental sectors in the prevention, detection and response to zoonotic diseases and food safety outbreaks was developed.
- Buy-in and ownership of all participants who contributed to all areas of the roadmap was confirmed.
- Prioritization of the activities was conducted.

SESSION 7: WAY FORWARD

A panel from three sectors: H.E. Dr Ly Sovann (Director, CDC, MoH), Dr Sorn San (DDG, GDAHP, MAFF) and Dr Chou Monidarin (DDG, General Directorate of Environmental Protection, MoE). Dr Tum Sothyra (Director, NAHPRI, MAFF) moderated the panel and provided a brief overview of priorities within the six objectives before asking the panelists' perspectives.

H.E. Dr Ly Sovann accepted all the ideas from all government agencies represented and is looking forward to the NBW report to assist in communicating to senior decision makers within each ministry as well as between ministries. This is particularly important at meetings between MoH and Ministry of Finance, and also at the forthcoming IMCC on One Health meeting. Cambodia has funding for USD 100 million but there are issues about accessing funds in a timely fashion, this will be achieved step by step with some patience needed.

As a final thought, he proposed organizing an advocacy workshop to present findings and roadmap to the newly installed Ministers in the new government to convince them.

Dr Sorn San highlighted the frank, patient, constructive opinions and views shared over the past days. He concurred with the objectives of the road map, but also stressed the need for more engagement with the environment sector and academia (including CAMBOHUN). He reiterated the importance of having the NBW workshop report to be a resource at the IMCC on One Health. He thanked the quadripartite partners for organizing the workshop and proposed a follow-up NBW for Cambodia in three years.

Prof. Chou Monidarin supports multi-sectoral interventions of the One Health approach focusing on human resources, financial resources and plans of action, convinced that collaboration of Ministries is essential. He is concerned regarding depletion of resources and how to guarantee sustainability of natural resources since it is essential to health.

He anticipates that the environment can be more fully integrated into the IHR and PVS evaluation, and also non-communicable diseases, toxins and climate change. This needs to be a joint effort – public health, animal health and particularly more attention to what the environment can contribute.

Outcomes of Session 7:

- Way forward for the implementation of the roadmap was presented and discussed.
- Ownership of the workshop results by the country was confirmed.

All the material used during the workshop, including movies, presentations, documents of references, results from the working groups, photos, videos were uploaded on a shared drive with a link shared to all participants (accessible at:

https://drive.google.com/drive/folders/1qwJN2T7-WR5hcLncs9O4XAcFI0BvFXb7?usp=share_link

WORKSHOP OUTPUTS

OUTPUT 1: ASSESSMENT OF LEVELS OF COLLABORATION FOR 15 KEY TECHNICAL AREAS

Technical area	Salmonellosis	Rabies	AMR	H5N1	Disease X	Ecosystem collapse	Score
Coordination at high Level	0	2	2	2	1	2	9
Coordination at local Level	0	1	1	1	1	1	5
Coordination at technical Level	1	0	1	0	1	2	5
Legislation / Regulation	1	1	1	2	0	1	6
Finance	0	1	0	0	0	0	1
Communication w/ media	1	1	0	1	1	1	5
Communication w/ stakeholders	1	0	1	0	1	0	3
Field investigation	0	2	0	0	1	2	5
Risk assessment	1	1	0	0	2	0	4
Joint surveillance	0	1	1	0	1	1	4
Laboratory	0	0	0	0	2	1	3
Response	1	0	0	1	1	1	4
Education and training	2	1	1	1	2	0	7
Emergency funding	1	2	1	1	0	1	6
Human resources	2	1	1	1	2	1	8

For each disease, the performance of the collaboration between the human health and the animal health sectors is color-coded: green for “good collaboration”, yellow for “some collaboration”, and red for “collaboration needing improvement”. The score uses a semi-quantitative scale (2 points for a green card, 1 for a yellow card and 0 for a red card).

OUTPUT 2: NBW ROADMAP - OBJECTIVES AND ACTIONS IDENTIFIED PER TECHNICAL AREAS

Difficulty of implementation: Low +, Moderate ++, Very difficult +++

Impact: Low impact +, Moderate impact ++, High impact +++

Action	Timeline	Difficulty (1-3 scale)	Impact (1-3 scale)	Responsibility	Process
COMMUNICATION					
Objective 1: Strengthening Inter-sectoral Communication and Community Engagement at National / Sub-national level on One Health [27 votes]					
1.1. Establish communication and community engagement TWG in OH committee at sub-national level	by 2024/Q4	++	+++	OH committee, MAFF, MoE, MoH, Mol	official request to individual ministries orientation meeting/workshop on TWG assign focal point to join multi-sectoral TWG/committee develop ToRs update OH committee
1.2. Develop SOP for risk communication and community engagement TWG at national and sub-national level	by 2025	+	+++	Multi-sectoral TWG (MAFF, MoE, MoH)	hire consultant (inputs & assessment from TWG) looking supports (<i>sic</i>) (financial & technical) from project partners pilot SOP with the stakeholders assess & review SOP development partners
1.3. Conduct regular meetings for risk communications and community engagement TWH (quarterly and annually)	as soon as possible (by 2025)	+	+++	Multi-sectoral TWG	discuss ToR of TWG leadership & organisation meeting rotation among multi-sectoral TWG Participating & steering
Objective 2: Generate an Enabling Coordination and Collaboration for Effective Risk Communication and Community Engagement Implementation on OH Issues [9 votes]					
2.1. To develop standard SOP/guideline for information management (rumour, fake news, misinformation)	2025	++	+++	TWG (MAFF, MoE, MoH)	individual meeting within the ministries joint meeting with all the stakeholders to discuss SOP content pilot SOP evaluate & update (mid-term review every 3 years, final evaluation every 5 years)
2.2. To conduct simulation exercise on OH issues communication	2025	+	+++	TWG	following the developed SOP identify stakeholders to participate assess & improve SOP
2.3. To update regularly OH issues information through all networks and channel for primary prevention and control (TWG, central, national, sub-national)	2025	+	+++	TWG (MoH, MoE, MEF) MAFF	organise workshop on OH issues combine updating information to relevant channels organise dissemination workshop joint press release radio, TV, website
2.4. To conduct forum and public campaign on OH issues	2025	++	+++	MoH, MAFF, MoE	develop contents for public campaign identify participant and audience location selection and ITC platform

COORDINATION

Objective 3: To Improve and Synergy among Relevant Ministries, Stakeholders in Coordination of Implementing OH Activities [37 votes]

3.1. Establish OH strategy and policy framework	2025/Q4	+	++	MAFF-OHC, MoH-OHC, MoE-OHC, MEF	meeting on OH SPF working group allocation work on draft of SPF review relevant OH documents draft of SPF consultative workshop finalise dissemination workshop
3.2. Revise and approval on Inter-Ministry OH Committee or OHWG	end 2024	++	+	OH working group. 3 ministries (MAFF, MoH, MoE) & MEF	meeting OH working group review and revise IMCC (addition of MEF) consultation meeting approval from cabinet
3.3. Develop SOP on joint coordination for OH	end 2025	+	++	OH working group & relevant dept (MAFF, MoE, MoH) & Development partners (quadripartite)	meeting OH working group devise allocate work on draft of SOP review relevant SOP documents draft SOP consultation workshops final workshops dissemination workshops
3.4. Revise FORT SOP (2015)	2024/Q1	+	+	FORT	meeting national FORT national FORT workshop for review & revise SOP provincial workshop for review & revise SOP final workshop
3.5. Establish CAEW	2027/Q4	+	++	MAFF, MEF	recruit the CAEW train them on OH Follow-up Refresher training create network & reporting system mechanism

Objective 4: Strengthen Environment Dimension of One Health for Cambodia by Scientific Evidence [18 votes]

4.1. Environmental quality assessment in 72 Protected Areas (biodiversity & ecosystem, pollution impact to human, animal and environment (air, soil, water))	2025 - 2028	++	+++	lead by OH of MoE; collaboration MoH, MAFF and development partners	identify site for data collection in 72 PAs sampling & analysis air, soil, water collect information of animal and human health in study sites analysis of data and reporting consultative workshops to finalise funding dissemination
4.2. Recommendation report for upstream prevention measure on One Health, zoonotic diseases, AMR, pollution (chemical, waste)	2029	+	++	lead by OH of MoE; collaboration MoH, MAFF and development partners	using of finding from assessment meeting national WG of OH to prepare recommendation draft recommendation workshop to consult & finalise dissemination and education campaign to community

EMERGENCY RESPONSE AND FIELD INVESTIGATION

Objective 5: Strengthening OH-RRT at national level and intermediate level [43 votes]

5.1. Establish OH-RRT	2023	++	+++	MOH, MAFF, MOE, authority, MOEF, MOI	Recruit local consultancy to draft TOR of OH-RRT consultative workshop to review the draft of TOR Request the endorsement from relevant ministries Revide IMCC
5.2. Establish SOP+TOR and Risk assessment	2024	++	+++	MOH, MAFF, MOE, authority, MOEF, MOI	Recruit local consultancy work with relevant ministry Draft SOP, TOR and Risk assessment Tool Consultative workshop and Risk assessment Dissemination workshop and Risk assessment
5.3. Training and simulation exercise	2024	+	+++	MOH, MAFF, MOE, authority, MOEF, MOI	Current situation (US-CDC drawing training program on One Health FETP) Training TOT Expand the training on OH to national and intermediate level Simulation exercise and consultative workshop to review Workshop and simulation exercise (every year)

LABORATORY AND SURVEILLANCE

Objective 6: Develop Joint National One Health surveillance (laboratory, epi) [47 votes]

6.1. Enhance laboratory and Epidemiology Capacity	2024 - 2026	++	+++	MoH, MoE, MAFF & development partners	conduct consultative workshops develop One Health surveillance plan conduct training on One Health surveillance to all stakeholders (collection, transportation, detection, analysis, epidemiology..) conduct One Health activities 5 zoonoses, AMR, foodborne conduct training on 5 zoonoses, AMR, foodborne to reporting mechanisms to village animal health workers (VAHW) improve structural, intellectual capacity for lab & environmental contamination
6.2. Enhance laboratory and Epidemiology Capacity (sic)	2024 -2027	+	+	MoH, MoE, MAFF	enforce national lab to achieve international lab standard enhance laboratory collaboration between national/international laboratories integrate MoE into Cam-EMS establish mechanism for One Health information sharing conduct training for lab management systems
6.3. Establish One Health rapid response team	Annual	+	+++	MoH, MAFF, MoE	conduct workshop to assign rapid response team from national/sub-national level to define ToR/SOP develop plan for simulation exercise (table top / functional) conduct simulation exercise for One Health surveillance (routine)
6.4. Establish biobank facility for One Health disease	3 years	+++	+++	MoH, MoE, MAFF	build facility for storage (power supply, equipment) establish management system / elimination (sic) build storage capacity (human, equipment, method)

					building SOPs for biospecimen management
6.5. Develop action plan for One Health surveillance	2024 - 2025	++	+++	MoH, MoE, MAFF & development partners	conduct assessment activities for One Health draft & prepare action plan for One Health conduct workshops for One Health surveillance plan conduct SOP/ guideline conduct animal activities follow by the plan
6.6. Establish national standard sample transportation system	2024 - 2025	+	++	MoH, MoE, MAFF & partners	establish referral sample delivery system training staff for packing and transportation identify & train carriers
EDUCATION AND TRAINING					
Objective 7: To develop joint OH training program on disease surveillance investigation and response for relevant ministry/institutes to training of frontline participant [32 votes]					
7.1. Evaluate to move to joint OH frontline training (MoH , MAFF, MOE and other relevant stakeholders)	Q1/2024	+	+	IMCC (Inter-Ministerial Coordination committee)	Meeting with relevant stakeholders Present/briefing current situation what is already in-place establish proposals to integrate training Discus pros and con decide
7.2. Curriculum adaptation for OH frontline	Q1-Q2/2024	++	++	OH TWG	Preparation of curriculum share to relevant stakeholder/member Request for endorsement
7.3. Training of Trainer (TOT) for OH frontline (approximately 10 people)	Q3/2024	++	++	OH TWG	Recruiting/selecting focal points invite expert for TOT training (invite by TWG) Learning and teaching methodology Methorship
7.4. Leaching first OH frontline training course	Q4/2024	++	++	OH TWG	Develop training plan Develop selection criteria select transfers define participants Simulation exercise
Objective 8: To build the capacity of students trainers and faculty members on OH [14 votes]					
8.1. To build the capacity of students trainers and faculty members on OH	Q4/2025	++	+++	IMCC	Adapt existing platform (CAMBOHUN, RUA study tour) Oh curriculum to integrate into pre-service training institution/academia and Simulation exercise Curriculum harmonization for all relevant institutes/academia Expand to other universities/institutes in countrywide (consider to include into secondary/high school curriculum, and consider other ministries (Ministry of Education, Ministry of Interior, Ministry of economic) Establish OH centro to support OH TWG (Who lead)

FINANCE, LEGISLATION AND HUMAN RESOURCE

Objective 9: To establish sustainable financial mechanisms for OH [35 votes]

9.1. Strengthen Capacity of IMOHC secretariat for resources mobilization from both RGC and DPS (Harmonized process and procedure for budget planning, request and allocation.	Q4/2025	++	++	IMOHC (Establish the secretariat)	Training to IMOHC secretariat on identify topics Identify potential donors including private sector Access to funding
9.2. Develop OH National Strategic Plan and costing (5y)	Q4/2024	+	+++	Interministerial OH committee	Recruit consultant
9.3. Develop evidence-based advocacy brief on OH for political leaders and decision makers	Q2/2024	+	+++	Interministerial OH committee	Recruit consultant to develop advocacy brief finalize and endorsed OH committee advocacy brief to political leader and decision maker (Share it with Deputy priminister and stakeholders, private sector to provide feedback.
9.4. To advocate to policy makers and political leaders using advocacy brief	Q4/2024	+++	+++	Interministerial OH committee	IMOHC to advocate to the Royal Government using appropriate platforms.

Objective 10: To ensure legal framework for supporting OH implementation [9 votes]

10.1. OH legal framework review (AMR, Food safety, Zoonotic)	Q2/2024	++	++	Interministria OH committee	Recrute consultant (Based on legal framework of AMR experience)
10.2. Develop, revise and endorse all needed legal document based legal framework review results	Q4/2024	+++	+++	Interministerial OH committee & Key Stakeholders	Recruit consultant

Objective 11: To improve competency workforce for OH [10 votes]

11.1. Request new staff based on HR planning	Q4/2024	+++	+++	Interministerial OH committee	Establish a request letter to the government.
11.2. Capacity building based on training need assessment (In-service)	On-going	+	+++	Interministerial OH committee	TOR development, Worksplan, Technical assistance Recruit consultants, training materials/curriculum Training/workshop coaching
11.3. Develop/revise HP manual (SOP, TOR..)	Q4/2024	+	+++	Interministerial OH committee	Develop TOR hired consultant/s Consultancy work plan and timeline Meeting Drafting HR manual (SOP, TOR) Finalizing HR manual

11.4. Develop HR planning for OH (Staff)	Q4/2024	+	+++	Interministerial OH committee	Develop TOR Recruit consultant Consultancy work plan and timeline- Meeting Draft of HR planning Consultative workshops Finalize HR planning based on comment/inputs from workshop
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Difficulty of implementation: Low +, Moderate ++, Very difficult +++

Impact: Low impact +, Moderate impact ++, High impact +++

WORKSHOP EVALUATION

An evaluation questionnaire was completed by 64 participants to collect feedback on the relevance and utility of the workshop.

Workshop evaluation	'Satisfied' or 'Fully satisfied'	Average score (/4)
Overall assessment	95.3%	3.1
Content	93.7%	3.2
Structure / Format	90.6%	3.3
Facilitators	92.2%	3.3
Organization (venue, logistics, ...)	93.7%	3.3

Participants had to choose between 1=Highly unsatisfied – 2=Unsatisfied – 3=Satisfied – 4=Highly satisfied

Impact of the workshop on...	'Significant' or 'Major'	Average score (/4)
Your technical skills / knowledge	89.1%	3.0
The work of your unit/department	92.2%	3.1
The intersectoral collaboration in Cambodia	78.1%	2.9

Participants had to choose between 1=No impact at all – 2=Minor impact – 3=Significant impact – 4=Major impact

Satisfaction rate for each session						
Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7
3.2	3.2	3.2	3.1	3.5	3.2	3.3

Would you recommend this workshop to other countries?	
Absolutely	65.6%
Probably	23.4%
Likely not	7.8%
No	1.6%

APPENDIX

ANNEX 1: WORKSHOP AGENDA

DAY 1: 23 August 2023	
08:00 - 08.30	Registration of participants
08.30 - 9.30	<p><u>Opening Ceremony</u></p> <p>Representative of the Quadripartite</p> <ul style="list-style-type: none"> • FAO Representative - Ms Rebekah Bell • UNEP Regional Representative - Ms Marie-Yon Strücker • WHO Representative - Dr Nargiza Khodjaeva • WOAHA Regional Representative - Dr Andre Furco <p>Representative of the Ministries</p> <ul style="list-style-type: none"> • MoE: Prof Chou Monidarin, Deputy Director General of the General Directorate of Environmental Protection • MoH: Dr Krang Sidonn, Deputy Director of the Department of Communicable Diseases Control • MAFF: H.E. Dr Sen Sovann, Secretary of State <p>Group Picture</p>
9.30 – 10:00	Tea break
10.00- 12.00	<p><u>Session 1: Workshop Objectives and National Perspectives</u></p> <p>The first session sets the scene by providing background information on the One Health approach and the subsequent quadripartite FAO-UNEP-WHO-WOAH collaboration. It is followed by comprehensive presentations from MOH, MAFF and MOE. Followed by a documentary that provides concrete worldwide examples of fruitful multisectoral collaboration, showing how relevant sectors share a lot in terms of approaches, references and strategic views.</p> <ul style="list-style-type: none"> • Introduction of participants - Mentimeter • Workshop approach and methodology (10') - Dr Mario Alguerno WOAHA • One Health collaboration and vision (10') - Dr Jessica Kayamori Lopes WHO • Public Health Services and One Health (10') - Dr Krang Sidonn • Veterinary Services and One Health (10') - Dr Sorn San • Environment sector and One Health (10') - Prof Chou Monidarin • Video 1: Driving successful interactions (15')
Lunch (12:00-13:30)	
13.30 – 17.00	<p><u>Session 2: Navigating the road to One Health</u></p> <p>Session 2 divides participants in working groups and provides an opportunity to work on the presented concepts. Each group will have central and provincial representatives from both sectors and will focus on a fictitious emergency scenario. Using diagrammatic arrows to represent the progression of the situation, groups will identify joint activities and areas of collaboration and assess their current functionality using one of three color-coded cards (green, orange, red).</p>

	<ul style="list-style-type: none"> • Presentation and organization of the working group exercise (15') • Working groups by case scenarios (120') • Coffee break • Restitution from working groups (75')
Expected outcomes of Sessions 1 and 2:	
<ul style="list-style-type: none"> • <i>Understanding of the concept of One Health, its history, its frameworks and its benefits.</i> • <i>Understanding that a lot of areas for discussion and possible improvements do exist and can be operational - not only conceptual.</i> • <i>Level of collaboration between the two sectors for 16 key technical areas is assessed.</i> • <i>Collaboration gaps identified for each disease.</i> 	
17.00 – 18.30	Facilitators and moderators only: Briefing Session 3-4-5 and compilation of results from Session 2

DAY 2: 24 August 2023	
08.30 - 11.20	<p><u>Session 3: Bridges along the road to One Health</u></p> <p>Session 3 presents the tools from both sectors (IHR MEF, JEE, PVS) and uses an interactive approach to map activities identified earlier onto a giant IHR-PVS matrix.</p> <p>This process will enable to visualize the main gaps, to distinguish disease-specific vs systemic gaps and to identify which technical areas the following sessions will focus on.</p>
	<ul style="list-style-type: none"> • Video 2: IHR Monitoring and Evaluation Framework • Video 3: PVS Pathway • Video 4: IHR-PVS Bridging • Mapping gaps on the IHR/PVS matrix • Overview of SET in Cambodia Makara Hak FAO-Cambodia • NAPHS overview Fred Copper WHO • Discussion – Plenary
Expected outcomes of Session 3:	
<ul style="list-style-type: none"> • <i>Understanding that tools are available to explore capacities in each of the sectors.</i> • <i>Understanding of the contribution of the veterinary sector to the IHR.</i> • <i>Understanding of the bridges between the IHR MEF and the PVS Pathway.</i> • <i>Identification of the technical areas to focus on during the next sessions.</i> 	
11:20 - 12:40	<p><u>Session 4: Crossroads - IHR MEF, JEE and PVS Pathway reports</u></p> <p>Participants will be divided into working groups by technical topic (surveillance, communication, coordination, etc.) and will explore the improvement plans already proposed in the respective assessments (IHR annual reporting, JEE, PVS Evaluation, SET, etc.), extract relevant sections and identify what can be synergized or improved jointly.</p>
	<ul style="list-style-type: none"> • Presentation and organization of the working group exercise • Extract main gaps and recommendations from the PVS, IHR and SET reports (including the JEE), in relation to gaps identified on the matrix
Lunch (12:40-14:00)	
14:00 - 14:30	<u>Session 4 (continued)</u>
	<ul style="list-style-type: none"> • Extract main gaps and recommendations from the PVS, IHR and SET reports (including the JEE), in relation to gaps identified on the matrix (continued, 30')
Expected outcomes of Session 4:	
<ul style="list-style-type: none"> • <i>Good understanding of the assessment reports, their purpose and their structure.</i> 	

<ul style="list-style-type: none"> • <i>Main gaps and recommendations from existing reports have been extracted.</i> • <i>A common understanding of the effort needed starts to emerge.</i> 	
14:30–17:15	<p>Session 5: Road planning</p> <p>Participants will use the results obtained from the case studies and from the assessment reports to develop a realistic and achievable road-map to improve the collaboration between the sectors.</p>
	<ul style="list-style-type: none"> • Presentation and organization of the working group exercise • Identification of Activities (Working groups by technical topic)
<p>Expected outcomes of Session 5:</p> <ul style="list-style-type: none"> • <i>Clear and achievable activities are identified to improve inter-sectoral collaboration between the two sectors for all technical areas selected.</i> 	
17.15 – 19.00	<p>Facilitators only: Compilation of results from Session 5 (drafting of the road-map) and preparation of Session 6</p>

DAY 3: 25 August 2023	
9:00 - 12:30	<p>Session 6: Fine-tuning the roadmap</p> <p>The objective of Session 6 is to have all participants contribute to all technical areas and to consolidate the joint-road map by making sure it is harmonized, concrete and achievable.</p>
	<ul style="list-style-type: none"> • Fine-tuning of the road map: Objectives and filling out of Activity cards • <i>Coffee break</i> • World Café • Presentation of the prioritization vote • Prioritization vote (during lunchtime)
<p>Expected outcomes of Session 6:</p> <ul style="list-style-type: none"> • <i>Harmonized, concrete and achievable road-map.</i> • <i>Timeline, focal points, needed support and indicators have been identified for each activity.</i> • <i>The impact and the difficulty of implementation of proposed activities have been estimated.</i> • <i>Buy-in and ownership of all participants who contributed to all areas of the road-map.</i> • <i>Prioritization of the activities.</i> 	
Lunch (12:30-13:30)	
13:30 - 15:30	<p>Session 7: Way forward</p> <p>In the last session, representatives from the key Ministries take over the leadership and facilitation of the workshop to discuss with participants about the next steps and how the established roadmap will be implemented. Linkages with other mandated plans such as the National Action Plan for Health Security are discussed. This is also where any need from the country can be addressed. This will depend greatly on the current status of the country in terms of IHR-MEF and on the level of One Health capacity.</p>
	<ul style="list-style-type: none"> • Overview of the results of the prioritization vote (joint roadmap) • Panel discussion <ul style="list-style-type: none"> - MAFF: Dr Sorn San - MoE: Prof Chou Monidarin - MoH: H.E. Dr Ly Sovann • Next steps • <i>Coffee break</i>
<p>Expected outcomes of Session 7:</p> <ul style="list-style-type: none"> • <i>Linkages with other national action plans (e.g. NAPHS, AMR, etc.)</i> • <i>Identification of immediate and practical next steps.</i> • <i>Identification of opportunities for other components of the IHR-MEF.</i> 	

15:45 - 16:30	<u>Closing Session</u> <ul style="list-style-type: none">• Evaluation of the workshop• Closing ceremony

ANNEX 2: LIST OF PARTICIPANTS

MINISTRY OF AGRICULTURE FORESTRY AND FISHERIES

No	Name	Sex	Position	Institution
1	H.E Sen Sovann	M	Secretary of state	MAFF
2	Mr Seak Pheap	M	Officer of MAFF	MAFF
3	Mr Tem Sophol	M	Officer of MAFF	MAFF
4	Dr Sorn San	M	Deputy Director General	GDAHP
5	Dr Heng Morany	F	Deputy Director General	GDAHP
6	Ms Phauk Khun	F	Internation Cooperation Officer	GDAHP
7	Dr Tep Bengthay	M	Director of Department of Animal Production (DAP)	GDAHP
8	Mr Ung Bunsong	M	Vice chief of Surveillance Monitoring and Against Disease Office	GDAHP
9	Mr Sin Grandy	M	Facilitator & Vice Chief office of Zoonotic Disease control DAHVPH	GDAHP
10	Ms Eath Many	F	Internation Cooperation Officer	GDAHP
11	Mr Sat Phirun	M	GDAHP officer	GDAHP
12	Mr Ho Bunyeth	M	Communication focal point for WOAHA	GDAHP
13	Mr Yourk Vannak	M	Chief of Research and Inspection Office	GDAHP


No	Name	Sex	Position	Institution
14	Mr Mam Somony	M	Officer of Department of Animal Production (DAP)	GDAHP
15	Dr Tum Sothyra	M	Director of ANHPRI	NAHPRI
16	Dr Ren Theary	F	Deputy Director of NAHPRI	GDAHP
17	Mr Long Ritthy	M	Deputy Director of NAHPRI	NAHPRI
18	Dr Seng Bunnary	F	Head of Virology	NAHPRI
19	Dr Sok Koam	F	Head of Baterology	NAHPRI
20	Mr Koeut Dina	M	Vice chief of Epidemiology and Information Analysis Office	NAHPRI
21	Mr Krean Sokhom	M	Epidemiology unit	NAHPRI
22	Ms Chem Kanhchara	F	Vice chief of virology unit	NAHPRI
23	Mr Theng Kouch	M	Vice Dean, Faculty of Veterinary	RUA
24	Mr Sear Borin	M	Officer of Department of Animal Science and Veterinary Medicine	PNAI (Preak Leap)
25	H.E Hem Virac	M	Director of Kampong Cham National Agriculture Institute	KNAI (Kampong Cham)
26	Mr Kreng Samath	M	Chief of OAHP, Kampong Chhnang	Kampong Chhnang
27	Mr Chhim Sonear	M	Vice Chief of OAHP, Kampong Spue	Kampong Spue
28	Mr Chen Visal	M	Chief of Animal Health and Production	Prey Veng
29	Mr Meng Sothy	M	Deputy Director of PDAFF	Takoe

No	Name	Sex	Position	Institution
30	Tou Kimsoth H	M	Director	PD/FF
31	Prum Vich H	M	OATP S/R	u
32	Sim Phorn H	M	OATP - SR	PD/FF

No	Name	Sex	Position	Institution
1	Dr Chheang Dany	M	Deputy Director General, Forestry Administration (FA)	FA
2	Mr Chheav Sopheaktra	M	Deputy Director, Department of Wildlife and Biodiversity, DWB, FA	FA
3	Mr Vann Vean	M	Vice Chief of Habitats Management and Nature- based Tourism Office, DWB, FA	FA
4	Mr Nhan Bunthan	M	Chief of Wildlife Rescue, Husbandry and Game Hunting Office, DWB, FA	FA
5	Mr Heng Kimchhay	M	Deputy Director, Department of Wildlife and Biodiversity, DWB, FA	FA
6	Mr Chhoun Vanna	M	Deputy Director General, Forestry Administration (FA)	FA
7	Mr Pang Phanet	M	Chief of Wildlife Protection and Biodiversity, DWB, FA	FA

MINISTRY OF ENVIRONMENT

No	Name	Sex	Position	Institution
1	Dr Chou Monidarin	M	Deputy Director general	MoE
2	Mr Son Virak	M	Deputy Chief office	MoE
3	Mr Meun Meakara	M	Deputy Director general	MoE
4	Mr Soum Punlork	M	Chief Bureau	MoE
5	Ms Huot Syradeth	F	Chief Bureau	MoE
6	Ms Yin Voleak	F	Vice-chief bureau	MoE
7	Mr Om Mactheary	M	Director of Provincial Department	MoE-Kampong Speu
8	Mr Tuy Saron	M	Deputy Director of Provincial Department	MoE-Prey Veng
9	Mr So Chantha	M	Deputy Director of Provincial Department	MoE-Takeo
10	Mr You Sokum	M	Deputy Director of Provincial Department	MoE-Kampong Chhnang

11 Khaem Sokun Useth  Siem Reap

MINISTRY OF HEALTH

No	Names	Sex	Positions	Working Places
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I. List of Participants for National

1	HE Dr. Ly Sovann	M	Director	CDC-MoH
2	Mr. Moch Kompheak	M	Assistant	Ministry of Health
3	Dr. Lak Muyseang	F	Deputy-Director	PMD-MoH
4	Dr. Lim Ratanak	M	Deputy-Director	DDF-MoH
5	Prof. Kim Savoun	M	Deputy-Director	DHS-MoH
6	HE Prof. Chhea Chhorvann	M	Director	NIPH
7	Mr. Sek Sokna	M	Vice-chief of HIS	DPHI-MoH
8	Dr. Lak Leng	M	Deputy-Director	NCHP
9	Dr. EANG Rothmony	M	Vice-rector	UHS

1	Dr. Yi Sengdoeurn	M	Deputy Director	CDC-MoH
2	Dr. Teng Srey	F	Deputy-Director	CDC-MoH
3	Mr. Sok Samnang	M	Deputy Director	CDC-MoH
4	Dr. Chan Vuthy	M	Vice-Chief of Surveillance	CDC-MoH
5	Mr. Kuoch Sokdararith	M	officer	CDC-MoH
6	Mr. Im Piseth	M	officer disaster and environment health office	PMD-MoH
7	Ph.Kak Nika	F	officer	DDF-MoH
8	Ph. Chhim Tony	M	Officer of Food Safety inspector bureau	DDF-MoH

10	Dr. Krang Sidonn	F	Deputy-Director	CDC-MoH
11	Dr. Nay Touch	M	officer	CDC-MoH

No	Names	Sex	Positions	Working Places
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I. List of Participants for National

9	Dr. Sim Sansam	F	Vice Chief of Quality Assurance office	DHS-MoH
10	Ph. Sam Sopheap	F	Chief of BMLS	DHS-MoH
11	Mr. Un Samnang	M	officer	NIPH
12	Dr. Lon Thanvuth	M	Vice-Chief of Technical Bureau	NCHP
13	Mr. Un Hemaline	M	Deputy-Director	Deputy-Director, Department of Customs Procedure, GDCE
14	Mr. Chheang Puthea	M	Deputy-Director	Dep Director, Department, Min of Tourism (MoT)

No	Names	Sex	Positions	Working Places
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I. List of Participants for Provincial

1	HE Dr. Voeung Bunreth	M	Director	Battambang PHD
2	Dr. Seng Sopharun	M	Deputy-Director	Kampong Cham PHD
3	Dr. Nhea Sithan	M	Deputy-Director	Takeo PHD
4	Dr. Hem Bellnaly	M	Chief of PCDC	Svay Rieng PHD
5	Dr. Sing Rithyret	M	Deputy-Director	Siem Reap PHD

OTHER SECTORS

No	Names	Sex	Positions	Working Places
I. List of Participants for National				
12	Mr. Mao Thira	M	Director	Min of Industry, Science, Technology, and Innovation (MISTI)
13	Mr. Sin Sideth	M	Deputy-Director	Min of Commerce (MoC)

PROVINCIAL GOVERNORS

No	Names	Sex	Positions	Working Places
I. List of Participants for Provincial				
1	Dr. Pin Prakad	M	Deputy-Provincial governor	Provincial governor Siem Reap
2	TIN SARAYUTH	M	Provincial governor Deputy	Provincial governor Battambang
3	HE Han Kosal	M	Deputy-Provincial governor	Provincial governor KampongCham
4	Ms. Kea Sopou	F	Deputy-Provincial governor	Provincial governor Takeo
5	HE Toch Polyva	M	Deputy-Provincial governor	Provincial governor Svay Rieng

SECRETARIAT AND DEVELOPMENT PARTNERS

No	Names	Sex	Positions	Working Places
I. List of Participants for NGOs				
1	Dr. Jessica Kayamori Lopes	F	TECHNICAL OFFICER	WPRO
2	Mr Frederik Copper	M	Technical officer	WHO HQ
3	Dr. Sarika Patel	F	Acting WHE lead	WHO
4	Dr. Kab Vannda	M	Technical Officer	WHO
5	Dr Jeffrey Gilbert		Consultant	WHO KHM
6	Mr. Ieng Vanra	M	Technical Officer	WHO
7	Ms. Chea Soponnak	F	Consultant	WHO
8	Ms. Sakhan Phallen	F	Assistant	WHO
9	Dr. Alyssa Finlay	F	DGHP Director	US-CDC

33	Penngap Matyong	F	consultant	WOAH
34	Kelsey Galantich	F	WOAH consultant	WOAH
35	Mario Alguero	M	WOAH-HQ Facilitator	WOAH
36	Anarejoco	F	Facilitator WOAH-SRR-SEA	WOAH

No	Name	Sex	Position	Institution
1	Ms Rebekah Bell	F	FAO Representative in Cambodia	FAO-CMB
2	Mr Oum Kasol	M	Assistant FAOR (Programs)	FAO-CMB
3	Ms Yin Myo Aye	F	Regional One Health Specialist	FAO-RAP
4	Mr Makara Hak	M	Technical Advisor (Animal Health)	FAO-CMB
5	Ms Chakrya Khieu	F	Project Associate (Admin and Operations)	FAO-CMB
6	Mr Sideth Dith	M	Technical Associate (National Animal Health and ASF)	FAO-CMB
7	Mr Sokhim Ol	M	Technical Associate (Antimicrobial Resistance/Use)	FAO-CMB
8	Mr Pisey Oum	M	National Project Coordinator	FAO-CMB

No	Names	Sex	Positions	Working Places
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I. List of Participants for NGOs

10	Dr. Bun Sreng	M	Public Health Specialist	US-CDC
11	Dr. Lim Huy	M	GHS Coordinator	US-CDC
12	Dr. Nop Sotheara	M	<i>Development Assistance Specialist for D</i>	USAID
13	Dr. Sam Eng	F	Senoir EOC program manager	PSI/C
14	Dr. Bettina Ruehe	M	Health advisor	GIZ
15	Dr. Ung Prahors	M	Health advisor	GIZ
16	Mr. Chea Sokha	M	Manager	Wildlife Health Program
17	Dr. Um Bunna	M	Veterinary Health Specialist	DTRA
18	Dr Hélène GUIIS	F	<i>Veterinary Epidemiologist</i>	CIRAD

No	Names	Sex	Positions	Working Places
I. List of Participants for NGOs				
19	Ms. Jenny Scharer <i>SayBora</i>	F <i>M</i>	<i>for</i> Director	KFW
20	Dr. Nguyen Binh Nguyen	M	Program Deputy Director, Epidemic Preparedness and Response, Southeast Asia Hub	KFW
21	Mr. Chhorn Chamna	M	Portfolio Coordinator	KFW
22	Dr. Ly Sowath	M	Deputy- manager	IPC
23	Prof. Adele Martial-Gros	M	Country Director	IRD
24	Dr Vincent Herbreteau	M	<i>Researcher</i>	IRD
25	Ms. OK Malika	M	Project Officer	Agence Française de Développement (AFD)

No	Names	Sex	Positions	Working Places
I. List of Participants for NGOs				
26	Ms. GUERIN CALMETTES Tilia	M	Project Officer	Agence Française de Développement (AFD)
27	Dr Emilie Mosnier			ANRS-MIE
28	Dr. Siraya Chunekamrai			World Small Animal Veterinary Association (WSAVA)
29	Dr. Janin Nouhin	M	Senior Scientist	IPC
30	MIN SOPHOAN	M	Country Coordinator	AUSF
31	Marie-Yon Strueder	F	One Health Consultant	UNEP

