

**VIET NAM ONE HEALTH STRATEGIC PLAN
(OHSP), 2016-2020**

**UPDATE ON OVERALL PROGRESS
AS OF DECEMBER 2017**

*Report prepared by the
Secretariat Office
of the
Viet Nam One Health Partnership for Zoonoses (OHP)
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Abbreviations

ABR	Antibiotic resistance
ABU	Antibiotic use
ACCAHZ	ASEAN Coordinating Centre for Animal Health and Zoonoses
ADB	Asian Development Bank
ADRS	Animal Disease Reporting System
AFD	Agence Française de Développement
AHAV	Animal Husbandry Association of Viet Nam
AIPED	Viet Nam National Integrated Operational Program on Avian Influenza, Pandemic Preparedness and Emerging Infectious Diseases
AMR	Antimicrobial Resistance
AMS	Antimicrobial stewardship
APSED	Asia-Pacific Strategy for Emerging Diseases
ARES	ASEAN Rabies Elimination Strategy
ASEAN	Association of Southeast Asian Nations
ASP	Antimicrobial Stewardship Program
ATLASS	Assessment Tool for Laboratory and Antimicrobial Resistance
AVET	Applied Veterinary Epidemiology Training
BCC	Behaviour change communications
CAHW	Commune Animal Health Worker
CENPHER	Centre for Public Health and Ecosystem Research
CIRAD	Agricultural Research for Development
CITES	Convention on International Trade in Endangered Species
CITES MA	CITES Management Authority
DAH	Department of Animal Health
DANIDA	Danish International Development Agency
DARD	Department of Agriculture and Rural Development
DLP	Department of Livestock Production
DMEC	Department of Medical Equipment and Construction
DONRE	Department of Natural Resources and the Environment
DVS	District Veterinary Service
EBS	Event-based surveillance
ECTAD	Emergency Centre for Transboundary Animal Diseases
EI	Epidemic Intelligence
EOC	Emergency operations centre
EPT	Emerging Pandemic Threats
EQA	External Quality Assurance
FAO	Food and Agriculture Organisation of the United Nations
FETP	Field Epidemiology Training Program
GAHP	Good Animal Health Practices
GARC	Global Alliance for Rabies Control
GDPM	General Department of Preventive Medicine
GHSA	Global Health Security Agenda
GlobalGAP	Global Good Agricultural Practices
HAI	Hospital-acquired infections
HAIVN	The Partnership for Health Advancement in Viet Nam
HCMC UMP	Ho Chi Minh City University of Medicine and Pharmacy
HFMD	Hand, Foot and Mouth Disease
HICS	Ho Chi Minh City Infection Control Society

HMU	Hanoi Medical University
HSI	Humane Society International
HueUMP	Hue University of Medicine and Pharmacy
HUMP	Hanoi University of Medicine and Pharmacy
HUPH	Hanoi University of Public Health
ICD	International Cooperation Department
IEC	Information, education and communication
IEHSD	Institute of Environmental Health and Sustainable Development
IHR	International Health Regulations (2005)
ILRI	International Livestock Research Institute
IMPMH	Institute for Preventive Medicine and Public Health
IPC	Infection prevention and control
IVD	In-Vitro Diagnostics
JE	Japanese Encephalitis
JEE	Joint External Evaluation
LISN	Longitudinal Influenza Surveillance Network
MARD	Ministry of Agriculture and Rural Development
MERS	Middle East Respiratory Syndrome
MOET	Ministry of Education and Training
MOF	Ministry of Finance
MOH	Ministry of Health
MOIC	Ministry of Information and Communications
MOIT	Ministry of Industry and Trade
MONRE	Ministry of Natural Resources and the Environment
MPI	Ministry of Planning and Investment
NAEC	National Agriculture Extension Centre
NCVD	National Centre for Veterinary Diagnosis
NHTD	National Hospital of Tropical Diseases
NIAS	National Institute of Animal Science
NIHE	National Institute of Hygiene and Epidemiology
NLU	Nong Lam (Agro-Forestry) University
NVHIC	National Veterinary Hygiene Inspection Centre
OHCN	One Health Communication Network
OHP	Viet Nam One Health Partnership for Zoonoses
OHSP	One Health Strategic Plan
OHW	One Health Workforce
OIE	World Organisation for Animal Health
OPI	Viet Nam National Integrated Operational Program for Avian and Human Influenza
OUCRU	Oxford University Clinical Research Unit
P&R	Preparedness and Response
PCR	Polymerase chain reaction
PEP	Post-exposure prophylaxis
PHEIC	Public Health Emergency of International Concern
PHEOC	Public Health Emergency Operations Centre
PI	Pasteur Institute
PI-HCMC	Pasteur Institute, Ho Chi Minh City
PMC	Preventive Medicine Centre
PPE	Personal protective equipment
PrEP	Pre-exposure prophylaxis

PVS	Performance of Veterinary Services
R2P	Research to Policy
RA	Risk Assessment
RAHO	Regional Animal Health Office
SARI	Severe Acute Respiratory Infection
SARS	Severe Acute Respiratory Syndrome
SCOH	Strengthening Capacity for the implementation of One Health
SDAH	Sub-Department of Animal Health
SOP	Standard operating procedure
TOT	Training of trainers
UNDP	United Nations Development Programme
US CDC	United States Centres for Disease Control
US DTRA	United States Defense Threat Reduction Agency
USAID	United States Agency for International Development
VAMS	Viet Nam Administration of Medical Services
VFA	Viet Nam Farmers Association
VietGAHP	Viet Nam Good Animal Health Practices
VietGAP	Viet Nam Good Agriculture Practices
VINARES	Viet Nam Resistance Project
VNFU	Viet Nam Farmers Union
VNRC	Viet Nam Red Cross Society
VNUA	Viet Nam University of Agriculture
VOHUN	Viet Nam One Health University Network
VPA	Viet Nam Poultry Association
VPHA	Viet Nam Public Health Association
VVA	Viet Nam Veterinary Association
WAHIS	World Animal Health Information System
WCS	Wildlife Conservation Society
WHO	World Health Organisation
WPRO	Western Pacific Region
ZDAP	Zoonotic Diseases Action Package of the GHSA

PART I: OVERVIEW OF THE OHSP AND SUMMARY OF PROGRESS

About the One Health Strategic Plan, 2016-2020

The Viet Nam One Health Strategic Plan for Zoonotic Diseases for the period 2016-2020 (OHSP) was approved according to Decision No. 5273/QĐ-BNN-HTQT dated 19 December 2016 of the Minister of Agriculture and Rural Development, taking into account Official Letter No. 8225/BYT-ĐP dated 17 November 2016 of the Ministry of Health on approving the contents of the OHSP.

The OHSP sets out a 5-year plan for the continued development of Viet Nam's One Health capacities for reducing the health and other impacts of zoonotic diseases. The emphasis is on further development of core One Health competencies and selected attention on nationally-defined priority areas and diseases. The OHSP pulls together the various strands of work on zoonoses in Viet Nam where a One Health approach will be applied, illustrates where multi-sector involvement is required, and describes the activities that will be undertaken. It also highlights gaps in funding and areas where donor support will be required.

The OHSP:

- Builds on previous plans - the Viet Nam National Integrated Operational Program for Avian and Human Influenza (OPI), 2006-2010, and the Viet Nam National Integrated Operational Program on Avian Influenza, Pandemic Preparedness and Emerging Infectious Diseases (AIPED), 2011-2015
- Provides a One Health interface for national plans (including both existing plans and those under development) that connect with this 5-year plan such as those to strengthen health systems and to address specific diseases
- Is consistent with international and regional plans for specific zoonotic diseases and health issues (e.g. WHO Antimicrobial resistance, WHO/OIE/FAO rabies)
- Aligns with other international and regional initiatives that include One Health activities on zoonotic diseases such as the International Health Regulations (IHR 2005), the Asia Pacific Strategy for Emerging Diseases (APSED), and the Global Health Security Agenda (GHTSA).
- Includes priority actions for addressing health threats posed by zoonotic diseases, in line with the Zoonotic Diseases Action Package (ZDAP) for which Viet Nam is a co-leading country and has hosted key international meetings in 2015 (Ha Noi) and 2017 (Da Nang).

The OHSP provides a framework for anyone with an interest or stake in the control and prevention of zoonotic diseases in Viet Nam - this includes government and non-government agencies, teaching and research institutions, international financial institutions, donors and the public. Although the OHSP principally details activities for government and key partners, many of the underlying drivers of disease are related to human actions that can only be addressed with the participation of all parts of society in Viet Nam, particularly those involved in rearing domestic and wild animals, and handling animals and animal products.

The four guiding principles for the OHSP are:

1. That it builds on work already undertaken through the OPI and AIPED on zoonotic diseases using a One Health approach.

2. That it is an integrative framework (rather than an operational plan) that overlies and links the various extant and planned programs and activities aimed at addressing zoonotic diseases using a One Health approach.
3. That One Health approaches require shared objectives among different partners and, in some cases, shared activities when this is the most efficient way to prevent disease and protect health.
4. That strengthening capacity alone is not enough – improved capacity must be applied to tackle specific diseases of local concern.

Purpose of this Report

As set out in Decision No. 5273/QĐ-BNN-HTQT dated 19 December 2016, and in the OHSP Summary Plan (p.18), supervision and governance of the OHSP occurs through the Annual One Health Forum of the One Health Partnership for Zoonoses (OHP), hosted by the Ministry of Agriculture and Rural Development and the Ministry of Health with the participation of related ministries, sectors and signatories to the One Health Partnership Framework.

An annual written report produced by the One Health Partnership for Zoonoses summarising progress against key targets will be used to facilitate action to overcome barriers to One Health approaches to zoonotic diseases.

The current report is the first progress report on the OHSP, and covers the period 2016 and 2017. It has been prepared by the OHP Secretariat, drawing on the contributions and results of MARD, MOH, MONRE and other national and international partners and related stakeholders contributing to One Health in Viet Nam. It will be presented in draft form to the Annual One Health Forum meeting in quarter one of 2018, and finalised and disseminated to partners, other stakeholders and the public (via www.onehealth.org.vn) following the One Health Forum meeting.

OHSP Goal, Objectives, and Areas of Focus

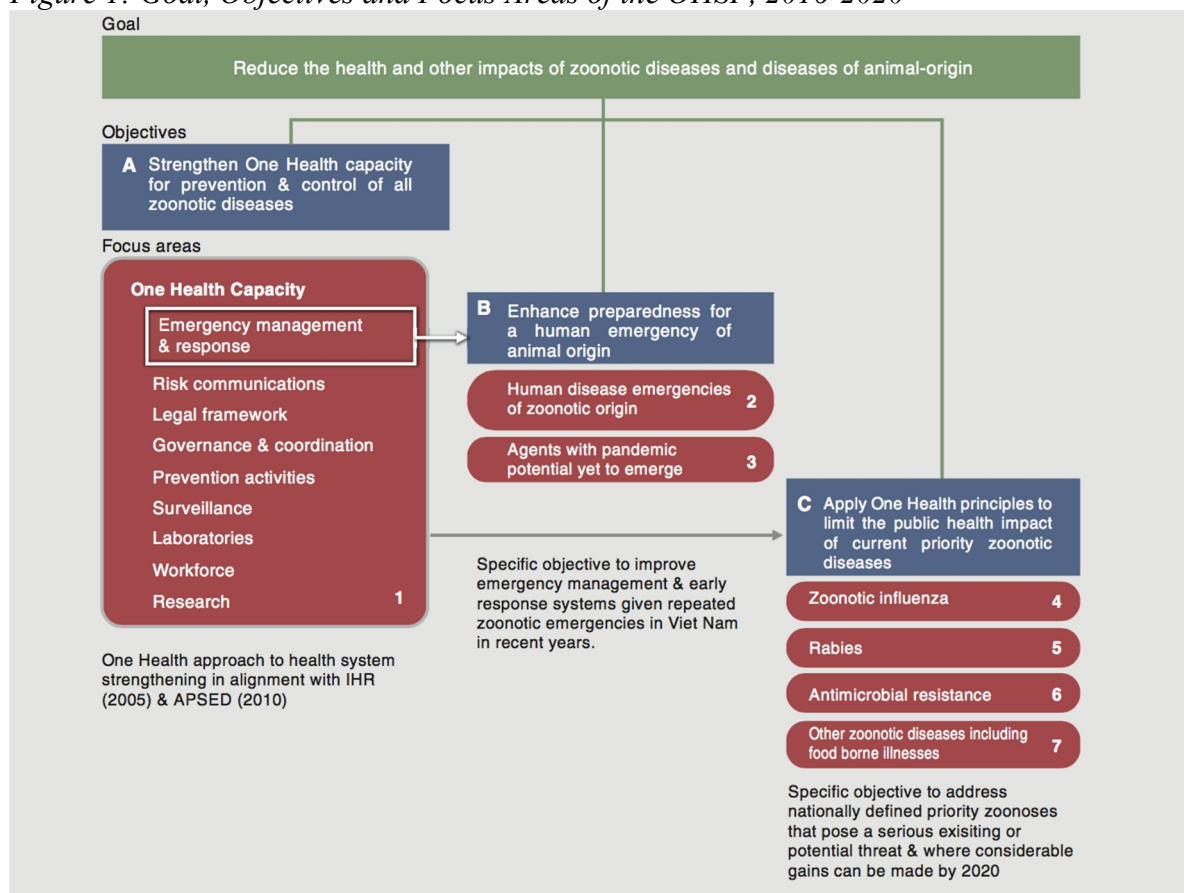
To achieve the goal of reducing the health and other impacts of zoonotic diseases and diseases of animal origin, the OHSP has the following 3 objectives:

1. Strengthen One Health capacity for the prevention and control of all zoonotic diseases
2. Enhance preparedness for a human emergency of animal origin
3. Apply One Health principles to limit the public health impact of current priority zoonotic diseases

Seven One Health **focus areas** have been identified to achieve these objectives by 2020 (Figure 1):

1. Building One Health capacity
2. One Health approaches for managing human disease emergencies of zoonotic origin
3. One Health approaches for managing zoonotic agents with pandemic potential that are yet to emerge
4. One Health approaches for managing zoonotic influenza viruses with pandemic potential
5. One Health approaches for managing rabies
6. One Health approaches for managing antimicrobial resistance
7. One Health approaches for managing other priority zoonotic diseases

Figure 1: Goal, Objectives and Focus Areas of the OHSP, 2016-2020



Draft Results Framework for the OHSP, 2016-2020

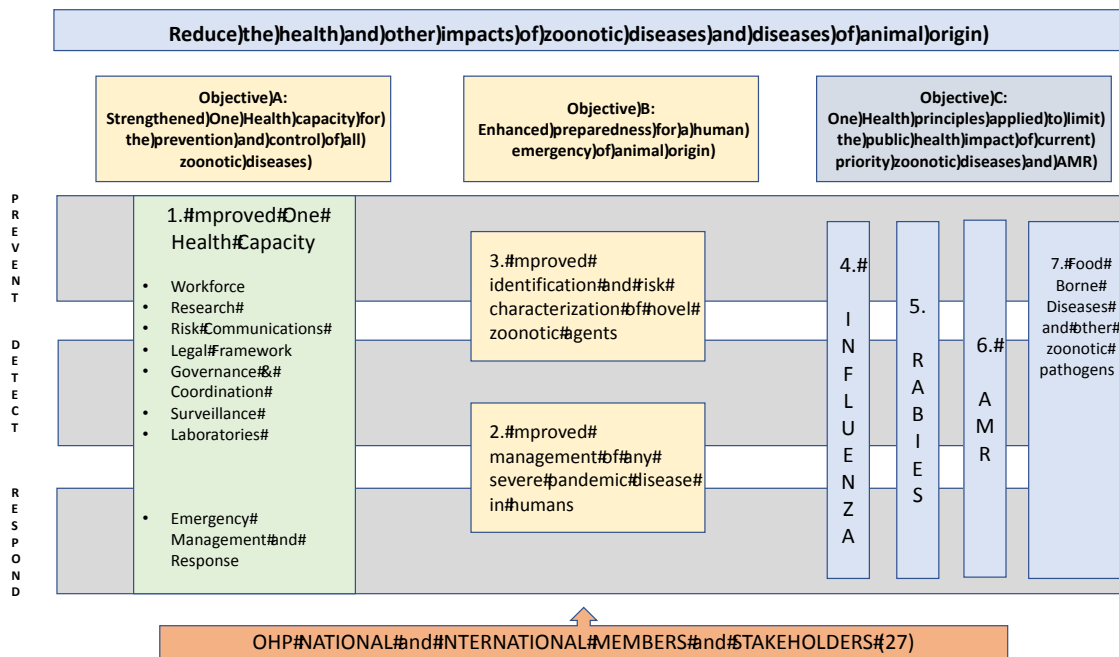
In order to support joint overall monitoring of progress on the OHSP, the OHP Secretariat is working with MARD, MOH and other national and international members of the OHP to develop a Results Framework and Monitoring and Evaluation Plan for the OSHP.¹

The draft OHSP Results Framework sets out linkages between the objectives, focus areas, outcomes and outcome indicators, within the unified PREVENT-DETECT-RESPOND framework) of the International Health Regulations (IHR 2005) and the Global Health Security Agenda (GHSA) (Figure 2).

The Results Framework is expected to provide a basis for overall monitoring of progress on the OHSP, and has been applied on a working basis in the development of this report. The OHSP Results Framework will be finalised in the first half of 2018 following further review and comments from MARD, MOH and OHP members.

¹ USAID EPT/P&R is supporting the development of the OHSP Results Framework and OHSP Monitoring and Evaluation Plan. Two senior national consultants mobilized through the SCOH-2 project are supporting the development of OHSP operational planning.

Figure 2: Draft Results Framework for the OHSP



Proposed overall status of OHSP progress as of the end of 2017

Based on the draft reporting on progress provided in Part II of this report, Table 1 provides a summary of the proposed assessment of overall progress to date on the OHSP. The purpose of this summary is to provide a starting point for discussion at the Annual One Health Forum meeting on overall progress to date and identification of areas that may need further resources and efforts during the coming period. This assessment is made at the overall level of the OHSP Results Framework, and does not (and cannot) represent an assessment of the contributions or activities of the national and international members of the OHP or other related stakeholders.

It is anticipated that this table, and the associated reporting on each Focus Area in Section II, will be updated based on further information and discussions during and following the One Health Forum meeting, prior to finalisation and further sharing of the report.

Table 1: Proposed assessment of overall progress on the OHSP during 2016 and 2017

<i>OHSP Objective</i>	<i>Focus Area</i>	<i>Proposed Outcome Statement</i>	<i>Proposed Outcome Indicators</i>
A. Strengthen One Health capacity for the prevention and control of all zoonotic diseases	1. Building One Health capacity	1. Capacity strengthening at both an individual and institutional level provides the foundation for enhanced communication, coordination, and collaboration to protect the health of humans and animals in Viet Nam. Achievements in this focus area will result in improved One Health technical capacity, information sharing within and among government ministries and with international partners in line with International Health Regulations (IHR) and Performance of Veterinary Services (PVS) commitments. Joint multi-	i. Increased number and proportion of laboratories improving quality assurance and safety procedures ii. Improved information sharing between animal and human health sectors at national, district and provincial levels iii. Increased human resources available to effectively implement IHR

		sectoral actions and the legal framework to support them will result in decreases in morbidity and mortality, and reductions in the frequency and size of zoonotic disease outbreaks.	iv. Improved timely and accurate reporting of detected diseases to OIE and WHO and other international agencies
B. Enhance preparedness for a human emergency of animal origin	2. One Health approaches for managing human disease emergencies of zoonotic origin	2. A One Health approach involves coordination among different sectors and levels of government to more effectively and efficiently respond to human disease emergencies. Achievements in this focus area will result in the establishment of functional public health emergency operations Centres (PHEOCs) with the legal mandate, policies and resources (human and financial) to activate in the time of a crisis, enabling quicker response time and reducing the health and economic impacts of zoonotic disease outbreaks of animals and humans	v. PHEOCs at national/subnational level that are established and functional with dedicated human and technical resources that meet minimum quality standards by 2020 vi. Animal and Human Health preparedness and response plans are regularly tested and updated
	3. One Health approaches for managing zoonotic agents with pandemic potential that are yet to emerge	3. A One Health approach to managing zoonotic agents in high-risk wildlife species and in certain industries will result in improved pathogen detection, risk characterization, and risk reduction to mitigate spillover and amplification of high consequence pathogens.	vii. Identified risk factors or interfaces associated with spill-over, amplification and/or spread viii. Implementation of risk reduction strategies based on identified risk factors
C. Apply One Health principles to limit the public health impact of current priority zoonotic diseases	4. One Health approaches for managing zoonotic influenza viruses with pandemic potential	4. A One Health approach to managing zoonotic influenza considers the human, animal, and livelihood impacts on the population. Achievements in this focus area will result in improved influenza surveillance, prevention, detection, and containment in humans and animals, ultimately reducing the number of human cases.	ix. Increased percentage of target markets that are implementing biosecurity measures according to best practices x. Reduction in the number of human deaths (mortality) of zoonotic influenza virus
	5. One Health approaches for managing rabies	5. A One Health approach to rabies requires close communication and coordination between the animal and human health sectors and the general public. Achievements in this focus area will bring Viet Nam closer towards full rabies elimination as evidenced by an increase in canine vaccination coverage and overall reduction in human rabies cases.	xi. Increased canine vaccination coverage at or above 70% at provincial and district level xii. Reduction in the number of human rabies cases (mortality) diagnosed clinically and by laboratory confirmation
	6. One Health approaches for managing antimicrobial resistance	6. A One Health approach to antimicrobial resistance (AMR) recognizes the complex transmissibility of bacteria from one host to another and the increasing risk posed by bacteria resistant to antimicrobial treatment. Achievements in this focus area will result in effective stewardship efforts that enhance collaboration, coordination and information sharing within and between the animal and human health sectors to ultimately reduce overuse and improve use of antibiotics in humans and animals	xiii. Increased AMR Stewardship Activities in Human and Animal Health Sectors

		through regulation, policy legislation, and infection prevention and control (IPC) measures that reduce hospital acquired infections (HAI).	
	7. One Health approaches for managing other priority zoonotic diseases	7. Other important zoonotic diseases will benefit from One Health coordination to reduce disease transmission and minimize economic disruptions to society. Animal-based food production systems (e.g., livestock, aquaculture) can also cause a high burden of diseases and economic impacts if there is contamination in the value chain. Achievements in this focus area can be made through effective research to policy interventions, regulation, traceability initiatives and behavior change to reduce cases.	xiv. Increased application of One Health approaches to priority zoonotic diseases and Food Safety

Overall progress on the OHSP as of December 2017

As the OHSP Results Framework is not yet finalised, it is not yet possible to report on overall progress at the Outcome/Focus Area level. This will be provided in subsequent reports.

A detailed overview of progress against each of the seven OHSP Focus Areas is provided in Part II of this report. This includes an overview of the background and context as well as strategic directions for each focus area, expected outcomes and outcome indicators together with initial information on the status or expected approach to finalising and measuring these indicators, detailed reporting on progress at the Output/Target level, and identification of potential gaps and areas for further consideration. This draws on draft OHSP progress reports for 2016-2017 and Implementation Plans for 2018-2020 developed for the animal health sector and the human health sector, including detailed information on inter-sectoral collaboration between these two sectors and with other related sectors and agencies, and identification of current gaps in relation to the overall objectives, outputs and targets set out in the OHSP for the period 2016-2020.

Table 2 below provides a summary of highlighted achievements across the three outcomes and seven focus areas of the OHSP.

<i>Focus Area</i>	<i>Summary of highlighted achievements, 2016-2017</i>
1. One Health capacity building	<ul style="list-style-type: none"> • Surveillance systems in both sectors strengthened. Provincial piloting and evaluation of Circular 16 on inter-sectoral collaboration on zoonotic diseases. Joint risk assessment training and activities conducted. • A wide range of regulations, guidelines and SOPs have been developed. • National EOC and two regional EOCs established. EOC guidelines issued. • Laboratory capacity building and quality assurance activities implemented with human and animal health labs. • FETP, AVET and VOHUN activities on One Health Workforce training and Core Competencies, including cross-sectoral activities. • Viet Nam's first WHO JEE. Pilot of the World Bank HSFAT prepared. • Cross-border information sharing and exchanges with Cambodia, China and Lao PDR • 3rd International ZDAP Conference (Da Nang, 2017) hosted. Continued participation in GHSA and One Health international conferences.

	<ul style="list-style-type: none"> • Good animal husbandry practices (VietGAHP) have been promoted. • OHP and OHCN maintained. Six-monthly Research-to-Policy (R2P) meetings initiated. One Health studies carried out by different partners.
2. Human disease emergencies of zoonotic origin	<ul style="list-style-type: none"> • National EOC (at GDPM) and two regional EOCs (at NIHE and PI-HCMC). Capacity building and development of human and technical resources, with support from international partners. • Regular testing of preparedness and response plans is being coordinated through the national EOC. • Joint Human and Animal Health preparedness and response exercises, e.g. for a possible incursion of influenza A(H7N9).
3. Zoonotic agents of pandemic potential	<ul style="list-style-type: none"> • LISN and USAID EPT/PREDICT projects gathering human, livestock, wildlife and environmental samples with similar locations and timeframes. • Testing and analysis in Viet Nam (including laboratory capacity building support) and overseas. • Test results shared within and between sectors, and uploaded on global database once cleared.
4. Zoonotic influenza viruses	<ul style="list-style-type: none"> • LBM, LISN surveillance in live bird markets. New Pen-side PCR portable testing capacity. • Swine surveillance and studies • SARI, SVP and LISN surveillance ongoing for humans • Surveillance for H7N9 in humans and animals; no incursion detected • Coordination of active surveillance locations; cross-sectoral data sharing • SOPs for influenza outbreak response developed • Poultry infection-free zones developed in selected locations (influenza, Newcastle disease) • Guidelines and awareness raising on market sanitation, poultry farm biosecurity, etc. • Tools for profiling LBMs developed and applied.
5. Rabies	<ul style="list-style-type: none"> • National canine vaccination rate of 51% in 2017 (increase compared to earlier years). • 63 human rabies cases reported in 2017 (91 human cases in 2016). • National Program for Rabies Control and Elimination, 2017-2021 issued • Rabies Animal Vaccination Fund established and provided 90,000 doses of vaccine for ring vaccination during outbreaks in 2017 • Penalties issued to support improved canine vaccination and responsible dog ownership • Public awareness raising in high-risk provinces, including through schools and World Rabies Day events • Rabies testing capacity in place in key human and animal health labs • Active surveillance of dogs suspected of having rabies • Inter-sectoral collaboration to develop outbreak response SOPs • Inter-sectoral simulation (table-top exercise)
6. AMR	<ul style="list-style-type: none"> • AMR action plan for the Livestock and Aquaculture Sectors, 2017-2020. Regulations and technical guidance on antibiotic use in agriculture developed and issued. • National AMR surveillance system under development. • SOPs for AMR surveillance in livestock and food production system piloted. • Communication and public awareness raising activities. • Hospital infection prevention and control tools and models developed and tested, and guidelines issues. • National reference laboratories being developed.

	<ul style="list-style-type: none"> • FAO ATLASS tool applied to assess animal health laboratory capacity. • Mapping and analysis of One Health approach to AMR surveillance • Studies conducted on related sectors and issues. Sharing of results.
7. Other priority zoonoses	<ul style="list-style-type: none"> • MARD and MOH have issued guidelines on prevention and control of priority zoonoses including Anthrax, Streptococcus suis and Leptospirosis. • Provincial piloting and evaluation of Circular 16 implementation. • Traceability of pig origins on farms, transportation, quarantine inspection and slaughtering has been improved. • Risk assessment studies and meetings on zoonoses have been carried out.

Summary of identified possible overall issues for discussion at the One Health Forum

In order to support the preparations and organisation of the 2018 One Health Forum, the final section of Part I of the report provides a tentative identification of a number of potential emerging issues for the consideration of the OHP members. If relevant, these issues could be discussed during the Annual One Health Forum meeting.

These issues include both possible gaps in current efforts, as well as potential issues that may require further consideration and discussion, including potential issues that may emerge during the period of implementing the OHSP.

This list will be further refined during the preparation and implementation of the 2018 One Health Forum, and updated in the final version of this report, to be completed after the Forum.

Table 2: Summary of possible overall issues by OHSP Focus Area

<i>Focus Area</i>	<i>Summary of possible gaps and issues for consideration</i>
8. One Health capacity building	<ul style="list-style-type: none"> • While there are a number of relevant steering committees, and provisions for high-level national inter-sectoral mechanisms to deal with outbreaks, the proposal for a new integrated One Health steering committee noted in the OHSP is not expected to be adopted at this time. • How to address recommendations (see Output 1.1.2 under Focus Area 1 for details) from provincial evaluations of Circular No. 16/2013 on collaboration between the human and animal health sectors? • Currently, funding for the One Health Partnership and key OHSP activities is secured through mid-2019. What are the prospects for sustainability of these activities and further international cooperation beyond this point? • Is there a need for a mid-term review of the OHSP? It is now time to begin discussing the orientation from 2020 onwards? • At the GHSA high-level meeting in Kampala, Uganda in October 2017, GHSA member countries agreed that the GHSA should be extended to 2024. What are the national implications of this possible extension? • Reduction in State budget funds in the context of sector restructuring can result in limitations in human resources and other factors for meeting national disease control targets. • Inter-sectoral information sharing is still carried out manually. Could an online reporting system support effective information sharing mechanisms

	<p>and tools between the human and animal health sectors?</p> <ul style="list-style-type: none"> • To date, very few activities providing technical, financial and other assistance have been identified on clarifying the role of MONRE and the environmental sector in relation to specific One Health outcomes, activity areas and related legal and policy frameworks. Specific environmental activities identified in the OHSP have not yet been addressed. • More consideration may be needed to official adoption and sustainability of AVET, FETP and VOHUN activities in future. • Further attention may be needed to the involvement of social sciences in the development and assessment of joint risk and behaviour change communications for priority zoonoses to reduce the drivers of disease emergence and transmission at the human- animal-environment interface. • Further support and attention may be needed for identifying and addressing overall national One Health research priorities, and for developing One Health research capacity. • Further efforts to involve the private sector in specific aspects of One Health, for example in efforts on AMR. • How to formalise and put into operation a wide range of SOPs that have been developed, particularly in relation to inter-sectoral SOPs in a context where Joint Circulars can no longer be issued.
<p>9. Human disease emergencies of zoonotic origin</p>	<ul style="list-style-type: none"> • How to ensure the appropriate involvement of animal health and other sectors in the national, regional and provincial EOCs? • Consideration may also be given to the need to establish an EOC/national zoonoses centre within DAH to strengthen national capacity for responding to zoonotic and other animal disease emergencies, to coordinate with the public health EOC system, and to support Viet Nam's collaboration with the expected ASEAN Coordinating Centre for Animal Health and Zoonoses (ACCAHZ).
<p>10. Zoonotic agents of pandemic potential</p>	<ul style="list-style-type: none"> • Completing the identification of risk interfaces, and developing interventions, including the development and introduction of industry/sector specific guidance on preventive measures. • The diagnostic capacity of laboratories is limited and laboratory staff still need further training, supported by technical and equipment assistance from international organizations. • Challenges implementing prevention measures in remote areas in mountainous provinces where the veterinary network is still thin and weak, and accessibility remains difficult. Local budget support is required for the prevention and control of zoonotic diseases.

11. Zoonotic influenza viruses

- Continuing challenges regarding the approach to addressing low pathogenic virus strains (with no clinical signs). The evolution of avian and swine influenza virus strains requires ongoing study.
- The presence of both high pathogenic and low pathogenic avian influenza A(H7N9) in China requires continued attention to surveillance and preparedness activities.
- Some other challenges that have been noted in relation to this focus area include the allocation of funding for compensation of culled animals in central and local budgets, the need for additional support to strengthen the surveillance system and other activities in remote communes and districts in mountainous, border and highlands area with difficult access.

12. Rabies

- Implementation, data collection and reporting on animal vaccination and dog management systems is uneven throughout the country. Remote and mountainous communes face particular challenges in relation to vaccination, dog management and communications.
- The cost estimate of rabies impact commissioned by the OHP Secretariat in 2016 and international experience make it clear that investments in canine vaccination are both necessary and ultimately cost effective (compared to the continuing high cost of PEP). However, funding for rabies prevention and control remains challenging, including sufficient fund allocations from central and local budgets, as well as mobilising international assistance.
- Increased awareness and attention from local authorities and mass organizations to support the implementation of the national action plan.
- Shortage of human vaccine for PEP. Is more attention to strengthening the district network for PEP administration for dog bite victims needed?
- Consideration to setting up a national reserve for PEP vaccine and anti-rabies serum in high risk locations in order to respond to outbreaks.
- PrEP for high risk groups (including dog vaccinators) is noted as a need in the national action plan, however to date has not been applied.
- Prospects and investment needs for domestic rabies vaccine production, taking into account cost and efficacy.

13. AMR

- As discussed at the AMR workshop organised in Hanoi in late 2017 by NIHE and the NHTD, there are many actors and activities now working on AMR across the three sectors of human health, animal health and environmental health. An effective coordination mechanism is needed at the working level, involving all three sectors and both national and international partners.
- Is it necessary to strengthen the coordination mechanism and allocation of human resources to address AMR in the agriculture sector?
- Further funding needs to be identified for AMR surveillance in the agriculture sector, for dealing with review and removal of previously-approved veterinary drugs for which permission has now been removed as

	<p>they are on the list of priority antibiotics to reserve for treatment of humans, and other issues.</p> <ul style="list-style-type: none">• Are additional efforts needed on surveillance, prevention and dealing with AMR residues in the environment?
14. Other priority zoonoses	<ul style="list-style-type: none">• Remote, mountainous and poor areas face particular difficulties for access, awareness, prevention and control of priority zoonoses.• There may be a need for further investigation on the status of brucellosis in animals and humans.

PART II: PROGRESS REPORT ON THE OHSP FOCUS AREAS

FOCUS AREA 1: BUILDING ONE HEALTH CAPACITY

Background and context

Building on the achievements of One Health capacity building in Viet Nam through the joint efforts of the government and national agencies, international agencies and donors during the previous OPI from 2006-2010 and the AIPED from 2011-2015, the OHSP aims to address remaining gaps, strengthening the platform on which One Health approaches to specific zoonotic diseases are built.

Capacity building efforts under this Focus Area are identified across the following domains:

- A. Governance & coordination
- B. Legal framework
- C. Risk assessments & communications
- D. Laboratories
- E. Trained One Health workforce
- F. Appropriate One Health research
- G. Prevention activities
- H. Surveillance & reporting
- I. Emergency management & response

Strategic directions

Success in addressing the nine One Health capacity building domains identified above by 2020 will be measured by the extent of change in each of the areas above and, more importantly, in decreases in case numbers, fatalities, and the number and size of outbreaks for the priority zoonotic infections/diseases.

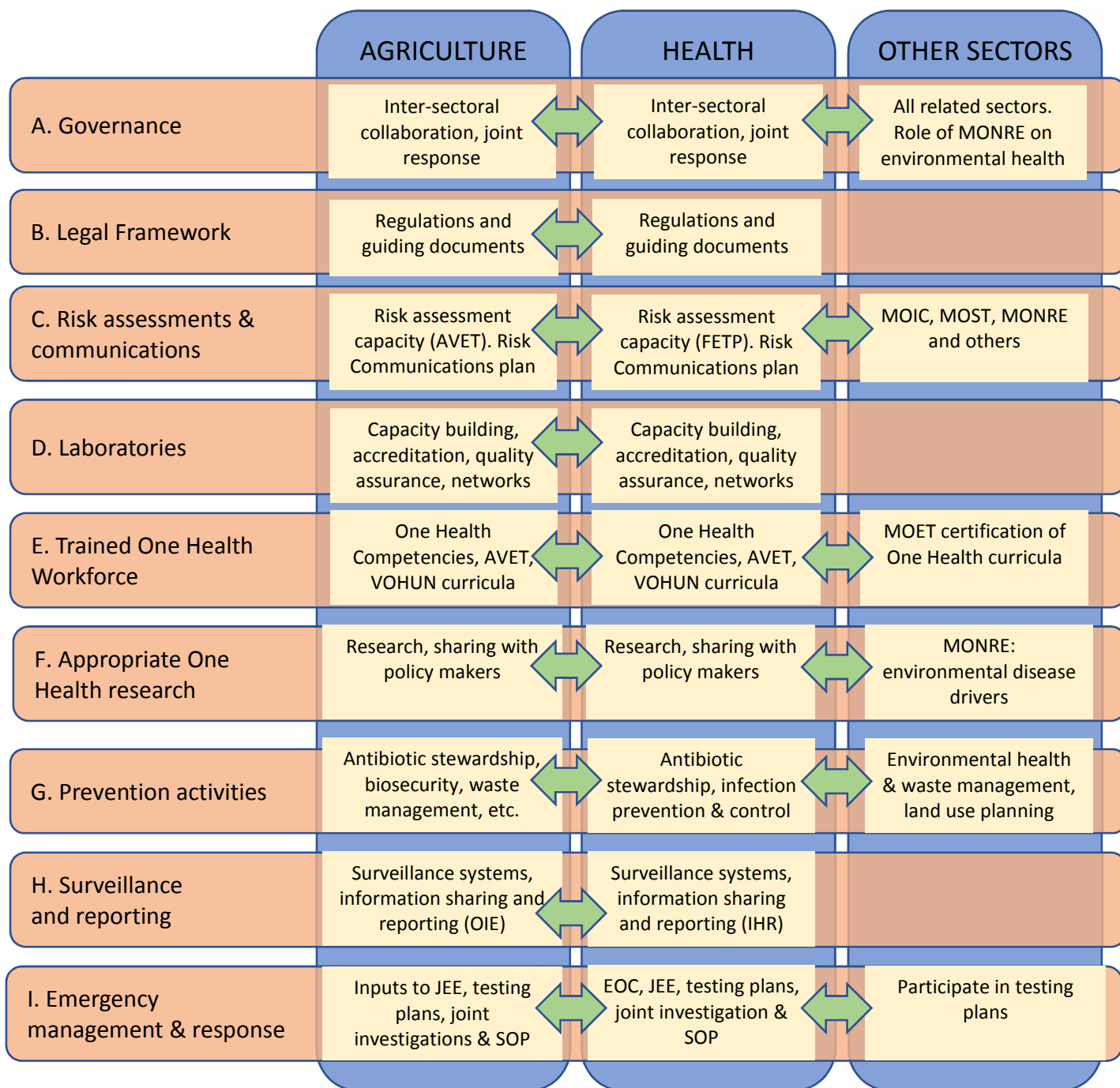
Expected Outcomes and Outcome Indicators

The following expected outcomes and outcome indicators are included in the draft Results Framework for the OHSP, 2016-2020.

<i>Proposed Outcome Statement</i>	<i>Proposed Outcome Indicator</i>	<i>Status as of December 2017 and comments on measurement considerations</i>
1. Capacity strengthening at both an individual and institutional level provides the foundation for enhanced communication, coordination, and collaboration to protect the health of humans and animals in Viet Nam. Achievements in this focus area will result in improved One Health technical capacity, information sharing within and among government ministries and with international partners in line with International Health Regulations	i. Increased number and proportion of laboratories improving quality assurance and safety procedures	Effective measurement of this indicator is expected to require the identification of the list of relevant laboratories, as well as identification of suitable measurement tools, as well as initial calculation of baseline data using these tools.
	ii. Improved information sharing between animal and human health sectors at national, district and provincial levels	Information sharing is ongoing within the framework of Circular No. 16/2013, and provincial pilots and evaluations have taken place in 2016 and 2017. Effective

<p>(IHR) and Performance of Veterinary Services (PVS) commitments. Joint multi-sectoral actions and the legal framework to support them will result in decreases in morbidity and mortality, and reductions in the frequency and size of zoonotic disease outbreaks.</p>		<p>measurement of this indicator is expected to require cooperative work between the human and animal health sectors and related partners to define an appropriate measurement tool and baseline information.</p>
	<p>iii. Increased human resources available to effectively implement IHR</p>	<p>It is proposed that information on the number of relevant personnel in Viet Nam and the status of training on One Health core competencies will be gathered from related agencies and partners, including the human and animal health sectors, VOHUN member, and other related sectors, agencies, projects and programmes.</p>
	<p>iv. Improved timely and accurate reporting of detected diseases to OIE and WHO and other international agencies</p>	<p>Effective measurement of this indicator is expected to be based on information from Viet Nam's IHR and OIE WAHIS focal points, based on Viet Nam's reporting in line with international commitments.</p>

Inter-sectoral collaboration on Focus Area 1



Highlighted achievements as of December 2017

- Surveillance systems have been strengthened in both sectors. Provincial piloting and evaluation of Circular 16 on inter-sectoral collaboration on zoonotic diseases have been conducted. Joint risk assessment training and activities have been conducted.
- A wide range of regulations, guidelines and SOPs have been developed.
- In addition to the national EOC, two regional EOCs were established, and EOC guidelines have been issued.
- Laboratory capacity building and quality assurance activities have been implemented with human and animal health labs.
- FETP, AVET and VOHUN activities on One Health Workforce training and Core Competencies have been carried out, including cross-sectoral activities.
- Viet Nam completed its first WHO JEE, and prepared to carry out the pilot of the World Bank HSFAT.
- Cross-border information sharing and exchanges have been held with Cambodia, China and Lao PDR.
- Viet Nam hosted the 3rd International ZDAP Conference (Da Nang, 2017) and continued to participate in key GHSA and One Health regional and international conferences.
- Good animal husbandry practices (VietGAHP) have been promoted.
- OHP activities have been organised, and the One Health website (www.onehealth.org.vn) and quarterly One Health newsletter maintained.
- One Health Communications Network (OHCN) quarterly meetings have been organised.
- Six-monthly Research-to-Policy (R2P) meetings initiated, and a database of One Health research activities collected. A range of One Health studies have been carried out by different partners.

Progress on OHSP Outputs and Targets as of December 2017

<i>Key Outputs & Output Targets</i>	<i>Achievements in 2016/2017</i>	<i>Key directions in 2018</i>
A. Governance & coordination		
<i>1.1. Well-defined national coordination mechanisms for zoonotic diseases linking animal health, human health, wildlife, environment and other government sectors that function during emergency and non-emergency periods</i>		
1.1.1. Establishment of a new, unified, overall national steering committee	Prime Minister's Decision No. 56/2010/QĐ-TTg dated 16 September 2010 directs the establishment, organizational structure and activities of steering committees for epidemic control at all levels. In line with Article 46 of the Communicable Diseases Law (03/2007/QH12), these committees are to be established at all levels as soon as epidemics are announced. Members of the national steering committee include the representative	

	<p>leaders of MOH, MOF, MOIC, MOFA, MOD, MOPS and other related agencies. Depending on the area in which an epidemic is announced and its characteristics, the Prime Minister may act as head or designate a deputy prime minister or the Minister of Health to act as head of the national steering committee. The Ministry of Health is the standing body of the steering committee. Similar inter-sectoral membership is specified for the committees at lower levels.</p> <p>Prime Minister’s Decision No. 16/2016/QĐ-TTg dated 29 April 2016 directs the establishment, organizational structure and activities of the steering committees for prevention and control of animal diseases at all levels. Members of the national steering committee include representative leaders from MOST, MOIT, MOPS, MOFA, MPI, MOIC, MOT, MONRE, MOD, OOG, VTV, VOV, the Central Committee of the Viet Nam Fatherland Front; the Central Committee of the Viet Nam Farmers’ Association, and the Central Committee of the VNRC. DAA acts as the permanent agency for the national steering committee. Similar inter-sectoral membership is specified for the committees at lower levels (including representatives of border security forces in border provinces/districts/communes). In line with Article 24 of the Veterinary Law (2015), these steering committees at all levels shall be established when animal diseases are declared.</p> <p>To date, the draft proposal prepared by MOH together with MARD for a unified and permanent national steering committee for dangerous new and emerging human and animal diseases/public health emergencies (which could address overall prevention and preparedness prior to disease outbreaks being confirmed in humans or animals) has not been adopted.</p> <p>Other related national steering committees in Viet Nam include:</p> <ul style="list-style-type: none"> • The National Steering Committee for AMR • The National Steering Committee for Food Safety and Hygiene 	
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<p>1.1.2. Application of Circular 16/2013 on zoonotic diseases</p>	<p>GDPM, NIHE, PI/Nha Trang, DAH, RAHO2, RAHO3 and RAHO4 with support from WHO, FAO and USAID EPT/P&R undertook activities to strengthen and review the implementation of inter-ministerial Circular 16/2013 in four provinces (Thanh Hoa, Ha Giang, Quang Nam and Binh Dinh). Baseline surveys were carried out in 2015 and 2016, followed by training for human and animal health workers at provincial, district and commune levels and technical assistance on surveillance, reporting, investigations and joint investigations, inter-sectoral communications, piloting of guidelines for implementation of Circular 16/2013, piloting of SOPs on collaboration for rabies prevention and control, a table top simulation exercise for rabies control (in Quang Nam), and inspection visits at all levels. Post-intervention evaluations were conducted in Thanh Hoa and Binh Dinh in October 2015, and in Ha Giang and Quang Nam in March 2017, and identified advantages, challenges, lessons and recommendations for the future.</p>	<p>Continued support will be provided to strengthen the implementation of Circular 16/2013 at the provincial and lower levels. Based on the evaluation of pilot activities in four provinces, proposed priority activities for the future include:</p> <ul style="list-style-type: none"> • Finalise and issue SOP for Circular 16. • Publish the survey and evaluation results on the GDPM and DAH websites. • Develop district inter-sectoral models in high risk areas, especially in outbreak investigation and handling. • Arrange site simulation exercises for inter-sectoral surveillance and response to zoonoses (particularly for H7N9). • Provide district training on Circular 16/2013 SOP and skills for disease investigation, handling, data processing and reporting. • Invest in capacity building for communes, particularly for animal health workers regarding human resources, facilities and technical training.
<p>1.1.3. Clarifying the role of MONRE</p>	<p>MONRE supports MARD to provide guidance on the prevention and control of environmental pollution, and remediation of environmental incidents and environmental degradation. Specifically, it provides guidance of optimal measures to handle infected and dead animals which must be destroyed, and on treating waste from livestock production and feed processing facilities.</p>	<ol style="list-style-type: none"> 1. Coordination on the development of guidelines on prevention and control of environmental pollution in livestock production. 2. Coordination on overcoming environmental incidents and environmental degradation. 3. Coordinating on guiding the handling of diseased and dead livestock. 4. Guiding the treatment of wastes in livestock production and processing of animal-origin products.
<p>1.1.4. Improved and timely information sharing between human and animal health sectors using established formal channels of communication (e.g. reporting of human cases of zoonoses to</p>	<p>The provincial pilot activities by GDPM, NIHE, PI/Nha Trang, DAH, RAHO2, RAHO3 and RAHO4 with support from WHO, FAO and USAID EPT/P&R addressed cross-sectoral information sharing and collaboration on implementation of Circular 16/2013 in four provinces (Thanh Hoa, Ha Giang, Quang Nam and Binh Dinh). The baseline assessment found that all provinces had focal points for information exchange and that there was timely</p>	<p>Continued support will be provided to strengthen the implementation of Circular 16/2013 at the provincial and lower levels based on the evaluation of pilot activities in four provinces, including adoption and dissemination of SOPs/implementation guidelines.</p>

<p>MARD and reporting of animal disease outbreaks of zoonotic potential to MOH) in line with Circular 16/2013.</p>	<p>cross-sectoral exchange of surveillance information of suspected cases/outbreaks, however, regular surveillance information was rarely exchanged across sectors, especially at lower levels. Formats for information sharing were not well understood or applied.</p> <p>Following the pilot intervention, the follow up evaluation found that all levels were sharing information regularly, using the formats specified in Circular 16/2013. However, sharing of information on bite cases with possible rabies risk was still limited.</p>	
<p>1.1.5. Improved information sharing and cooperation between MARD, MONRE, and MOH to prevent and control environmental pollution from livestock production and the prevention of zoonotic disease transmission</p>		
<p>1.1.6. Defined indicators for monitoring and evaluation of central, regional, provincial and district level zoonotic disease coordination mechanisms</p>	<p>The provincial pilot activities by GDPM, NIHE, PI/Nha Trang, DAH, RAHO2, RAHO3 and RAHO4 with support from WHO, FAO and USAID EPT/P&R measured pre- and post-intervention indicators at provincial, district and commune levels in the four pilot provinces.</p>	<p>DAH, GDPM and NIHE will cooperate to define indicators to monitor and evaluate coordination mechanisms for the prevention and control of zoonotic diseases from central to province and district levels.</p>
<p>1.1.7. Defined roles and responsibilities of agencies involved in managing and regulating wildlife farming, disease surveillance, conservation and trafficking, and agencies involved in environment and forest protection</p>	<p>DAH with support from FAO is strengthening multi-sectoral coordination in wildlife disease management. An SOP on multi-sectoral coordination on wildlife disease management has been developed, and training is being provided on wildlife disease investigations.</p> <p>CITES MA has advised competent authorities on the issuance of laws and policies on prevention and control of illegal wildlife trade, including in the Criminal Code and the Forestry Law; coordinating with police and forest rangers to prevent illegal wildlife trade; coordinating with FAO, DAH to train forest rangers on the risk of zoonotic disease transmission through illegal trading activities; coordinating with MOET to introduce a teaching curriculum on wildlife protection; issuing directives on CITES mandates; and organizing workshops on the roles of related agencies.</p> <p>The OHP Secretariat with support from the USAID- and UNDP-funded SCOH2 project</p>	

	disseminated a policy brief on Reducing the risk of disease transmission in multi-species wildlife farms in Viet Nam.	
<i>1.2 Engagement by government partners with key civil society organisations and external stakeholders for specialised information and advice (e.g. clinical, public health, laboratory, risk communications, private sector, international partners etc.) and as partners in disease control and prevention programs</i>		
1.2.1. Ensuring industry, subject and discipline specialists are identified and included in One Health approaches to control and prevention of zoonotic diseases through advisory panels and networks	<p>Meetings, workshops and forums have been organized to gather the participation of national and international experts who have the potential to support the collaborative programs on zoonotic disease prevention and control.</p> <p>The USAID EPT/PREDICT (WCS) project has signed an agreement with DAH (RAHO-6 and RAHO-7) to provide pathogen investigation support in the case of outbreaks of unknown origin. Training and supplies for surveillance have also been provided. To date, no investigation has been required.</p>	The USAID EPT/PREDICT (WCS) provide pathogen investigation support will be activated if required.
<i>1.3. Maintaining the One Health Partnership on Zoonoses and secretariat to ensure it can continue to act as a national platform for policy dialogue and knowledge management of One Health and zoonotic diseases, and to facilitate coordination of One Health stakeholders</i>		
1.3.1. Provision of support for the One Health Partnership including involvement in OHP activities organized	<p>The OHP Secretariat established within MARD under the direct management of MARD ICD and technical guidance from MARD DAH and MOH GDPM, with support from the USAID SCOH2 project via UNDP and the USAID EPT/P&R project has provided ongoing support for the OHP since it was launched in March 2016. OHP activities are implemented in line with the Partnership Framework signed by MARD, MOH, MONRE and other national and international partners (27 national and international signatory organisations).</p> <p>The OHP Secretariat with support from the USAID SCOH2 project continued to maintain the Partnership website (www.onehealth.org.vn) and to prepare and distribute quarterly One Health newsletters.</p> <p>The OHP Secretariat, with support from the USAID SCOH2 project and USAID EPT/P&R, is documenting the implementation plan and developing a results framework and monitoring plan for the OHSP, 2016-2020.</p>	The OHP Secretariat under the direct management of MARD ICD and with technical guidance from MARD DAH and MOH GDPM, with support from the USAID SCOH2 project via UNDP and the USAID EPT/P&R project, will continue to support the activities of the OHP, and the One Health Viet Nam website and quarterly newsletter.
<i>1.4. Conducting joint investigations into zoonotic disease outbreaks whenever this is appropriate (including development of guidelines for situations where joint investigations should be conducted)</i>		
1.4.1. Application of relevant provisions of Circular 16/2013	<p>Joint investigations were trialled in four pilot provinces, including testing of SOP for implementation of Circular 16/2013.</p> <p>There was a coordinated investigation of a zoonotic disease outbreak; Sharing disease information, jointly organizing training</p>	Complete the legal documents to clearly regulate the coordination mechanism, organization and implementation of investigations.

	workshops	
B. Legal framework		
<i>Measures to ensure wider adoption of Circular 16/2013 that provides a basis for enhanced collaboration between Ministries and Departments on zoonotic diseases, especially at provincial and sub-provincial levels</i>		
1.5.1. Training in implementation of Circular 16/2013	<p>As noted above, GDPM, NIHE, PI/Nha Trang, DAH, RAHO2, RAHO3 and RAHO4, with support from WHO, FAO and USAID EPT/P&R, have provided training on implementation of Circular 16/2013 has been provided in four pilot provinces (Thanh Hoa, Binh Dinh, Ha Giang and Quang Nam).</p> <p>Training courses were held to assist high risk localities in the implementation of Joint Circular No. 16 /2013/TTLT-BYT-BNNPTNT.</p>	Continued support will be provided to strengthen the implementation of Circular 16/2013 at the provincial and lower levels. Based on the evaluation of pilot activities in four provinces, proposed priority activities for the future include finalization and training on SOP and skills for disease investigation, handling, data processing and reporting.
<i>1.6. Additional legislation/directives/circulars for coordination and formal engagement of the environmental sector and in particular MONRE</i>		
1.6.1. Preparation of directives under the Animal Health law & consideration of extending features of Circular 16 to include MONRE	<p>Government Decree No. 35/2016/ND-CP dated 15 May 2016 on guidelines for the Veterinary Law (2015), issued based on the proposal of the Minister of Agriculture and Rural Development, sets out: the system of veterinary authorities and policies applied to veterinary staff of communes, wards or district-level towns; funding for prevention and fighting against animal diseases; suspension and banning of import/export of animals and animal products; requirements for manufacturing, trade, import, testing and pricing of veterinary drugs; regulations on Good Manufacturing Practices (GMP) for veterinary drugs; and requirements for veterinary practice.</p> <p>As noted under 1.1.1 above, Prime Minister's Decision No. 16/2016/QĐ-TTg dated 29 April 2016 on the establishment and the organizational structure and activities of the Steering Committee for prevention and control of animal diseases at all levels.</p> <p>DAH with support from the OHP Secretariat through the USAID SCOH-2 project organized two workshops for Provincial Sub-Departments of Animal Health and District Animal Health Centres on implementing decrees for the Veterinary Law (in Ha Noi and Binh Dinh).</p> <p>The pilot provincial activities on Circular 16/2013 implementation to date have not directly included environmental health agencies under MONRE or related subnational agencies (DONRE, etc.). Based on the overall direction of the Government of Viet Nam, currently there is no scope to develop further joint circulars (or to amend existing joint circulars). Therefore,</p>	The OHP Secretariat with support from the USAID- and UNDP-funded SCOH2 project is proposing to commission a provincial case study on the role of the environmental sector in One Health.

	other options for including agencies under MONRE and related sub-national agencies (DONRE, etc.) would need to be identified.	
1.6.2. Review multi-sectoral legislative framework and regulatory guidelines to address zoonotic disease emergence and multi-sectoral responses to zoonotic diseases and address gaps. This includes incorporating environmental protection additions to veterinary and agricultural legislation.	<p>During 2016 and 2017, GDPM has developed a draft Law on Preventive Medicine. With support from WHO, the current Law on Prevention and Control of Infectious Diseases was assessed in 2016, and an assessment of international comparative advantage and a Policy Impact Assessment for the proposed new law were completed. Regional consultations on the draft Law were held in late 2017, and the Law dossier was submitted to Ministry of Justice in December 2017 for clearance.</p> <p>In 2017, GDPM with support from WHO conducted consultation workshops with northern and southern provinces and prepared the draft decree to revise Decree No. 103/2010/ND-CP of October 01, 2010, detailing a number of articles of the Law on Prevention and Control of Infectious Diseases regarding Border Health Quarantine.</p>	The process of finalising, approving, disseminating, and implementing the new Law on Preventive Medicine will move ahead.

C. Risk assessments & communications

1.7. Build capacity to undertake risk assessments at the human-animal- environment interface

1.7.1. Training programs in joint risk assessments through AVET and FETP and other programs	<p>Training courses have been organized on Applied Veterinary Epidemiology Training (AVET); Investigating animal diseases in wildlife; Introductory Course on Public Health / Field Epidemiology Training Program (FETP) for veterinary staff; Training on interdisciplinary outbreak investigation; Interdisciplinary training on rabies control; Interdisciplinary training on Avian Influenza A(H7N9). Specific training courses on interdisciplinary risk assessment have not yet been organized.</p> <p>Other activities on joint risk assessment have also taken place:</p> <p>GDPM with support from WHO is developing SOP for epidemic intelligence (EI) activities and risk assessment (RA). GDPM and WHO conducted training on joint risk assessments in LISN sites.</p> <p>Training on joint risk assessment was also provided for staff of PPMCs, RAHOs and border health quarantine centres in higher risk provinces in different regions of the country. RA training courses were conducted in HCMC (August) and in Ha Noi (September) for staff from regional hygiene and epidemiology institutes, RAHOs and selected provinces.</p> <p>Regular EI/RA meetings have been conducted</p>	Training courses will continue to be organized on risk assessment coordination for human and animal health staff at central, regional and provincial levels.
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	<p>by GDPM with support from WHO, with the participation of related human and animal health agencies and international partners, including on:</p> <ul style="list-style-type: none"> • Influenza A(H7N9) (March 2017) • Dengue and HFMD (June 2017) • Yellow Fever (June 2017) • Dengue, Diphtheria and JE (July 2017) • Zika (September and October 2017) 	
17.2. Involvement of social sciences in the development and assessment of joint risk and behaviour change communications for priority zoonoses to reduce the drivers of disease emergence and transmission at the human- animal-environment interface	Representatives of social sciences agencies have been invited to participate in meetings chaired by the human and animal health sectors on priority zoonoses.	
<i>1.8. Improve risk communication between authorities and to the public on microbial hazards emerging at the human-animal-environment interface</i>		
1.8.1. Training in risk communication for disease emergencies and prevention of diseases	<p>Risk communication training courses for Health and Veterinary staff at central, regional and provincial levels have been organized, chaired by MOH.</p> <p>(See 1.8.2 for further information on risk communications activities.)</p>	
<p>1.8.2. Lines of communication during health emergencies:</p> <ul style="list-style-type: none"> • Established mechanisms for communications across and to lower levels of government during different phases of health emergencies • Established mechanisms for communication between government and external agencies (e.g. NIHE) that can contribute specific expertise for the development of 	<p>MOH issued the guidelines for the operation of EOC for public health events, which included the regulation of communication activities in emergency situation between agencies in a vertical relation. An event-based monitoring process has been developed and issues that includes a process for collecting and verifying information from the community.</p> <p>MOH Department of Communication and Reward with support from WHO is developing an updated national action Plan for risk communications on zoonoses, health emergencies, AMR and food safety, covering the period 2019-2025.</p> <p>DAH with support from FAO organized two media and communication training workshops for animal health officers in Hai Phong and Da Nang in September 2017.</p>	<p>MOH will develop a coordinated mechanism and procedures for interdisciplinary coordination on risk communications and cross-sectoral information exchange on interdisciplinary emergency issues.</p> <p>Training/simulation exercises on interdisciplinary risk communication in emergency situations will be conducted.</p> <p>Following the completion of the national action plan for risk communications, WHO will support the development and roll out of training on risk communications in selected provinces.</p>

<p>public health messages</p> <ul style="list-style-type: none"> Established mechanisms for communicating to the public during health emergencies and for gathering information from the public to refine public messaging 		
<p>1.8.3. The One Health Communications Network continues to meet and develop appropriate communications material that is assessed for impact once delivered and used both in peace time and during disease outbreaks</p>	<p>Quarterly One Health Communication Network (OHCN) meetings have been organized by the OHP Secretariat with support from the USAID-funded SCOH2 project. A OHCN Factsheet was developed and disseminated by the OHP Secretariat.</p>	<p>Participation in the OHCN will continue to be widened to include participation from the private sector in AMR, food safety, and other related areas.</p> <p>NAEC with support from the OHP Secretariat and OHCN will develop a One Health communication strategy for agriculture extension.</p> <p>GDPM together with DAH, with support from USAID EPT/P&R, will convene a meeting in early 2018 to discuss H7N9 preparedness, including communications and messaging under different identified scenarios.</p>
<p>D. Laboratories</p>		
<p><i>1.9. Enhance laboratory capacity and quality management systems</i></p>		
<p>1.9.1. Provide appropriate resources for undertaking tests and for application of quality management systems</p>	<p>NIHE with support from WHO is implementing External Quality Assurance (EQA) testing for the laboratories at the four regional hygiene and epidemiology institutes and for the wider laboratory network in Viet Nam. Dengue serology EQA has been implemented with 29 participant laboratories and the results are being analysed.</p> <p>Through the HAIVN project, Roche has worked with the Hanoi University of Medicine and Pharmacy (HUMP) and the Hue University of Medicine and Pharmacy (HueUMP) to develop and implement a training curriculum for good laboratory practices.</p> <p>The laboratories of the Veterinary System have trained testers and current laboratories apply quality management systems. DAH with support from FAO conducted laboratory proficiency testing at RAHO4. DAH with support from FAO conducted a training workshop on the Laboratory Mapping Tool was organised at RAHO6 in November 2017.</p>	<p>An EQA scheme for influenza molecular testing will be piloted by NIHE with support from WHO.</p> <p>DAH with support from FAO will continue training and refresher training of laboratory staff for testing techniques and biosafety, maintaining the application of quality management system and proficiency testing of animal health laboratories, reviewing Viet Nameese standards, procedures and testing standards for 05 communicable diseases mentioned in Circular No. 16/2013, and promulgation of Viet Nam standards for the diagnosis of some diseases in wildlife with potential for emerging pandemic in humans.</p> <p>DAH with support from FAO will move ahead on the use of Pen-side PCR and on developing the barcode</p>

	<p>FAO has supplied five new PCR machines for five RAHO laboratories.</p> <p>DAH with support from FAO provided training on the use of pen side PCR assay for the diagnosis of influenza A and H7N9 viruses at NCVD.</p> <p>DAH with support from FAO has developed a proposal to apply a barcode system in the DAH laboratories (NCVD and RAHOs).</p>	<p>system in the DAH laboratories (NCVD and RAHOs).</p>
<p>1.9.2. All human and animal health laboratories meet national accreditation standards and biosafety/biosecurity requirements and all reference laboratories meet appropriate international accreditation (e.g. ISO 15189, 17025, 17043) with established procedures for ongoing external quality assurance</p>	<p>The human health regional institutes with support from US CDC and WHO are undertaking a capacity review. US DTRA is also supporting GDPM to review capacities for biosafety and biosecurity.</p> <p>To date, there are 30/63 provincial preventive medicine centers met the national standards.</p> <p>according to the Decision No. 4696 / QD-BYT dated 27/12/2008 on the national standards of provincial preventive medicine center</p> <p>All key veterinary system laboratories meet current national certification standards and biosafety requirements. They have also been certified through corresponding international certifications (eg ISO 15189, 17025, 17043), along with established processes to ensure the quality of ongoing activities.</p> <p>DAH with support from FAO provided training to NCVD, RAHO2 and RAHO6 laboratory staff on biosafety cabinet certification.</p> <p>USAID EPT/PREDICT (WCS) has provided biosafety and biosecurity protocols and training materials to laboratories in Viet Nam, including a human syndromic surveillance protocol, and training materials of Safety and PPE use, Packing and Shipping biological samples, and related questionnaires to use for training. On the job training has been provided to partners collecting samples in different parts of the country.</p> <p>VNUA laboratory with support from USAID EPT/PREDICT (WCS) carried out a contamination protocol to assess biosafety and biosecurity.</p>	<p>Future priorities include;</p> <ul style="list-style-type: none"> • Consolidating and completing the management system and organization of the network of infectious diseases preventive laboratories. • Completing the legal documents and guidelines related to preventive medicine testing and biosafety. • Developing and strengthening laboratory information management system. <p>WHO will discuss with GDPM on the need for further training on laboratory bio-risk activities following the release of the updated WHO biosafety manual (4th Edition) in 2018. GDPM and WHO are also discussing the need for training on a new circular on biosafety practices in the laboratory.</p> <p>The veterinary system laboratories will maintain national and international certifications.</p>
<p>1.9.3. A public health laboratory network that meets national standards for minimum reporting requirements for nationally notifiable communicable diseases (diagnostics, specimen referral pathways, quality</p>	<p>GDPM with support from WHO convenes the national steering committee on public health laboratories.</p> <p>GDPM with support from WHO organized a workshop to finalise a revised circular on the management of infectious specimens.</p> <p>WHO provided training to the four regional institutes of hygiene and epidemiology, as well as NCVD, on advanced diagnostic techniques,</p>	<p>GDPM will support from WHO will organize two meetings of the national steering committee on public health laboratories.</p> <p>USAID EPT/PREDICT (WCS) will continue working with key laboratory partners to strengthen capacity on core testing of priority pathogens as well as viral family screening for novel pathogens.</p>

assurance, data collection, reporting)	<p>based on the CLCbio software package.</p> <p>USAID EPT/PREDICT (WCS) has worked with a number of laboratories to strengthen their capacity and to provide technical assistance for core testing of priority pathogens as well as viral family screening for novel pathogens. USAID EPT/PREDICT (WCS) global behavior team provided a training for on using data collection tools in qualitative and quantitative research. USAID EPT/PREDICT (WCS) provide training to staff of Ha Noi Preventive Medicine Centre on PREDICT surveillance protocols, including biosafety, human syndromic surveillance, packing and shipping biological samples. USAID EPT/PREDICT (WCS) provided updated materials, SOPs and protocols to laboratory partners, and provided sample collection protocols to human health staffs in Hanoi PMC and Bac Giang PMC. Protocols and trainings of sample collection to RAHO7 staffs and veterinary students who participated sample collection in Dong Thap province. On-the-job training of animal sample collection was provided to NIHE during sampling trip in Lang Son bat guano cave.</p> <p>USAID EPT/PREDICT (WCS) has facilitated the participation of laboratory staff in Viet Nam in regional on-line meetings of the PREDICT Asia Regional Labs, providing updated testing protocols and sharing lessons learned during PREDICT testing.</p> <p>MOH's Department of Medical Equipment and Construction (DMEC) with support from WHO organized a four-day training course on pre-qualification of In Vitro Diagnostics (IVDs) equipment, provided by NRL Australia.</p>	
1.9.4. Review of the structure of the public health laboratory network including the functions and number of laboratories and assessment of how to improve efficiencies	<p>Currently, at the central level there are management units and specialized laboratories at the four regional institutes. At the provincial level, there are laboratories in 259 units of 7 types of centres. At the district level, there are 233 laboratories in the district hospitals and 460 labs in the district health centres.</p>	<p>Future activities include:</p> <ul style="list-style-type: none"> • Developing the division of technical preventive medicine testing to submit to MOH. • Developing coordination mechanisms between laboratories: public, private, hospital, research institutes inside and outside the country. • Developing and amending guidelines related to preventive and biosafety testing. • Carrying out trainings for laboratory staff on quality control and testing techniques.
<i>1.10. Enhance data management systems to allow rapid analysis and sharing of new findings within and across sectors as well as across borders</i>		
1.10.1. Established	The human health and animal health sectors	Roll out and application of the

<p>mechanism for sharing information between animal and human health laboratories</p>	<p>have maintained information sharing in line with Circular No. 16/2013.</p> <p>DAH with support from FAO has developed an online reporting system to be applied from central to local level in the veterinary network.</p> <p>GDPM and NIHE, with support from WHO, are discussing the development of a system for standardized reporting and sharing of laboratory results between laboratories within the health sector, and also inter-sectorally. A draft plan is being developed.</p> <p>In 2017, NIHE and DAH with support from WHO, FAO and OUCRU organized a meeting on bacterial zoonosis to enhance epidemiology-laboratory-clinical intra and inter-sectoral collaboration in order to improve surveillance and risk reduction measures.</p>	<p>online animal health reporting system will continue.</p> <p>The draft plan on information sharing will be completed.</p>
<p>1.10.2. Established mechanism for cross-border information sharing</p>	<p>Viet Nam has maintained information sharing in accordance with its IHR (2005), OIE, and ASEAN commitments.</p> <p>DAH and its counterparts in Cambodia, China and Lao PDR, with support from FAO, organized technical working groups and cross-border meetings during 2017 (Viet Nam-China in July and in November, Viet Nam-Cambodia in October, and Viet Nam-Lao PDR in September).</p> <p>Cambodian colleagues participated in the 15th Epi-Labnet meeting in Can Tho in May, a joint investigation mission between Viet Nam and Cambodia on the molecular epidemiology of H7 and H9 was held in August, and a Cambodia-Viet Nam technical laboratory exchange visit took place at RAHO6 in September.</p> <p>DAH and FAO ECTAD Viet Nam with support from USAID organized the 15th Network of Epidemiology and Laboratory (Epi-Labnet) Meeting in Can Tho in May 2017, in Can Tho. This meeting provided an update on the poultry, swine and aquatic animal diseases situation and identified gaps and solutions to improve animal disease outbreak prevention and responses. A representative of the Government of Cambodia provided a briefing on the avian influenza situation in Cambodia, and cross-border collaboration was discussed.</p>	<p>The Viet Nam-Lao PDR meeting in September 2017 agreed on the prioritization of collaborative actions from 2018-2019.</p> <p>Veterinarians from Lao PDR will have the opportunity to enrol in Viet Nam's AVET program in 2018 and to attend the next Epi-Labnet meeting.</p> <p>The 16th Epi-Labnet meeting will be organised.</p> <p>USAID EPT/PREDICT (WCS) will work with agencies within MARD and MOH and related stakeholders to introduce data distribution tools through the globally accessible public portal (http://data.predict.global).</p> <p>DAH with support from FAO is developing concept notes for cross-border value chain studies with both Cambodia and China.</p>
<p>E. Trained One Health workforce</p>		
<p><i>1.11. Sufficient numbers of trained professional staff are proficient One Health practitioners</i></p>		
<p>1.11.1. Adopt curriculum for One Health training and include One Health as</p>	<p>An Introductory course in One Health Public Health/ Field Epidemiology (FETP) was introduced to veterinary staff. The Department of Veterinary Medicine, VNUA has also begun</p>	<p>Further AVET courses will be organized in 2018.</p> <p>DAH with support from FAO will</p>

<p>an integral part of FETP and AVET training</p>	<p>to incorporate One Health into the curriculum.</p> <p>FAO together with the City University of Hong Kong is developing a strategic framework for epidemiology, and updating and delivering in-service training for epidemiologists. Stakeholder consultation meetings were organized in Ha Noi and HCMC in September 2017.</p> <p>The existing in-service training curriculum (AVET/Advanced AVET) is being reviewed, and a curriculum for field-based and e-learning modules developed. The AVET manual is being reviewed by FAO, the City University of Hong Kong and the Royal Veterinary College (London).</p> <p>FAO is supporting the development of a curriculum for field-based and e-learning modules, a veterinary and epidemiological curriculum for DVS and CAHW, field-based training module for DVS (Epidemiology) in six pilot provinces, a field-based training module for CAHW (disease recognition), and an e-learning platform and modules based on identified needs.</p>	<p>develop an on-line system for sharing documents and training modules within FAO.</p>
<p>1.11.2. Separate and joint FETP and AVET training programs that are integrated into the staffing structure of MOH and MARD and other relevant institutions</p>	<p>Training courses have been organised on: Applied Veterinary Epidemiology Training (AVET); Investigating animal diseases in wildlife; Introductory Course on One Health and Public Health/FETP for veterinary staff; Interdisciplinary training on outbreak investigation; Interdisciplinary training on rabies control; Interdisciplinary training on avian influenza A(H7N9).</p>	<p>Separating and joint FETP and AVET courses will continue to be organized.</p>
<p>1.11.3. Completion of VOHUN curricula development for undergraduate and postgraduate courses including the addition of risk and behaviour change communications modules</p>	<p>VOHUN curricula for undergraduate and postgraduate courses including the addition of risk communication components are continuing to be developed, piloted, revised and proposed for formal adoption.</p> <p>HSPH with support from USAID EPT/OHW and VOHUN is developing a One Health-focused Masters of Public Health, majoring in Environmental Health. The training curriculum and lesson plans have been prepared, and textbooks are being revised or developed for different modules.</p> <p>Nong Lam University, HCMC (NLU) with support from USAID EPT/OHW and VOHUN is developing the curriculum for a Master's Degree on Veterinary Medicine specialized in Public Health.</p> <p>Based on the existing One Health textbook of HMU, USAID EPT/OHW and VOHUN have developed a One Health textbook for veterinary students.</p>	<p>Activities on curriculum development, piloting and revision, and formal adoption will continue.</p>

	<p>USAID EPT/OHW and VOHUN have developed training materials and a textbook for a module on environmental and livestock waste management, incorporating a One Health approach.</p> <p>A “One Health in Practice” course for the Veterinary Medicine program at NLU and the Public Health and Preventive Medicine programs at the HCMC University of Medicine and Pharmacy (UMP) has been developed.</p> <p>USAID EPT/OHW and VOHUN have supported One Health student clubs in several universities. New clubs were established in 2017 in the Thai Binh University of Medicine and Pharmacy, in Can Tho University of Medicine and Pharmacy, in the Bac Giang University of Agriculture and Forestry, and in Tay Nguyen University.</p> <p>With support from VOHUN through the USAID/EPT OHW project, a number of One Health competitions, seminars and team building activities have been organised through the One Health club in different locations.</p>	
<p>1.11.4. Continuing to increase the number of people trained in One Health approaches via VOHUN with the support of EPT-2 including expanding training for students who will work in the environment health sector and in-service training on One Health core competencies for preventive medicine and veterinary practitioners, as well as rangers responsible for managing the farming and transport of wild animals. Assess the impact of this training on practice and zoonotic disease outcomes</p>	<p>A stakeholder consultation workshop on strengthening the One Health workforce in Viet Nam was organized in early 2017. This workshop discussed achievements to date as well as needs and gaps within the One Health workforce in Viet Nam.</p> <p>VOHUN with support from USAID EPT/OHW is developing lesson plans and supporting instructional resources for a module on environment and livestock waste management.</p> <p>VOHUN with support from USAID EPT/OHW is developing textbooks for two modules on “Climate change and health” and “Application of a One Health/EcoHealth approach in the management of environmental health issues”.</p>	<p>HAIVN will work with Ha Noi University of Medicine and Pharmacy (HUMP), VOHUN and the public health and clinical infectious diseases network to implement a monthly live on-line seminar series on emerging infectious diseases. These seminars will share cases, challenges and best practices.</p>
<p>1.11.5. Nationally defined number of human health and animal health epidemiologists to be trained in IHR and PVS core</p>	<p>DAH and FAO are cooperating to identify critical competencies on veterinary epidemiology required by DAH, SDAH, RAHOs, DVS and CAHW, and to develop a training plan.</p> <p>Supporting the development of One Health core competencies, field-based training courses on</p>	

competencies by 2020	One Health and Veterinary Medicine have been provided to staff of provincial Sub-Departments of Animal Health and Preventive Medicine Centres in three regional locations (north, centre and south), including both theory and fieldwork practice components.	
F. Appropriate One Health research		
<i>1.12. Undertake appropriate research to fill gaps in application of One Health approaches to policy and practice including research on specific diseases</i>		
1.12.1. Identify gaps in knowledge, obtain funding, conduct research and regularly share findings with stakeholders including policy makers (annual meetings)	<p>The OHP Secretariat is developing a database of One Health research in Viet Nam.</p> <p>OHP Secretariat with support from USAID disseminated policy briefs on estimating the cost of rabies in Viet Nam and on a case study on human, animal and environmental health risks from pig farm wastewater.</p> <p>The first 6-monthly Research-to-Policy (R2P) meeting of the OHP was conducted in Hanoi on 12 December 2017. These meetings focus on: (i) Strengthening collaboration, networking and information sharing about One Health research activities; and (ii) Integrating research results and recommendations that can be presented to policy makers and discussed at the Annual One Health Forum.</p>	<p>Further R2P meetings will provide a forum for sharing research plans and findings, and identifying overall One Health research priorities in Viet Nam.</p> <p>OHP Secretariat with support from the USAID- and UNDP-funded SCOH2 project will commission case studies of different aspects of One Health efforts and disseminate policy briefs.</p>
1.12.2. Nationally defined research priorities for zoonotic diseases including research on health and livestock systems, social and Ecohealth aspects critical to zoonotic disease emergence, prevention and control, and the application of new tools to track and minimise the development of antimicrobial resistance	<p>Priority studies on rabies, influenza, plague, and research on new pathogens of animal origin have been carried out.</p> <p>NIHE and the NHTD together with support from OUCRU convened a meeting in Hanoi to develop a roadmap on AMR in Viet Nam. This included sharing of research initiatives on AMR in different sectors in Viet Nam as well as discussion on research priorities and ensuring quality and standardised approaches.</p>	The 6-monthly Research to Policy (R2P) meeting of the One Health Partnership will progressively identify research priorities.
1.12.3. Established mechanism for researchers and academics to periodically inform policy makers of new developments and apply research findings to policy and practice	NIAS organized a consultation workshop on understanding the drivers of the endemic circulation of influenza A viruses in Viet Nam for improving of poultry smallholder's welfare in March 2017.	

<p>1.12.4. Annual national One Health Forum meetings</p>	<p>Overall meetings of the OHP organized to date by MARD together with MOH with support from the OHP Secretariat and the USAID-funded SCOH2 project include the launching meeting and signing of the Partnership Framework in March 2016, and the meeting to the OHSP and the meeting to strengthen One Health cooperation and to identify expected financial and technical resources to be applied within the framework of the OHSP 2016-2020 in July 2017.</p>	<p>The annual One Health Forum meeting will be organized by MARD together with MOH with support from the OHP Secretariat and the USAID- and UNDP-funded SCOH2 project.</p>
<p>1.12.5. Participation in key regional and global meetings and conferences to further refine the application of the One Health approach</p>	<p>GDPM, DAH and the OHP Secretariat conducted an exchange visit to Jakarta, Indonesia in May 2017 with support from USAID EPT/P&R. The visit included discussions on the GHSA ZDAP Action Package and planning for the 3rd International ZDAP conference in Da Nang in August 2017.</p> <p>MOH and MARD with support from the OHP Secretariat through the USAID-funded SCOH-2 Project via UNDP, FAO, US CDC and USAID EPT/P&R organized the 3rd International ZDAP Conference in Da Nang in August 2017, with the participation of around 170 delegates coming from 32 countries and organizations. A report on the conference ZDAP was shared with GHSA members, together with the updated the ZDAP Global Strategic Plan for sharing with related stakeholders and the ZDAP coordination mechanism adopted at the conference. The Government of Viet Nam, represented by MOH, handed over the chairing role of the ZDAP lead countries to Senegal at the end of 2017.</p> <p>A GoVN delegation led by MOH joined the High-Level GHSA meeting in Kampala, Uganda in October 2017. At this meeting, delegates agreed that the GHSA should be extended to 2024. Viet Nam initiated a ZDAP side-meeting in Kampala, which was co-chaired by Viet Nam, Indonesia and Senegal.</p> <p>In addition, Viet Nam has participated in many other important meetings on the application of the One Health approach and Global Health Security at regional and global levels.</p>	<p>A number of presentations on One Health activities in Viet Nam will be presented at the PMAC meeting in Bangkok in January 2018.</p> <p>A delegation from Viet Nam is expected to attend the One Health Congress in Manitoba, Canada in June 2018.</p> <p>Senegal is expected to host the 4th International ZDAP Meeting during 2018.</p> <p>A further high-level GHSA meeting is expected to take place in Indonesia in late 2018.</p>
<p><i>1.13. Undertake selected environmental health research aimed at understanding the drivers of disease emergence and measures to reduce risk to guide practice, for example, enhanced land use planning for the livestock sector (see focus area 3)</i></p>		
<p>1.13.1. Farm locations assessed for potential hotspots for pathogen emergence, amplification and transmission (e.g.</p>	<p>DLP and DAH are cooperating to develop safe livestock production areas. The investigation and consideration of the potential for emergence, development and spread of diseases are conducted by specialized agencies of DAH and the system of sub-DLP and sub-DAH at the</p>	<p>DLP and DAH will continue to develop safe livestock production areas.</p> <p>USAID EPT/PREDICT (WCS) will continue identifying potential</p>

effects of developing new livestock production zones)	provincial level. USAID EPT/PREDICT (WCS) is cooperating with DAH RAHO5 and RAHO6 to assess risks related to bat guano farms (see 3.1.2).	hotspots for pathogen emergence, amplification and transmission.
G. Prevention activities		
<i>1.14. Other targets</i>		
1.14.1. Infection control processes and antibiotic stewardship programs established in all reference and provincial hospitals	The National Paediatric Hospital with support from HAIVN held a workshop to develop the framework for a national Antimicrobial Stewardship Program (ASP). This framework has been agreed with VNCH and a private sector partner, Merck, Sharp & Dohme Company (MSD). Assessment tools for ASP are being developed, including: a hospital Antimicrobial Stewardship Program, Physicians' knowledge and attitudes on ASP, antibacterial use at the hospital for treatment and surgical prophylaxis.	
1.14.2. Biosecurity measures established and enforced in large livestock and wildlife farms and for animal transport, and enhanced cleaning and disinfection of farms and markets	<p>DLP is implementing a project on Good Animal Husbandry Practices following the VietGAHP Procedures issued under Decision No. 4653/2015QD-BNN-CN (as well as previously issued regulations on biosafety in livestock production under Circular No. 04/2010/TT-BNNPTNT).</p> <p>DLP with support from FAO has organised a range of training activities on good management practices and biosecurity, including training for poultry layer and broiler farmers, and on the job training for farmers on composting.</p> <p>DLP and FAO are working together to improve farm biosecurity and management of animal production using ASEAN Good Animal Husbandry Practices, including working with DARDs in two provinces (Thai Nguyen and Vinh Phuc) on pilot farm models, training on good management practices and biosecurity for poultry-layer and broiler farmers, and development of a pilot model for livestock farm database management including farm IDs. A technical consultation meeting on draft ASEAN GAHP certification regulations and auditing checklist was held in December 2017.</p> <p>DLP with support from FAO is developing a Provincial Pilot Model for Livestock Farm Database Management (including farm IDs). This will be tested in two provinces (Tien Giang and Thai Nguyen).</p> <p>DLP with support from FAO conducted a survey on poultry hatcheries and parent flock farms in Hung Yen province. FAO produced a "Q&A Handbook for good management</p>	<p>DLP will continue to establish and implement biosafety measures in large scale cattle and wildlife farms as well as in animal transportation. Sanitation and disinfection at farms and markets will be strengthened.</p> <p>DLP with support from FAO will continue working on improving hatchery and parent flock management practices, poultry egg traceability, and on farm database management.</p> <p>The ASEAN GAHP will be shared at a national advocacy workshop, and DLP with support from FAO will continue to develop draft ASEAN GAHP certification regulations and an auditing checklist.</p> <p>CITES MA with support from FAO will continue strengthening wildlife farm management and technical guidelines for wildlife breeding and raising.</p>

	<p>practices and biosecurity in small and medium –scale poultry hatcheries”: http://www.fao.org/3/a-i7492e.pdf</p> <p>CITES MA and FAO reviewed legislation on wildlife farm management and prepared guidelines for wildlife farming management. CITES MA with support from FAO is developing SOPs and technical guidelines for improved management of wildlife farms, and technical Guidelines for Primates Breeding Cages/Barns at Wildlife Farms.</p> <p>CITES MA with support from FAO conducted a field census survey using updated management tools for wildlife farms in ten provinces (Hanoi, Lang Son, Ninh Binh, Nghe An, HCMC, Binh Duong, Binh Phuoc, Tay Ninh, Dong Nai and Kien Giang).</p> <p>NAEC with support from FAO has developed training materials (presentation and handbook) on good management practices and biosecurity for duck flocks and trainings for master trainers. Courses on training of trainers for national resource people was organized in Hai Phong and Dong Thap, followed by training courses for poultry farmers (Dong Thap, Hanoi, Hai Phong, and Binh Dinh).</p> <p>A handbook on ‘Q & A on good management practices and biosecurity at duck parent flock farms’ has been tested with duck parent flock farmers in Hung Yen. The training package on good duck parent flock management and biosecurity (including Q&A handbook and PowerPoint presentations) have been reviewed and revised following the completion of the training courses in Dong Thap, Hanoi, Hai Phong, and Binh Dinh.</p>	
<p>1.14.3. Development of antibiotic stewardship guidelines for the livestock sector and improvement and enforcement of regulations of antibiotic use in animals</p>	<p>MARD issued Circular No. 13/2016/TT-BNNPTNT on management of veterinary medicines, chemicals and antibiotics in animal feeds (feed for terrestrial and aquatic animals). MARD has developed a roadmap to reduce the use of antibiotics in feeds. According to Decree No. 39/2017/ND-CP and Circular No. 06/2016/TT-BNNPTNT, the use of antibiotics in feeds is only permitted with a veterinary prescription, using more than two types of antibiotics in a feed product is prohibited, and antibiotics must be on the list of authorized use specified by MARD and specifically used only for the treatment purpose or prevention of disease in young cattle.</p>	<p>Guidelines for the management of antibiotic use in the livestock sector will be developed, improving and enforcing regulations on the use of antibiotics in animals.</p> <p>The draft Livestock Production Law will include stipulations on the use of chemicals in the environmental protection section.</p>
<p>1.14.4. Reduce illegal wildlife trafficking</p>	<p>Efforts to reduce illegal wildlife trafficking are ongoing in Viet Nam, supported by a number of international partners.</p> <p>DAH with support from FAO has trained</p>	<p>Efforts to reduce illegal wildlife trafficking will continue.</p> <p>Identification of specific risks and drivers of zoonotic diseases (e.g. the</p>

	<p>rangers on the risk of wildlife disease transmission to humans through illegal trading activities. A number of legal documents including Directives 03 and 28, the Forest Law, and the Customs Law, have been issued relating to the illegal raising, marketing and transportation of wildlife.</p> <p>CITES MA in collaboration with the General Department of Viet Nam Customs of the Ministry of Justice, NGOs, associations such as WCS, Traffic, and HSI have conducted investigation and checks.</p>	<p>pathogen discovery work by USAID EPT/PREDICT (WCS)) may identify specific overlaps to be addressed through One Health initiatives within the framework of the OSHP.</p>
<p>1.14.5. Improved risk assessment tools for the environment and the emergence of zoonotic diseases. Application of tools to define high-risk settings and to inform economic development projects, livestock restructuring and land-use changes</p>	<p>DLP has advised the Government on policies on attracting investment in agriculture and rural areas in general. In particular, DLP has advised on: revision of regional and local planning to limit and ban livestock in densely populated areas; training on environmental risk assessment tools and the emergence of zoonotic diseases; and applying tools to identify high-risk cases and information on economic development projects, livestock sector restructuring, and changes in land use.</p> <p>Through the Pestforecast project, ILRI and other international partners have worked with agencies within MARD, MOH, MONRE and the HSPH to evaluate the seasonality and other climate risk factors associated with the incidence of selected climate sensitive diseases using health and climate secondary datasets as well as to develop risk maps. The Pestforecast applied this approach to evaluate the prevalence/level of selected climate sensitive diseases (Japanese encephalitis and leptospirosis) in pigs and maize (Aflatoxin) and to evaluate perceptions and knowledge of climate sensitive diseases among people in the study areas. The study identified geographical and seasonal patterns of human infectious diseases from surveillance data and the associated climate risk factors in Viet Nam, which can help target prevention interventions.</p>	<p>Training and application on tools for assessing environmental risk and the emergence of infectious zoonotic diseases will continue to identify high-risk cases and information on economic development projects, livestock sector restructure, and changes in land use.</p>
<p>1.14.6. Defined national environmental standards in relation to agricultural land use and agreed on methodology for assessing the receptive capacity of land for safe agricultural production</p>		
<p>1.14.7. Assessment of the excretion of heavy</p>		

metals and dangerous substances from industry and its impact on the environment and the health of animals and people. Implement measure for control and management		
1.14.8. Strengthen capacity for pollution control and environmental protection in human and animal disease prevention and control units	<p>The National Assembly, the Government and MOH have issued a number of laws, decisions, circulars and related legal documents on medical waste treatment and management for the healthcare system, as well as a communication plan on medical waste management in 2017-2021 by MOH and guidelines for nationwide implementation. Training materials have been developed and training courses implemented.</p> <p>MONRE and MOH are currently cooperating to revise, supplement and develop some new national regulations relating to medical waste treatment in line with the Law on Environmental Protection (2014) and the actual situation.</p> <p>Support has been provided for environmental monitoring equipment for the four regional hygiene and epidemiology institutes, and for medical waste treatment in hospitals and health establishments with environmental pollution risks.</p> <p>The Animal Health and Human Health sectors regularly coordinate on pollution control and environmental protection at disease prevention and control facilities for animals and humans.</p>	Capacity for pollution control and environmental protection at animal and human disease prevention and control facilities will continue to be strengthened.
H. Surveillance & reporting		
<i>1.15. Improved surveillance systems</i>		
1.15.1. Established electronic communicable disease reporting system for human laboratories & public health units	MOH issued Circular No. 54/2015/TT-BYT on guidelines on mechanisms for report information and report communicable disease, superseding previously issued Circular No. 48/2010/TT-BYT.	MOH will develop guideline for implementation of the circular, evaluate effectiveness of implementation, and develop tools/system for reporting, monitoring and sharing of zoonoses information.
1.15.2. Established indicator-based surveillance for 42 priority human diseases	Indicator-based surveillance is being carried out in line with Circular No. 54/2015/TT-BYT on guidelines on mechanisms for report information and report communicable disease.	
1.15.3. Established event-based and syndromic surveillance system	In September 2016, MOH with support from US CDC launched a pilot of event-based surveillance (EBS) in four provinces of Viet Nam, later expanded to two additional	Based on the results of the evaluation of the EBS pilot, MOH has decided to expand event-based surveillance nationally in 2018, as

<p>with evidence of animal and human health investigations of detected events/syndromes</p>	<p>provinces during May-June 2017. This surveillance program extends into the local community and for the first time actively engages community health volunteers and other community leaders in the detection and reporting of outbreaks, using newly developed guidelines and reporting tools. From October 2016 to September 2017, a total of 3,055 signals, or potential outbreaks, were reported to the event-based system. Of those, 240 signals (8%), were confirmed to be outbreaks, with 228 (95%), having been reported soon enough to allow for a timely and effective response. Notable outbreaks have been detected through the pilot EBS system included numerous foodborne outbreaks, and hand foot and mouth disease, mumps, diphtheria, and chicken pox. An extensive evaluation of the EBS system in March and June 2017 demonstrated conclusively earlier detection of outbreaks and more timely responses, with relatively short median time for signals to be first notified to district health centres as well as for outbreak response. Moreover, implementers of event-based surveillance expressed a high level of acceptance and willingness to continue supporting the program in the future.</p> <p>GDPM with support from WHO conducted a field assessment on facilitating factors and barriers to event-based surveillance in laboratories and hospitals in Bac Giang, Binh Duong, Cao Bang and Ha Noi.</p>	<p>part of the national routine surveillance program.</p>
<p>1.15.4. Established enhanced and sentinel surveillance among people and animals (including wildlife) for 5 priority zoonotic diseases and selected surveillance of high-risk animal groups</p>	<p>Beginning in 2016, MOH and MARD with support from US CDC, FAO, WHO and USAID EPT/PREDICT (WCS) have been developing a coordinated One Health approach to human and animal influenza surveillance through the Longitudinal Influenza Surveillance Network (LISN). LISN aims to enhance detection and characterization of influenza and other viruses with pandemic potential in Viet Nam by linking components of existing influenza surveillance in domestic animals (poultry and swine), wildlife and humans. Quang Ninh and Dong Thap have been selected as pilot provinces based on the animal value chain and on-going surveillance programmes in humans, domestic animals and wildlife. Surveillance under LISN will include testing of human SARI samples from sentinel hospitals for influenza and other priority pathogens, testing of samples from poultry and swine that appear healthy, and wildlife surveillance at high-risk interfaces for viral spillover from wildlife to domestic animals or humans including live animal markets, bat guano collection sites, and wildlife restaurants. All results will be shared across sectors for</p>	<p>LISN roll-out will continue.</p> <p>GDPM with support from WHO is planning to pilot interventions event-based surveillance in laboratories and hospitals in two provinces (Dien Bien and Tay Ninh).</p> <p>DAH with support from FAO will organize a national review workshop on surveillance of zoonoses and animal diseases by the RAHOs.</p> <p>DAH with support from FAO will continue to roll out the use of Pen-side PCR.</p>

joint situation analysis and risk assessment. FAO and USAID EPT/PREDICT (WCS) surveillance also includes livestock, human and wildlife samples from similar locations in Dong Nai.

GDPM with support from WHO conducted a pilot demonstration in two provinces (Nam Dinh and Binh Thuan) on interventions to strengthen the engagement of hospital health staff and laboratory staff for event reporting. This study is expected to provide inputs for the revision of the Communicable Diseases Law. Training has been provided to PMC and hospital staff in these two provinces.

WHO supported training and certification of 40 national and provincial facilitators on SARI case management through two pilot TOT courses. One pilot SARI case management training for the district level also was also conducted in Gia Lai in September.

WHO has supported the development of a draft national training program on clinical management for SARI during the period 2016-2020 and vision to 2030. The draft curriculums for TOT SARI at the provincial level was also developed with support from WHO.

The NHTD with support from WHO completed a three-day training course on SARI case management to provide basic knowledge and skills on critical medical cases for 48 medical doctors and nurses working in ICUs, infectious disease departments of 5 districts hospitals of Khanh Hoa province, and provincial hospitals in Khanh Hoa, Ninh Thuan, Lam Dong, and Phu Yen.

The HMU with support from WHO collected data for the assessment of local capacity for SARI management in six provinces (Cao Bang, Lang Son, Quang Binh, Quang Tri, Tay Ninh and Long An).

A scientific workshop on infectious diseases and clinical management for SARI cases in Viet Nam was organized by HMU with support from WHO in September 2017.

MOH with support from US CDC has leveraged prior investments in influenza to expand laboratory and surveillance capacity by increasing testing capacity for seven additional non-influenza viruses added to the existing national network of hospital-based sentinel surveillance sites for SARI in January 2016. SARI surveillance has been also harmonized and standardized throughout the country, together with the creation of a web-based platform that allows real-time data reporting from sentinel sites to the central surveillance

	<p>database. Based on the success of the SARI surveillance system, in July 2017, MOH has launched a national sentinel surveillance system for arboviral diseases, e.g., Dengue, Zika, and Chikungunya, with standardized surveillance guidelines. This newly launched arbovirus sentinel surveillance will apply the same reporting platform as the web-based tool developed for SARI surveillance.</p> <p>DAH with support from FAO has introduced and validated a rapid, portable field diagnostic tool, Pen-side PCR. Veterinarians and quarantine officials from northern borders provinces as well as Hanoi have been trained on the use of this tool.</p>	
<i>1.16. Improved information sharing</i>		
1.16.1. Improved compatibility of animal and human health diagnostic and surveillance data collection systems to enhance rapid information sharing and move towards interoperable systems	DAH with support from FAO is developing a pilot national online animal disease reporting system (ADRS) in RAHO2, and has provided training for all RAHOs, in preparation for rolling out the system nationwide.	<p>FAO will support the continued roll-out of the ADRS.</p> <p>CIRAD will assess inter-sectoral and inter-disciplinary collaboration within the surveillance system of ABR and ABU, and develop and innovative method to promote collaborations across sectors and disciplines using participatory modelling, based on the case study of the surveillance of ABR and ABU in Viet Nam.</p>
1.16.2. Improved information sharing across borders at key points of entry and joint planning to reduce the spread of disease across borders	Viet Nam has carried out its commitments under IHR (2005), OIE, ASEAN, and bilateral agreements (see 1.10.2 for further information).	<p>Viet Nam will continue to meet its commitments under IHR (2005), OIE, ASEAN, and bilateral agreements.</p> <p>WHO will provide training on APSED III and IHR (2005) for personnel working at points of entry.</p>
1.16.3. Reporting to OIE of detected listed diseases and to WHO of public health emergencies of international concern within designated time periods	<p>GDPM with support from WHO conducted a review of annual reporting under IHR (2005) during 2017.</p> <p>GDPM and WHO have worked together to develop a draft SOP on reporting on a potential public health emergency of international concern (PHEIC).</p> <p>MOH has implemented activities of the national focal point for IHR (2005), receiving and report of PHEIC events to WHO.</p>	Activities of the national focal point for IHR (2005) will continue.
1.16.4. Improved capacity to analyse and interpret surveillance data in both the animal and human health sectors	<p>Training courses have been organized by MARD and MOH with support from US CDC and FAO to improve epidemiology capacity (from basic to advanced levels) for central and provincial veterinary and health workers.</p> <p>Through the Pestforecast project, ILRI and</p>	Training courses will continue.

	other international partners have worked with agencies within MARD, MOH, MONRE and the HSPH to evaluate the seasonality and other climate risk factors associated with the incidence of selected climate sensitive diseases using health and climate secondary datasets as well as to develop risk maps.	
I. Emergency management & response		
<i>1.17. Capacity for emergency management & response</i>		
1.17.1. Established emergency operations centre at national level with an equivalent structure established in all regions	The national EOC has been established within GDPM, and regional EOC have been established at NIHE and PI-HCMC.	Further regional and provincial EOC are planned.
1.17.2. Exercise(s) to test function of emergency operations centre and national pandemic/all hazards plans including at least one national disease emergency exercise that tests non-health impacts and whole-of-society responses	A number of exercises have been organized (see 2.4.1, 2.5.1 for more information).	Further exercises will be organized.
1.17.3. At least one IHR joint external evaluation (coupled with a similar or preferably linked assessment of veterinary services)	<p>MOH with support from WHO initiated the JEE process in mid-2016. MOH conducted the JEE self-assessment in August 2016 using the IHR JEE tool, engaging related ministries and development partners. In late 2016, a multi-sectoral team of subject matter experts from WHO, peer WHO Member States and Viet Nam reviewed Viet Nam's capacities and capabilities in relation to the 19 technical areas of the IHR JEE to inform a multi-year national action plan using the Asia Pacific Strategy for Emerging Diseases and Public Health Emergencies (APSED III) as a framework. The team visited the public health EOC, GDPM and DAH surveillance divisions and laboratories, a national hospital, Noi Bai airport, and Bac Giang provincial health department.</p> <p>The JEE found that significant progress has been made in Viet Nam in meeting the IHR (2005) core capacity requirements. Based on the capacities identified in the IHR JEE tool:</p> <ul style="list-style-type: none"> • 17% of capacities were assessed as having 'demonstrated capacity' • 52% of capacities were assessed as having 'developed capacity' • 31% of capacities were assessed as having 	<p>GDPM with support from WHO will complete the National Master Plan on Emerging Infectious Diseases and Public Health Emergencies for Continued Strengthening of IHR Core Capacities (the "IHR Master Plan"), informed by the JEE and APSED III. The IHR Master Plan is expected to be submitted to the Prime Minister for approval during 2018.</p> <p>GDPM will convene an IHR Technical Working Group with support from WHO and USAID EPT/P&R.</p> <p>MOH and MARD, with support from the World Bank and the Government of Japan, will implement key recommendations of the Joint External Evaluation (JEE) and, in so doing, strengthen pandemic preparedness. The specific objectives of this activity are to: (i) improve overall preparedness and coordination of capacity pandemic risk reduction,</p>

	<p>‘limited capacity’</p> <p>Areas with a high level of capacity included the IHR (2005) technical areas of coordination, communication and advocacy; zoonotic diseases; real-time surveillance; and immunization.</p> <p>Viet Nam was the initial pilot country for the OIE PVS evaluation in 2006, and has continued to cooperate closely with OIE to conduct the gap analysis and follow up activities.</p> <p>Viet Nam has commenced piloting of the new Health Security Financing Assessment Tool (HSFAT) developed by the World Bank (Viet Nam is the first country to apply this tool).</p> <p>The results of these assessments are being and will be used to identify, prioritise and address gaps in national capacity.</p> <p>GDPM with support from WHO has initiated the development of a National Master Plan on Emerging Infectious Diseases and Public Health Emergencies for Continued Strengthening of IHR Core Capacities (the “IHR Master Plan”), informed by the JEE and APSED III. A core technical working group has been convened, national consultants mobilized, and working group meetings and a multi-sectoral consultation workshop organised.</p>	<p>and (ii) strengthen management of specific priority sources of zoonotic and pandemic risk.</p>
1.17.4. Evidence of joint outbreak investigations and management for zoonotic diseases	<p>DAH and GDPM have directed the implementation of outbreak investigations (for example for avian influenza, rabies and streptococcus suis) in line with Circular No. 16/2013/TTLT/BYT-BNPPTNT,</p>	<p>Implementation of Circular No. 16/2013 will continue. Guidelines on joint outbreak investigation and management of zoonotic diseases will be developed, and further training provided with support from FAO and WHO.</p>
1.17.5. Updated clinical and standard operating guidelines for the management of priority zoonotic diseases	<p>MARD issued Circular No. 07/2016/TT-BNNPTNT on the prevention and control of terrestrial animal diseases, including five prioritized zoonotic diseases.</p> <p>MARD and MOH continue to issue the standard and clinical guidelines for the management of communicable disease from prioritized animals.</p>	<p>VAMS with support from WHO will develop a guideline for a hospital response plan for an emerging disease outbreak.</p>

Potential gaps and areas for further consideration

While there are a number of relevant steering committees, and provisions for high-level national inter-sectoral mechanisms to deal with outbreaks, the proposal for a new integrated One Health steering committee noted in the OHSP is not expected to be adopted at this time.

The pilot activities and evaluation of Circular No. 16/2013 on collaboration between the human and animal health sectors has generated recommendations for enhanced guidelines

(see the proposed future directions under Output 1.1.2 above for a summary of recommendations). Currently, there is an overall national direction not to issue further joint circulations between more than one ministry. These two sectors may wish to consider issuing parallel, aligned guidance documents to strengthen collaboration between these sectors in relation to zoonotic diseases prevention and control.

Currently, funding for the One Health Partnership and key OHSP activities is secured through mid-2019. What are the prospects for sustainability of these activities and further international cooperation beyond this point?

Is there a need for a mid-term review of the OHSP? It is now time to begin discussing the orientation from 2020 onwards?

At the GHSA high-level meeting in Kampala, Uganda in October 2017, GHSA member countries agreed that the GHSA should be extended to 2024. Consideration may be needed on the national implications of this possible extension.

Reduction in State budget funds in the context of sector restructuring can result in limitations in human resources and other factors for meeting national disease control targets.

Information sharing between the human and animal health sectors is still carried out manually. As both sectors continue to strengthen their online reporting systems, consideration could be given to more effective information sharing mechanisms and tools between the two sectors.

To date, very few activities providing technical, financial and other assistance have been identified on clarifying the role of MONRE and the environmental sector in relation to specific One Health outcomes, activity areas and related legal and policy frameworks. The draft OHSP implementation plans for the health and agriculture sectors particularly identify the need for MONRE's role on collaborating on:

- research on the assessment of environmental impacts and risks to public health;
- monitoring/sharing information on risks/diseases affected by environment;
- investigation and handling of environmental risks related to public health;
- developing the preparedness plan for environmental risks related to public health;
- communication to raise public awareness about prevention and mitigation of environmental risks related to public health;
- environmental quality and management and treatment of livestock waste discharged into the environment.

Specific environmental activities identified in the OHSP that have not yet been done include:

- Defined national environmental standards in relation to agricultural land use and agreed methodology for assessing the receptive capacity of land for safe agricultural production.
- Assessment of the excretion of heavy metals and dangerous substances from industry and impacts on the environment and the health of animals and people, and implementing measure for control and management.

More consideration may be needed to official adoption and sustainability of AVET, FETP and VOHUN activities in future. Official certification of qualifications within Viet Nam's formal education sector is an important step in ensuring that these courses attract high calibre

students, and that training in One Health core competencies contributes to the professional development and career opportunities of trainees.

Further attention may be needed to the involvement of social sciences in the development and assessment of joint risk and behaviour change communications for priority zoonoses to reduce the drivers of disease emergence and transmission at the human- animal-environment interface.

Further support and attention may be needed for identifying overall national One Health research priorities, building research capacity, designing and carrying out research, and sharing research results within relevant technical and policy networks and forums. Particular attention could be given to inter-disciplinary and inter-sectoral One Health research.

Further efforts are needed to involve the private sector in specific aspects of One Health, for example in efforts on AMR.

A large number of Standard Operating Procedures (SOP) have been developed with support from international partners. Further consideration may be needed on how these SOPs are formalised and put into operation within Viet Nam's legal and institutional context, including the current direction not to issue joint circulars or other documents across multiple ministries. International partners may also need to take this into account when they support the development of One Health inter-sectoral SOPs (e.g. through developing aligned SOPs for related sectors, rather than overall inter-sectoral SOPs).

FOCUS AREA 2. ONE HEALTH APPROACHES FOR MANAGING HUMAN DISEASE EMERGENCIES OF ZOOBOTIC ORIGIN

Background and context

Severe pandemic disease in humans resulting from the spill-over of an animal pathogen is a rare occurrence but can have major, whole-of-society effects (even with relatively short local transmission chains) as illustrated in different parts of the world in recent years by SARS, MERS and Ebola virus disease. A One Health approach involving coordinated inter-sectoral collaboration can mitigate the impact of these events. Well-designed and tested systems are required. A system of Emergency Operations Centres is expected to be fully functional by 2020. Appropriate activation of the Emergency Operations Centre relies on high quality, timely surveillance systems.

Strategic directions

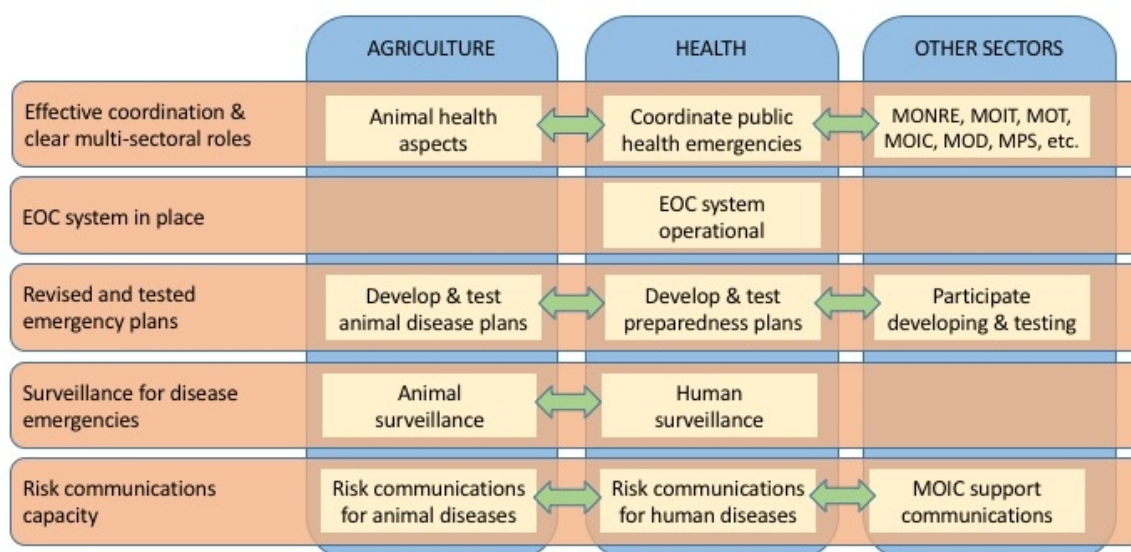
The main objectives in relation to human disease emergencies of zoonotic origin by 2020 are that the emergency management centre is fully operational and that pandemic preparedness plans have been revised and tested. The expected results on this focus area are closely linked with the outcomes, outputs and targets set out under Focus Area 1: One Health capacity building in relation to Emergency management and Response.

Expected Outcomes and Outcome Indicators

The following expected outcomes and outcome indicators are included in the draft Results Framework for the OHSP, 2016-2020.

<i>Proposed Outcome Statement</i>	<i>Proposed Outcome Indicators</i>	<i>Status as of December 2017 and comments on measurement considerations</i>
2. A One Health approach involves coordination among different sectors and levels of government to more effectively and efficiently respond to human disease emergencies. Achievements in this focus area will result in the establishment of functional public health emergency operations Centres (PHEOCs) with the legal mandate, policies and resources (human and financial) to activate in the time of a crisis, enabling quicker response time and reducing the health and economic impacts of zoonotic disease outbreaks of animals and humans	v. PHEOCs at national/ subnational level that are established and functional with dedicated human and technical resources that meet minimum quality standards by 2020	The national EOC (within GDPM) and two regional EOCs (within NIHE and PI-HCMC) have been established. Capacity building and development of human and technical resources is ongoing, with support from international partners. Further subnational PHEOCs are expected to be established during the period 2018 to 2020.
	vi. Animal and Human Health preparedness and response plans are regularly tested and updated	Regular testing of preparedness and response plans is being coordinated through the national PHEOC. Animal and Human Health sectors have also cooperated on preparedness and response exercises, for example for a possible incursion of influenza A(H7N9).

Key areas for inter-sectoral collaboration on Focus Area 2



Highlighted achievements as of December 2017

- National EOC (at GDPM) and two regional EOCs (at NIHE and PI-HCMC) in place. Capacity building and development of human and technical resources is ongoing, with support from international partners.
- Regular testing of preparedness and response plans is being coordinated through the national EOC.
- Animal and Human Health sectors have also cooperated on preparedness and response exercises, for example for a possible incursion of influenza A(H7N9).

Progress on OHSP Outputs and Targets as of December 2017

<i>Key Outputs & Output Targets</i>	<i>Highlighted activities in 2016/2017</i>	<i>Key directions in 2018</i>
<i>2.1. Steering committee for emergency diseases will be operational</i>		
2.1.1. Decisions at Prime Ministerial level required on the nature of the coordinating mechanism	(See 1.1.1 above for information on the steering committee for emergency diseases.) The specific steering mechanism for the national EOC system is the Steering Committee for the Prevention and Control of Dangerous and Emerging Diseases, established and chaired by MOH.	
<i>2.2. Role of Ministries other than MOH is fully defined</i>		
2.2.1. Determine the role of other Ministries in the event of a disease that is yet to spill over to humans in Viet Nam	MOH Decision No. 567/2017/QĐ-BYT dated 21 February 2017 approving the Prevention and Control Plan for Influenza A(H7N9) identifies relevant scenarios and related roles for health sector agencies at the central and local levels. MARD Decision No. 210/2014/QĐ-BNN- TY issuing	GDPM together with DAH, with support from USAID EPT/P&R, will convene a meeting in early 2018 to discuss H7N9 preparedness, including multi-sector

<p>(e.g. if H7N9 is detected in poultry but not yet in humans)</p>	<p>the action plan on emergency response to dangerous avian influenza virus strains with potential infection on humans, including influenza A(H7N9), identifies relevant scenarios and related roles for agriculture sector agencies at the central and local levels, as well as the overall roles of other ministries on key preparedness and response activities.</p> <p>GDPM, DAH and the OHP Secretariat conducted an exchange visit to Jakarta, Indonesia in May 2017 with support from USAID EPT/P&R. The visit included a visit to Indonesia's EOC, which forms part of Indonesia's overall disaster preparedness and response mechanisms, under the category of 'non-natural disasters'.</p>	<p>coordination and the roles of different partners under various potential scenarios.</p>
<p>2.3. A fully functional emergency management centre system suitable for responding to all hazards</p>		
<p>2.3.1. EOC operational handbook finalized with SOPs for operating EOC across its five functions; key personnel trained to use it</p>	<p>MOH has issued guidelines for operation of PHEOC, developed the organizational structure and work assignment for different sections, and completed key standard operational procedures.</p> <p>GDPM organised a workshop on developing operational guidelines for the national EOC, with the participation of departments and institutes of MOH and MARD. This workshop proposed to rename and add members to the EOC according to five main functions of the centre.</p>	<p>The implementation guidelines and SOP for the implementation of the EOC will be finalized, in accordance with the five main functions of the Center. It will be necessary to provide training for key personnel on these guidelines.</p>
<p>2.3.2. Regional level EOCs or similar communication centers established to manage regional responses</p>	<p>In addition to the national EOC at GDPM, EOCs were formally inaugurated at NIHE (October 2016) and at PI-HCMC (August 2017).</p>	<p>Further EOCs will be established in selected provinces.</p>
<p>2.3.3. EOC monitoring and response teams trained and fully functional</p>	<p>Training for EOC personnel has been provided in Viet Nam, and selected personnel have also attended workshops and training courses within ASEAN and other international events and courses.</p> <p>Draft guidelines for establishing rapid response teams have been prepared.</p>	<p>Guidelines for rapid response will be issued, and training for personnel from existing and future EOCs will be organized.</p>
<p>2.4. Revised and tested whole-of-society pandemic preparedness plans</p>		
<p>2.4.1. Existing plans renewed and exercises or live outbreaks used to test these</p>	<p>During the past several years, GDPM with support from WHO, CDC and other partners has organised annual joint exercises to test coordination and communication mechanisms between related sectors, including an Ebola exercise (2014), a MERS exercise with EOC activation, an influenza A (H7N9) table top exercise, and an exercise on a food safety event (2015), [what were the exercises in 2016, 2017? GDPM with support from WHO and US CDC conducted an exercise in May 2017 to test the EOC capacity. DID THIS HAPPEN? SPECIFIC TOPIC? RESULTS?].</p> <p>Simulation exercises/rehearsals of prevention and</p>	<p>GDPM together with DAH, with support from USAID EPT/P&R, will convene a meeting in early 2018 to discuss H7N9 preparedness, including desktop exercises on multi-sector coordination and the roles of different partners under various potential scenarios.</p>

	<p>control of influenza A/H7N9 and other dangerous virus strains have been organised by GDPM and DAH with support from WHO, FAO and US CDC in a range of northern locations (including Mong Cai, Quang Ninh, Ha Vy market, Thuong Tin, and Ha Noi) to support preparedness for potential outbreak scenarios.</p> <p>In addition, the Viet Nam national IHR focal point has also participated in annual WPRO IHR exercises.</p> <p>The national IHR focal point has communicated a number of real-life events to WHO, including pandemic (H1N1) 2009 influenza, human infection with avian influenza A (H5N1), and cases of Zika virus infection. MARD has reported several events of avian influenza to OIE in recent years.</p> <p>(See also 1.17.2, 2.5.1)</p>	
2.5. Appropriate surveillance systems for disease emergencies		
2.5.1. EOC capability to collect, analyze and report real-time information and initiate appropriate rapid response established and exercised	<p>As noted under 2.4.1, a number of exercises have been organised to exercise the capacity of the national EOC.</p> <p>A Data Warehouse for management of disease information in the human health sector has been developed.</p> <p>Risk evaluations have been conducted with regular participation of relevant agencies.</p> <p>(See also 1.17.2)</p>	Further capacity development and exercises will be conducted for existing and new EOCs.
2.6. Risk communication for outbreaks		
2.6.1. Build appropriate risk communication packages in the event of any disease emergency by staff trained in this discipline	<p>A workshop was organised to develop standard procedures for risk communication in accordance with five basic principles including: early warning, transparency, listening during epidemic, detailed planning for each stage of the epidemic, and ensuring trust among the community.</p> <p>As noted under 1.8.2, MOH Department of Communication and Reward with support from WHO has commenced the development of an updated national action Plan for risk communications on zoonoses, health emergencies, AMR and food safety, covering the period 2019-2025.</p>	<p>The National Action Plan for Risk Communications, covering the period 2019-2023 will be completed and implemented.</p> <p>Risk communications preparedness for H7N9 will be discussed at the workshop on H7N9 preparedness convened GDPM together with DAH, with support from USAID EPT/P&R.</p>

Potential gaps and areas for further consideration

How to ensure the appropriate involvement of animal health and other sectors in the national, regional and provincial EOCs?

Consideration may also be given to the need to establish an EOC/national zoonoses centre within DAH to strengthen national capacity for responding to zoonotic and other animal disease emergencies, to coordinate with the public health EOC system, and to support Viet

Nam's collaboration with the expected ASEAN Coordinating Centre for Animal Health and Zoonoses (ACCAHZ).

FOCUS AREA 3: ONE HEALTH APPROACHES FOR MANAGING ZOOBOTIC AGENTS WITH PANDEMIC POTENTIAL THAT ARE YET TO EMERGE

Background and context

Viet Nam has been classified as a global hotspot for the emergence of novel zoonotic agents with pandemic potential and has recognised the importance of decreasing the risks of disease emergence. Through the GHSA and the linked USAID/EPT-2 programme, Viet Nam is working to identify potential zoonotic agents in high-risk species and settings, and to put in place measures to reduce the risk of their emergence. Environmental factors play an important role in these diseases and a broad One Health approach is needed to ensure success in preventing spill over and controlling them if they do.

Strategic directions

The main objectives in relation to managing zoonotic agents with pandemic potential that are yet to emerge is that by 2020 include identifying most of the potential zoonotic and pandemic risks in important wildlife species, analysing the risks of amplification and spill over at the human-animal-environment interface, and introducing behavioural change programmes for selected sectors and industries to reduce the risk of disease emergence.

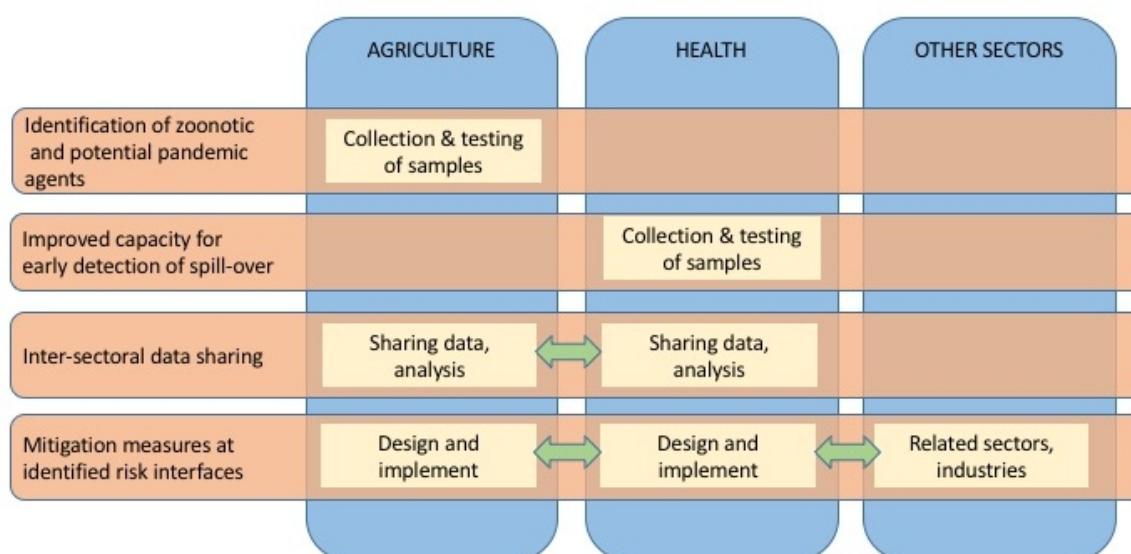
This Focus Area also links to Focus Area 4 in relation to identifying, analysing and mitigating risks posed by zoonotic influenza strains.

Expected Outcomes and Outcome Indicators

The following expected outcomes and outcome indicators are included in the draft Results Framework for the OHSP, 2016-2020.

<i>Proposed Outcome Statement</i>	<i>Proposed Outcome Indicators</i>	<i>Status as of December 2017 and comments on measurement considerations</i>
3. A One Health approach to managing zoonotic agents in high-risk wildlife species and in certain industries will result in improved pathogen detection, risk characterization, and risk reduction to mitigate spill-over and amplification of high consequence pathogens.	vii. Identified risk factors or interfaces associated with spill-over, amplification and/or spread	The suggested indicator measures the results of ongoing efforts to identify risk factors or interfaces, including the results of cross-sectoral and cross-species investigations.
	viii. Implementation of risk reduction strategies based on identified risk factors	The suggested indicator measures the actions that are taken following the identification of risk factors or interfaces under indicator (vii). It will require inputs from related sectors and partners.

Key areas for inter-sectoral collaboration on Focus Area 3



Highlighted achievements as of December 2017

- Through the LISN and USAID EPT/PREDICT projects, samples are being gathered from humans, livestock, wildlife and the environment in selected locations.
- To the extent possible, collection of these different samples is occurring in similar locations and timeframes.
- Testing and analysis of the samples is taking place in Viet Nam (including laboratory capacity building support) and overseas.
- Test results are being shared within and between sectors, and with global databases once cleared.

Progress on OHSP Outputs and Targets as of December 2017

Key Outputs & Output Targets	Highlighted activities in 2016/2017	Key directions in 2018
<i>3.1. Complete planned work on the identification of zoonotic and potential pandemic agents in animals prior to their emergence</i>		
3.1.1. Undertake testing of a range of animals for viruses with pandemic potential	DAH with support from FAO has improved its capacity to diagnose a variety of viruses with pandemic potential. The NCVD is providing regular technical support and training to RAHOs. DAH regularly sends laboratory staff to join training programs in ASEAN countries. USAID EPT/PREDICT (WCS) is carrying testing for viruses on a range of human, animal and environmental samples (see 3.1.2).	FAO will continue working with DAH to strengthen diagnostic capacity. USAID EPT/PREDICT will continue working with counterparts on sample collection and testing.
3.1.2. Tests for a minimum of 4 virus	USAID EPT/PREDICT (WCS) is cooperating with a range of counterparts including DAH and RAHO6 and	Collection and analysis of samples will continue.

<p>families will be conducted in all relevant animal taxa – coronaviruses, filoviruses, paramyxoviridae and influenza viruses (see also the specific section on zoonotic influenza viruses).</p>	<p>RAHO7, NIHE, the Endangered Primate Rescue Centre in Cuc Phuong National Park, Save Viet Nam's Wildlife and wildlife rescue centres, Provincial PMCs, to collect and conduct testing on samples from a range of animal species (bats and bat guano, rats and wet markets where rats are traded, wildlife farms, confiscated wildlife) as well as people potentially exposed to these animals and their environments in a range of locations (Bac Giang, Dong Nai, Dong Thap, Hanoi, Lang Son, Cuc Phuong National Park, etc.). The sample collection by RAHO6 and RAHO7 at bat guano farms and wet-markets are the same locations where DAH and FAO are undertaking disease surveillance, and near hospitals where SARI surveillance is being conducted.</p> <p>Under the USAID EPT/PREDICT (WCS) project, these human, wildlife, bat and rat samples have been tested for the five priority viral families. Post-mortems have also been conducted on wildlife confiscated from the wildlife trade. USAID EPT/PREDICT laboratory experts have also reviewed test results, and selected samples have been sent outside Viet Nam for further testing.</p>	
<p><i>3.2. Improve capacity for early detection of spill-over to humans of potential pandemic infectious agents</i></p>		
<p>3.2.1. Undertake testing of humans working in association with animals, especially clinical cases</p>	<p>Along with biological human biological samples, USAID EPT/PREDICT (WCS) is collecting data on medical history and behaviour risks from people exposed with wild animals, for example in bat guano collection and people related to wildlife farms.</p>	<p>Collection and analysis of samples will continue.</p>
<p>3.2.2. Established enhanced and sentinel surveillance among people and animals for 5 priority zoonotic diseases and selected surveillance of high-risk animal groups</p>	<p>The LISN initiative (see 4.1.1) is establishing enhanced and sentinel surveillance for influenza and other priority zoonotic diseases among people and animals.</p> <p>As part of the implementation of Joint Circular No. 16/2013/TTLT/BYT-BNNPTNT, DAH has directed localities to conduct surveillance for the 5 priority zoonotic diseases, especially key avian influenza strains through active surveillance in live bird markets, and periodic serological surveillance for leptospirosis in high risk breeding facilities.</p>	<p>Active surveillance will continue. Some adjustments may be made to the field sites and timing (months per year) depending on the level of ongoing international support.</p>
<p>3.2.3. Evidence of collection, recording, sharing and analysis of data across sectors</p>	<p>As part of the implementation of Joint Circular No. 16/2013/TTLT/BYT-BNNPTNT, DAH shares information on infected cases and outbreaks in animals, including clinical diagnoses and laboratory test results.</p> <p>Results of the sample collection and testing by USAID EPT/PREDICT (WCS) are reviewed by DAH and then shared within and outside Viet Nam.</p> <p>The LISN initiative holds regular meetings for sharing plans as well as results of cross-sectoral and cross-species surveillance.</p>	

3.3. Implement measures to reduce the risk of emergence of novel agents for specific industries

3.3.1. Develop and introduce industry/sector specific guidance on preventive measures

[No activities yet identified]

Potential gaps and areas for further consideration

Completing the identification of risk interfaces, and developing interventions, including the development and introduction of industry/sector specific guidance on preventive measures

The diagnostic capacity of laboratories is limited and laboratory staff still need further training, supported by technical and equipment assistance from international organizations.

For remote areas in mountainous provinces (for example in the North, Northwest, and Central Highlands regions), the veterinary network is still thin and weak, and accessibility remains difficult, making it challenging to implement prevention measures. Local budget support is required for the prevention and control of zoonotic diseases.

FOCUS AREA 4: ONE HEALTH APPROACHES TO MANAGING ZONOTIC INFLUENZA VIRUSES WITH PANDEMIC POTENTIAL

Background and context

Influenza viruses in animals represent an important on-going zoonotic and potential pandemic threat in Viet Nam. Avian influenza (AI) viruses remain the main concern for Viet Nam. A number of different AI virus subtypes are involved - some are present in Viet Nam (e.g. H5N1, H5N6) and some occur in neighbouring countries or elsewhere (e.g. H7N9). The capacity of avian influenza viruses to evolve rapidly through point mutations and gene re-assortment plus the many susceptible avian hosts that share environments (domestic and wild birds in farms and markets) allow new strains of influenza to emerge frequently in the region. Swine influenza viruses are also present in the region, and influenza viruses in other species also require monitoring.

Strategic directions

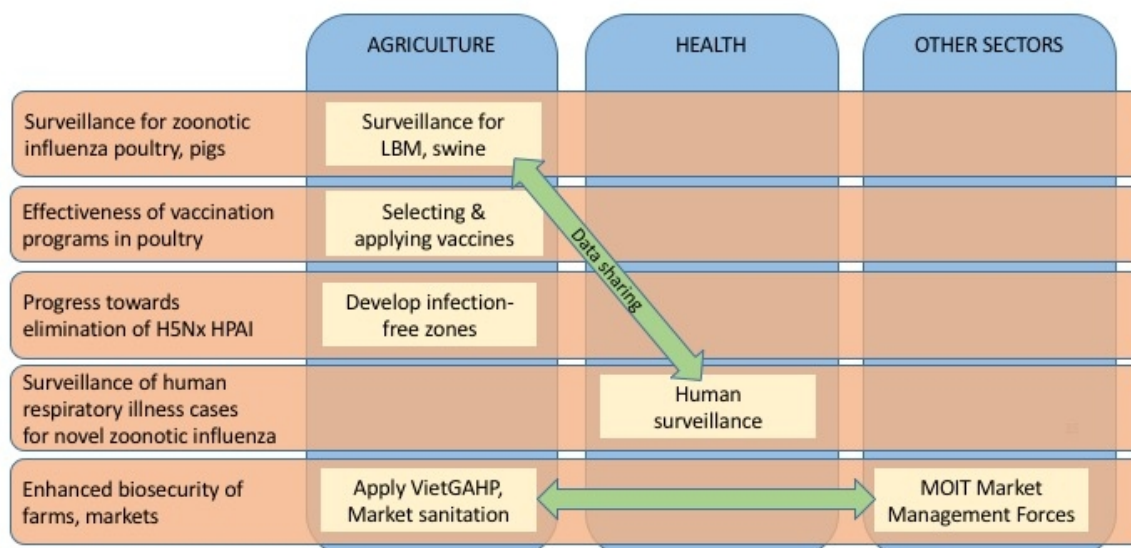
Progressive control of infection and prevention/early detection and response to novel zoonotic influenza viruses with pandemic potential.

Expected Outcomes and Outcome Indicators

The following expected outcomes and outcome indicators are included in the draft Results Framework for the OHSP, 2016-2020.

<i>Proposed Outcome Statement</i>	<i>Proposed Outcome Indicators</i>	<i>Status as of December 2017 and comments on measurement considerations</i>
4. A One Health approach to managing zoonotic influenza considers the human, animal, and livelihood impacts on the population. Achievements in this focus area will result in improved influenza surveillance, prevention, detection, and containment in humans and animals, ultimately reducing the number of human cases.	ix. Increased percentage of target markets that are implementing biosecurity measures according to best practices	The suggested indicator would primarily target markets that are: considered at high risk because of either the presence of risk factors (including selling of live poultry and slaughtering of poultry in an open environment) or the previous experience of outbreaks occurring at the sites. Further work would be required to define the target markets, measurement criteria, and measurement responsibility and frequency.
	x. Reduction in the number of human deaths (mortality) of zoonotic influenza virus	The suggested indicator aims to provide an annual measurement of deaths due to human infection with zoonotic influenza, contributing to the evaluation of the impact of zoonotic influenza over time and of health interventions aimed at reducing mortality from human infection with influenza, and triggering further investigations where necessary into underlying causes and solutions.

Key areas for inter-sectoral collaboration on Focus Area 4



Highlighted achievements as of December 2017

- Live bird market (LBM) surveillance and Longitudinal Influenza Surveillance Network (LISN) surveillance in live bird markets. New Pen-side PCR portable testing capacity piloted and applied.
- Swine surveillance and studies.
- SARI, SVP and LISN surveillance ongoing for humans.
- Surveillance for H7N9 in humans and animals; no incursion detected.
- Coordination of active surveillance locations; cross-sectoral data sharing
- SOPs for influenza outbreak response developed.
- Poultry infection-free zones developed in selected locations (influenza, Newcastle disease).
- Issuing of guidelines and related awareness raising on market sanitation, poultry farm biosecurity, etc.
- Tools for profiling LBMs developed and applied.

Progress on OHSP Outputs and Targets as of December 2017

Key Outputs & Output Targets	Highlighted activities in 2016/2017	Key directions in 2018
<i>4.1. Monitoring programs for avian H5 HPAI and H7N9 (and other) influenza viruses in poultry and other birds, and swine influenza virus in pigs</i>		
4.1.1. Regular surveillance in high	GDPM and the regional institutes with support from WHO and US CDC are conducting ongoing active	Active surveillance efforts in humans and animals will

<p>risk areas and species (see national strategies for specific targets)</p>	<p>surveillance in humans, animals and the environment in selected locations, including avian influenza, SARI, SVP and LISN surveillance.</p> <p>DAH with support from FAO is conducting integrated surveillance in high risk areas for HPAI H7N9 and H5Nx on poultry markets and farms, as well as surveillance on swine influenza, according to Decision No. 1206/2017/QĐ-BNN-TY.</p> <p>Monthly surveillance is conducted in high risk provinces to detect possible H7N9 incursions into Viet Nam. Additionally, new techniques (Pockit iiPCR) for fast detection are employed in high risk time periods (November till March). For preparedness: firstly; the action plan on emergency response to dangerous avian influenza virus strains with potential infection in humans (Pursuant to Decision No: 210/QĐ-BNN-TY dated February 14, 2014 of the Ministry of Agriculture and Rural Development) will be revised, reflecting current knowledge. Secondly: potency testing of bivalent Chinese H5/H7 vaccine will be conducted in Viet Nam. If successful, this vaccine can aid in H7N9 control, once detected in Viet Nam.</p> <p>DAH and FAO have developed tools for profiling live bird markets, have carried out training on the use of the tools, and have begun collecting data using the tools.</p> <p>GDPM, DAH, FAO, WHO and USAID EPT/PREDICT (WCS) are collaborating on the design and implementation of an integrated One Health approach to surveillance on zoonotic influenza in Viet Nam, the Longitudinal Influenza Surveillance Network (LISN). LISN surveillance will cover surveillance of humans, livestock (poultry and swine) and wildlife in selected locations (Dong Thap and Quang Ninh). FAO and USAID EPT/PREDICT (WCS) are also coordinating the collection of livestock and wildlife samples from similar locations in Dong Nai.</p> <p>NIVR with support from ILRI and Duke University are piloting Bioaerosol Sampling to detect avian influenza viruses in Hanoi's largest live poultry market.</p>	<p>continue.</p>
<p>4.1.2. Continue efforts to reduce smuggling of poultry either through enforcement or creating cost-neutral legal trading channels</p>	<p>DAH has coordinated with the Market Surveillance Agency of the Ministry of Industry and Trade to set up inspection teams to counter illegal trade of poultry in high risk provinces in order to prevent cross-border incursions or spreading of avian influenza virus strains.</p>	<p>These efforts will continue.</p>
<p>4.1.3. Management of any incursion of H7N9 virus in accordance with contingency plans</p>	<p>DAH with support from FAO has implemented surveillance for H7N9 in line with MARD Decision No. 1206/2017/QĐ-BNN-TY on the "National Program on Avian Influenza Surveillance". No incursion of H7N9 has yet been detected.</p> <p>FAO developed a policy brief for the H7 avian influenza vaccine for poultry in Viet Nam.</p>	<p>GDPM together with DAH and OHP Secretariat, with support from USAID EPT/P&R, and participation of national and international partners including OHCN agencies, will convene an H7N9 preparedness</p>

	<p>GDPM with support from WHO is developing SOP for epidemic intelligence (EI) activities and risk assessment (RA). A joint risk assessment for influenza A(H7N9) was conducted by MOH, DAH and NIHE with support from WHO, FAO, US CDC and USAID in March 2017. RA training courses were conducted in HCMC (August) and in Ha Noi (September) for staff from regional hygiene and epidemiology institutes, RAHOs and selected provinces.</p> <p>Simulation exercises for H7N9 were conducted by DAH and GDPM, with support from FAO including at Ha Vi market in Ha Noi in March 2017, in Quang Ninh in April 2017, and in Thai Nguyen in June 2017.</p> <p>The first Research to Policy (R2P) meeting organized by the OHP Secretariat together with national and international partners in December 2017 with support from the USAID SCOH2 project included an update from GDPM, DAH, WHO and FAO on the status of H7N9 in the region and Viet Nam's preparedness and surveillance activities.</p>	workshop to review H7N9 scenarios, identify operational plans, prepare communication messages for likely target audiences, and next steps for H7N9 preparedness.
4.1.4. Better understanding of the range of swine influenza viruses in Viet Nam, including their pandemic potential	<p>DAH with support from FAO is carrying out surveillance on swine influenza.</p> <p>USAID EPT/PREDICT (WCS) is working with DAH, GDPM, CITES MA and FAO on testing swine samples collected by DAH and FAO and cross-sectoral sharing the results.</p>	
4.1.5. Outbreak response according to national plans, regulations and guidelines/SOPs (see national strategies for specific targets)	<p>MOH has developed guidelines for surveillance and prevention and control of avian influenza AH7N9, Rabies, Streptococcus suis, Anthrax, Leptospirosis, and updated the national action plan on influenza A(H7N9) control and prevention.</p> <p>DAH has directed the implementation of the SOP on prompt reporting and rapid destruction with compensation of poultry that has been infected or in contact with infected poultry, as well as transportation management and thorough investigation of outbreaks. Reporting is implemented in accordance with Circular No. 07/2016/TT-BNNPTNT on prevention and control of terrestrial animal diseases. The agriculture sector preparedness plan on influenza A(H7N9) has also been issued.</p>	These efforts will continue.
<i>4.2. Effectiveness of vaccination programs in poultry</i>		
4.2.1. Vaccination programs will be reviewed and studied to determine whether vaccination is reducing shedding of virus in vaccinated ducks	DAH has directed the high-risk provinces to carry out vaccination of poultry for highly pathogenic avian influenza and has determined suitable vaccines for relevant virus strains.	These efforts will continue.
<i>4.3. Progress towards elimination of H5Nx highly pathogenic avian influenza virus</i>		

<p>4.3.1. Necessary work to determine the feasibility of an H5 infection-free zone will be undertaken and, if feasible, measures will be implemented to develop a virus-free zone in the south-eastern region</p>	<p>MARD has issued Circular No. 14/2016/TT-BNNPTNT on the regulations on animal disease-free zones and establishments.</p> <p>DAH, DLP and NAEC are cooperating to develop infection-free zones for certain diseases (e.g. avian influenza, Newcastle disease) in selected locations that have not recorded outbreaks for three years or more. Communication and training have been carried out, together with inspection and accreditation of disease-free status.</p> <p>DAH and DLP are also implementing a biosafety project with support from FAO, including support for the establishment of biosafety zones in different areas of the country.</p>	<p>These efforts will continue.</p>
<p>4.3.2. Annual revision of status (high risk, low risk, interim disease-free)</p>	<p>DAH has directed, checked and requested local authorities to conduct passive and active surveillance according to the situation in high risk areas, low risk areas and temporarily disease-free areas.</p> <p>Periodic surveillance in avian influenza free facilities is conducted in accordance with MARD's regulations set out in Circular No. 14/2016/TT-BNNPTNT.</p>	<p>These efforts will continue.</p>
<p><i>4.4. Surveillance of cases of human respiratory illness for novel influenza viruses of animal origin</i></p>		
<p>4.4.1. Human surveillance programs will be reviewed and consolidated</p>	<p>NIHE and PI-HCMC with support from WHO are conducting SARI surveillance in the LISN provinces (Quang Ninh and Dong Thap).</p> <p>NIHE with support from WHO conducted SARI monitoring and overall communicable diseases surveillance in Dien Bien in order to identify any new strains/pathogens in Viet Nam including H7N9. WHO is also supporting SARI surveillance in Ha Giang.</p> <p>With support from WHO and FAO, a review of the SVP surveillance system was carried out, which informed ongoing effort to further optimize surveillance of influenza and other respiratory diseases.</p> <p>GDPM, DAH, FAO, WHO and USAID EPT/PREDICT (WCS) are collaborating on the design and implementation of an integrated One Health approach to surveillance on zoonotic influenza in Viet Nam, the Longitudinal Influenza Surveillance Network (LISN). LISN surveillance will cover surveillance of humans, livestock (poultry and swine) and wildlife in selected locations. FAO and USAID EPT/PREDICT (WCS) are also coordinating the collection of livestock and wildlife samples from similar locations in Dong Nai.</p>	<p>These efforts will continue.</p>
<p>4.4.2. Investigate all human cases of zoonotic influenza assessing for source and onward transmission</p>		

<i>4.5. Other key targets and activities (specify)</i>		
4.5.1. Application of the Tripartite risk assessment tool for selected high-risk industries to assess risks and develop risk management plans	DAH has directed localities to apply the tripartite risk assessment tool for selected high risk sectors in order to assess risks and develop risk management plans.	
4.5.2. All poultry farms with > 2000 head meet biosecurity standards	<p>In line with Decision No. 438/2014/QĐ-BNN-TY issuing the National Action Plan on Avian Influenza, 2014-2018, all livestock farms with >2,000 head of poultry are required to apply biosafety regulations.</p> <p>DLP and NAEC have implemented a project on Improving On-site Poultry Breeding Capacity in the Northern mountainous provinces. The project "Strengthening state management capacity for animal breeding to 2020" was also issued in conjunction with MARD Decision No. 680/2014/QĐ-BNN-CN.</p> <p>Activities are ongoing on awareness raising on biosafety production for poultry breeding establishments and enhancing disease-free measures in hatchery establishments, in order to implement MARD guidelines including: Decision No. 1057/2013/QĐ-BNN-CN promulgating guidelines for implementation of minimum biosecurity measures for household hatcheries, and Decision 4653/2015/QĐ-BNN-CN on implementing Good Animal Husbandry Practices in accordance with VietGAHP Procedures.</p> <p>These measures focus on improving the capacity of livestock producers.</p> <p>(See also the section 1.14.2 on farm biosecurity)</p>	
4.5.3. Enhanced cleaning and disinfection of farms and markets	MARD has issued a number of official documents directing localities to implement sanitation and disinfection, especially in farms and markets.	

Potential gaps and areas for further consideration

Some continuing challenges have been noted in terms of the approach to addressing low pathogenic virus strains (with no clinical signs). The evolution of avian and swine influenza virus strains requires ongoing study.

The presence of both high pathogenic and low pathogenic avian influenza A(H7N9) in China requires continued attention to surveillance and preparedness activities.

Some other challenges that have been noted in relation to this focus area include the allocation of funding for compensation of culled animals in central and local budgets, the need for additional support to strengthen the surveillance system and other activities in remote communes and districts in mountainous, border and highlands area with difficult access.

FOCUS AREA 5: ONE HEALTH APPROACHES FOR RABIES CONTROL AND ELIMINATION

Background and context

Rabies is an important zoonotic disease that is endemic in the majority of ASEAN countries, including Viet Nam. Viet Nam is committed to elimination of rabies in line with the ASEAN Rabies Elimination Strategy (ARES).² Rabies is one of the five priority zoonotic diseases in Viet Nam.³ It is highly suited to a One Health approach, and provides a practical opportunity to develop effective inter-sectoral and inter-disciplinary coordination and collaboration in Viet Nam.

Most human cases in Viet Nam occur as a result of contact with rabid dogs but cats can also play a role. Some cases have occurred via preparation of rabid dogs for food. Other wild mammals can also be infected with rabies virus but are not regarded as an important source of disease for humans. Rabies is also present in countries neighbouring Viet Nam.

The economic impact of rabies in Viet Nam during the period from 2005 to 2014 has been estimated at more than 14.8 trillion VND.⁴ There is a very high cost associated with the delivery of around 400,000 courses of post-exposure prophylaxis (PEP) annually to dog bite victims.

Strategic directions

Elimination of human rabies cases in Viet Nam and the broader region depends on control of rabies in dogs, coupled with universal post-exposure prophylaxis (PEP) in humans exposed to potentially rabid animals. The key activities that are required for control and eventual elimination of rabies in Viet Nam include canine rabies vaccination, responsible dog ownership programs to reduce the number of wandering dogs in high risk areas, human post exposure prophylaxis for those exposed to a potentially rabid dog and also selective use of pre-exposure prophylaxis for high risk groups.

Viet Nam's National Programme for Rabies Control and Elimination during the period from 2017-2021 was officially approved in February 2017.⁵ This plan adopts a One Health approach and covers all pillars of disease control for MARD and MOH and other involved partners, in line with the ARES as well as with the global directions on rabies control and elimination adopted by WHO, FAO, OIE and the Global Alliance for Rabies Control (GARC). The OHSP 2016-2020 is fully aligned with the key strategic directions set out in Viet Nam's national plan.

Box: Goal and objectives of the National Programme for Rabies Control and Elimination, 2017-2021

Overall Goal

- Control rabies in domestic dogs and humans by 2021, with the aim of eliminating rabies.

² The ASEAN Rabies Elimination Strategy (ARES) was jointly endorsed by the 36th ASEAN Ministerial Meeting on Agriculture and Forestry and the 12 ASEAN Health Ministers Meeting respectively held in September 2014. Viet Nam is a lead country for the ARES.

³ Circular No. 16/2013/TTLT-BYT-BNN dated 27 May 2013

⁴ Shwiff, S.A., Elser, J. & Hoang, T.X. (2016) "*Estimating the economic impact of rabies in Viet Nam, 2005-2014*" (report commissioned for the OHP through the USAID-funded project "Strengthening Capacity for the Implementation of One Health in Viet Nam" (SCOH-1).

⁵ Government of Viet Nam (2017) *Viet Nam's National Programme for Rabies Control and Elimination, 2017-2021*, issued by the Prime Minister according to Decision No. 193/QĐ-TTg dated 13 February 2017

Specific Objectives

- Establishing a list of dog-raising households in over 95% of communes, wards and towns.
- Achieving a vaccination rate of domestic dogs in communes, wards and towns of over 85%.
- No cases of canine rabies detected in over 70% of all provinces over two consecutive years.
- Reducing the number of provinces with a high incidence of rabies in humans by 60%.
- Reducing the number of human deaths due to rabies by 60% in 2021 compared to the average number of cases during the period from 2011 to 2015.⁶

The National Program is jointly managed by the Ministry of Agriculture and Rural Development (MARD) and the Ministry of Health (MOH), in collaboration with other agencies such as the Ministry of Education and Training (MOET), the Ministry of Information and Communications (MOIC), the Ministry of Finance (MOF) and the Ministry of Planning and Investment (MPI), as well as by People's Committees at the provincial level.

A number of international members of the OHP and related agencies are supporting initiatives on rabies control and elimination in Viet Nam, including FAO, WHO, US CDC, USAID EPT/P&R and other international partners.

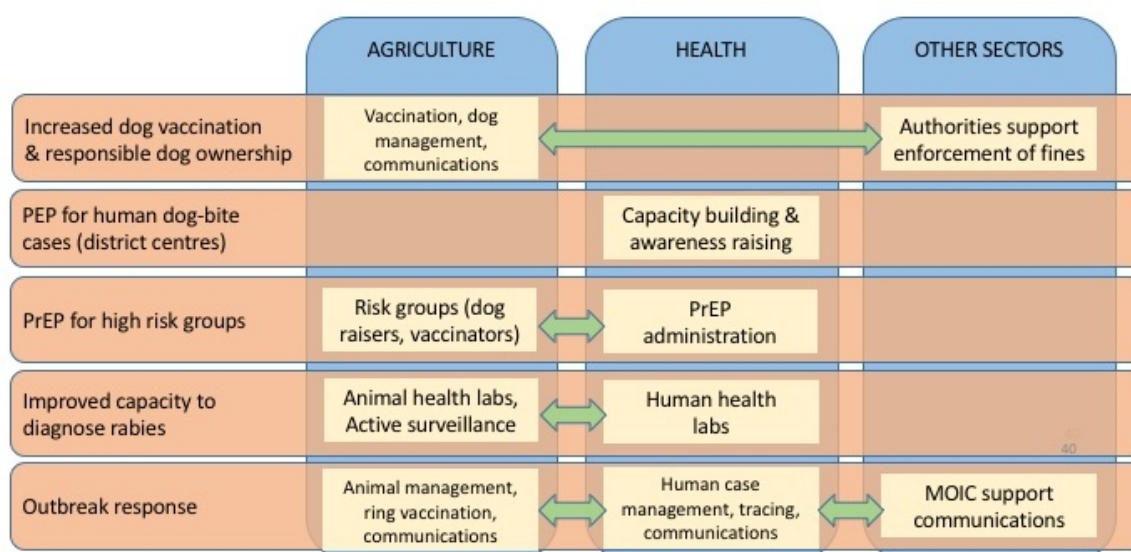
Expected Outcomes and Outcome Indicators

The following expected outcomes and outcome indicators are included in the draft Results Framework for the OHSP, 2016-2020.

<i>Proposed Outcome Statement</i>	<i>Proposed Outcome Indicators</i>	<i>Status as of December 2017 and comments on measurement considerations</i>
5. A One Health approach to rabies requires close communication and coordination between the animal and human health sectors and the general public. Achievements in this focus area will bring Viet Nam closer towards full rabies elimination as evidenced by an increase in canine vaccination coverage and overall reduction in human rabies cases.	xi. Increased canine vaccination coverage at or above 70% at provincial and district level	The overall national canine vaccination rate reported by DAH for 2017 was 51 percent. Vaccination rates (and the related establishment of effective dog management programmes) vary throughout the country. This represents an increase in the rate reported in earlier years; it is accompanied by a reduction in the estimated total dog population nationwide.
	xii. Reduction in the number of human rabies cases (mortality) diagnosed clinically and by laboratory confirmation	63 human cases due to rabies were reported nationwide in 2017. 91 human cases were reported in 2016.

⁶ Issued by the Prime Minister according to Decision No. 193/QĐ-TTg dated 13 February 2017.

Key areas for inter-sectoral collaboration on Focus Area 5



Highlighted achievements as of December 2017

- National canine vaccination rate of 51% in 2017 (increase compared to earlier years).
- 63 human rabies cases reported in 2017 (91 human cases in 2016).
- National Program for Rabies Control and Elimination, 2017-2021 issued.
- Rabies Animal Vaccination Fund established and provided 90,000 doses of vaccine for ring vaccination during outbreaks in 2017.
- Penalties issued to support improved canine vaccination and responsible dog ownership.
- Public awareness raising in high-risk provinces, including through schools and World Rabies Day events.
- Rabies testing capacity in place in key human and animal health labs.
- Active surveillance of dogs suspected of having rabies.
- Inter-sectoral collaboration to develop outbreak response standard operating procedures (SOPs).
- Inter-sectoral simulation (table-top exercise).

Progress on OHSP Outputs and Targets as of December 2017

Key Outputs & Output Targets	Highlighted activities in 2016/2017	Key directions in 2018
5.1. Increased canine vaccination and responsible dog ownership		
5.1.1. Support for vaccination campaigns at provincial and district	The National Program for Rabies Control and Elimination, 2017-2021 was issued by the Prime Minister at Decision No. 193/2017/QĐ-TTg. Other legal documents include: Decree No. 90/2017/ND-CP,	The rabies communication model developed by NIHE and DAH together with the Provincial Department of

<p>level so that levels of vaccination coverage are maintained above 70%</p>	<p>finer for dog owners that don't carry out vaccination of their dogs; and MARD guiding documents, including Document No. 3596/BNN-TY dated 09/05/2016, Document No. 5635/BNN-TY dated 01/07/2016, and Document No. 6821/BNN-TY dated 12/8/2016). DAH established working groups that carried out inspections in 33 localities in 2016 (Document No. 877/TY-DT dated 06/5/2016 of DAH).</p> <p>MARD has established the Rabies Animal Vaccination Fund, which in 2017 provided 90,000 doses of vaccine to support ring vaccination during outbreaks.</p> <p>Quarterly zoonotic update newsletters, including rabies, were prepared by DAH and FAO and distributed to RAHOs, SDAHs, GDPM, NIHE, NIVR, VNUA, VOHUN members and international organisations.</p>	<p>Education in schools in Phu Tho province, with technical assistance from FAO, will be expanded nationwide during the period 2018-2021.</p> <p>World Rabies Day events will be organised in Viet Nam.</p> <p>The dog capture and vaccination model implemented by DAH and FAO has been and should be continued to be replicated in other high-risk provinces.</p> <p>Local authorities at three administration level should be advocated for better political support and resource allocation for annual rabies vaccination campaigns.</p> <p>Law enforcement on regulated fines imposed on owners of unvaccinated dogs should be better executed.</p>
<p>5.1.2. Behavioural change communications to reduce the number of free wandering dogs and to increase vaccination uptake and dog registration</p>	<p>Decree No. 41/2017/ND-CP amending and supplementing a number of articles of Decree 119/2013/ND-CP, which took effect on 20 May 2017 stipulates that dog owners are required to control their dogs, and to ensure that they are vaccinated for rabies, and imposes fines for dog owners that do not comply.</p> <p>MARD and MOH, with assistance from FAO and WHO, have provided communication materials to localities and implement communication activities, including cooperating with the media on rabies communications.</p> <p>People's committee at all levels implement rabies communications, including communications through loud speaker system in 1,000 communes of key provinces.</p> <p>Mobile communications are conducted in around 5-7 high risk provinces each year.</p> <p>DAH and FAO conducted an outreach campaign reaching ethnic minority groups in all remote districts of Phu Tho and Thai Nguyen provinces. Inter-personal education sessions were conducted at the village level and radio spots in ethnic minority languages were produced and aired in all villages.</p> <p>DAH and FAO in collaboration with provincial Preventive Medicine Centres in Phu Tho and Thai Nguyen organized workshops with 125 traditional healers focusing on the importance of dog and human vaccination and wound cleaning.</p>	<p>Further rabies behaviour change communications should be conducted with high-risk population groups in high-risk areas.</p>

	<p>The rabies communication model developed by DAH and NIHE together with the provincial Department of Education in schools in Phu Tho province, with technical assistance from FAO, has been expanded to 16 provinces during 2016 and 2017.</p> <p>World Rabies Day events have been organised annually in September in selected high-risk provinces (e.g. Nghe An and Gia Lai in 2016; Bac Giang in 2017) to promote effective control activities and public awareness. These events have been organised by DAH, GDPM, NIHE and the host province together with FAO, WHO, US CDC, USAID EPT/P&R and other international partners.</p>	
5.1.3. 70% of communes manage dog populations (through implementation of dog population management and responsible dog ownership programs)	<p>DAH in cooperation with FAO developed a dog management model in 2 districts of Thai Nguyen province, including dog registration and management tools. The Guideline for domestic dog management has been developed and piloted in those two districts. A set of dog management tools including logbooks and forms for both animal health officials and commune authorities was developed and used during the pilot period. A seminar on the results of the implementation of the model and the guidelines for domestic dog management was organized for RAHOs as well as Sub-DAH in 30 provinces.</p> <p>DAH in cooperation with US CDC organised training to strengthen capacity for rabies prevention and control for veterinary officers in Phu Tho province. It is expected that the above models was expanded to 6 other provinces (Ha Giang, Quang Ninh, Nam Dinh, Quang Nam, Ba Ria – Vung Tau and An Giang) in 2017.</p>	The dog management model will be replicated nationwide.
<i>5.2. Post-exposure prophylaxis (PEP) for all humans bitten by a dog (or other mammal) that could have rabies</i>		
5.2.1. Introduction of district treatment centres to all high-risk areas to reduce the need for travel for those requiring PEP	GDPM has carried out overall checking of the national system for PEP delivery.	Mapping of PEP sites nationwide will be completed, identifying high risk areas, poor vaccine access and having need of more injection sites to develop a plan for enhanced PEP delivery, to apply improved PEP techniques, and to establish reserves of vaccine/serum in strategic locations.
<i>5.3. Pre-exposure prophylaxis (PrEP) for high risk groups including dog vaccinators, dog handlers and where necessary children in high risk areas</i>		
5.3.1. Identification of high risk groups and implementation of a vaccination program	National Program for Rabies Control and Elimination, 2017-2021 proposes high-risk groups required vaccination against exposure, however to date there is no specific provision for supporting these groups in pre-exposure prophylaxis.	The feasibility of PrEP support for high risk populations should be assessed, supporting policies, guidelines and regulations developed, and

		the commitment of local authorities funding sources mobilised.
<i>5.4. Improved capacity to diagnose rabies</i>		
5.4.1. Establishment/maintenance of quality assured testing capacity for rabies in humans and animals	<p>The rabies laboratories in NIHE and the regional institutes have been established and are capable of rabies detection in humans.</p> <p>DAH has established animal health rabies laboratories at NCVD, RAHO6, RAHO7. A rabies laboratory has also been established at HCMC Sub-DAH.</p> <p>DAH in cooperation with US CDC conducted active surveillance of dogs suspected of having rabies that were slaughtered for sale in markets in three districts of Phu Tho in 2016 and 2017, and in Ba Ria-Vung Tau. DAH has strengthened capacity for rabies diagnosis and surveillance at NCVD and RAHO6, has investigated human dog bite cases where rabies is suspected, and dogs suspected of having rabies, and has organised surveillance for rabies in wild animals in Cát Tiên National Park.</p>	<p>The rate of testing and diagnosis of suspected cases should be increased.</p> <p>Training on counselling, sample collection and transportation should be provided.</p> <p>Information sharing between sectors should be strengthened.</p> <p>The active surveillance programme should be combined with the dog vaccination activities to increase the vaccine coverage.</p>
<i>5.5. Other activities</i>		
5.5.1. Inter-sectoral activities	<p>DAH and GDPM collaborated with NIHE, WHO, FAO and USAID EPT/P&R on the development of a Rabies SOP. The final draft has been completed.</p> <p>GDPM with support from USAID/P&R organized events on a One Health approach to rabies prevention and control.</p> <p>DAH and GDPM collaborated to organise a simulation/table top exercise on rabies cross-sectoral collaboration at the provincial level, with support from FAO, WHO, US CDC and USAID EPT/P&R.</p> <p>Quarterly zoonotic update newsletters, including rabies, were prepared by DAH and FAO and distributed to RAHOs, SDAHs, GDPM, NIHE, NIVR, VNUA, VOHUN members and international organisations.</p>	<p>GDPM in consultation with DAH, with support from the OHP Secretariat through the USAID SCOH2 project, will prepare a monitoring report on the implementation of the ASEAN Rabies Elimination Strategy Action Plan (ARES action plan) and implement regional activities that Viet Nam has committed to for the ARES action plan.</p> <p>An inter-sectoral workshop on the national Rabies Control and Elimination Program will be organised in Ha Noi, with support from the SCOH-2 project.</p>
5.5.2. Research	<p>NIHE with support from ILRI and the Swedish University of Agricultural Sciences – Uppsala University are working with counterparts throughout the region to create a One Health network for rabies research and control in Southeast Asia, with an overall objective to contribute to the improvement of the control of rabies in dogs and human populations in Cambodia, Lao PDR and Viet Nam. In addition to strengthening networking, mapping and sharing of research, information and experiences, the project aims to provide updated information on dog population structure dynamics and movements in Cambodia, Lao PDR and Viet Nam, to increase the understanding of the dog meat value chains and dog trade, to contribute</p>	<p>Research should be carried on:</p> <ul style="list-style-type: none"> • The human treatment regimen and analgesia. • Assessment of the risks from dogs and cats and animal vaccination effectiveness, as well as the identification of supporting factors and obstruction factors for enhanced responsibility of dog owners.

	to strengthening the surveillance system and management of dog populations, to identify the knowledge gaps in SEA and the feasible control options, and to compose research proposals to national and international research funding agencies based on the networks and knowledge created during this project.	<ul style="list-style-type: none"> • Research on domestic rabies vaccines production. • Research to propose a community-based disease prevention and control model.
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Potential gaps and areas for further consideration

Implementation, data collection and reporting on animal vaccination and dog management systems is uneven throughout the country. Remote and mountainous communes face particular challenges in relation to vaccination, dog management and communications.

The cost estimate of rabies impact commissioned by the OHP Secretariat and completed in 2016, as well as wider international experience, makes it clear that investments in canine vaccination are both necessary and ultimately cost effective (compared to the continuing high cost of PEP). However, funding for rabies prevention and control remains challenging, including sufficient fund allocations from central and local budgets, as well as mobilising international assistance.

Increased awareness and attention from local authorities and mass organizations, accompanied by enhanced political support and resource allocations, is needed to support the implementation of the national action plan.

Is more attention to strengthening the district network for PEP administration for dog bite victims needed?

Consideration could be given to setting up a national reserve for PEP vaccine and anti-rabies serum in high risk locations throughout the country in order to respond to outbreaks. PrEP for high risk groups (including dog vaccinators) is noted as a need in the national action plan, however to date has not been applied.

Domestic rabies vaccine production for animals may require consideration from a number of perspectives, including cost and efficacy in the context of Viet Nam's national action plan and ongoing efforts.

FOCUS AREA 6: ONE HEALTH APPROACHES TO ANTIMICROBIAL RESISTANCE (AMR)

Background and context

Resistant bacteria and viruses can arise in any place where there is indiscriminate use of antimicrobial drugs. Preliminary research and assessments suggest that Viet Nam already has major concerns with antimicrobial resistance (AMR) in hospitals, in the community and in livestock farms and aquaculture. A One Health approach is needed to protect existing antimicrobials given that resistance is transmissible between bacteria and resistant bacteria can be transmitted from one host to another. The overall goal is to reduce the quantities of antimicrobials used, institute systems of antimicrobial stewardship, improve infection control, and limit the use in animals of critically important antimicrobials for humans.

Strategic directions

The OHSP summarises the strategic direction for AMR as “use less antimicrobials and use them wisely,” noting that human actions in health care, livestock production, environmental health and other related areas can either limit or accelerate the development of drug resistant bacteria. Reductions in AMR depend on improved and controlled use of existing drugs through better practices. Infection prevention through enhanced infection control in health care settings and biosecurity/preventive measures on farms and other places where animals are kept are also core components of the response to AMR.

The OHSP directions in relation to applying One Health approaches to antimicrobial resistance (AMR) by 2020 are based on the National Action Plan on Drug Resistance for the period 2013 to 2020, issued according to Decision No. 2174/2013/QD-BYT dated 21 June 2013 by the Minister of Health, the Aide Memoire on combatting antimicrobial resistance signed by MOH, MARD, the Ministry of Industry and Trade (MOIT) and MONRE with international organizations and development partners on 24 June 2015, and the National Action Plan for Management of Antibiotic Use and Control of Antibiotic Resistance in Livestock Production and Aquaculture was issued according to Decision No. 2625/QD-BNN-TY dated 21 June 2017 by the MARD Vice Minister. The National Antimicrobial Resistance Management Unit was set up within VAMS according to Decision No. 3391/2015/QD-BYT.

Viet Nam was one of the first six countries in the Asia Pacific region to develop and implement a National Action Plan on AMR. The National Action Plan applies an approach that is consistent with WHO’s Global Action Plan on AMR (2015),⁷ with FAO’s Action Plan for Antimicrobial Resistance 2016-2020,⁸ and with the WPRO Action Agenda for Antimicrobial Resistance in the Western Pacific Region (2015).⁹

The National Action Plan has the following six objectives:

- raising awareness of the community and health workers on drug resistance
- strengthening and improving national surveillance systems on the use of antibiotics and drug resistance
- ensuring adequate supply of quality medicines to meet people’s needs
- promoting appropriate and safe use of drugs
- promoting infection control
- promoting appropriate and safe antibiotic use in livestock, poultry, aquaculture and

⁷ <http://www.who.int/antimicrobial-resistance/publications/global-action-plan/en/>

⁸ <http://www.fao.org/3/a-i5996e.pdf>

⁹ http://www.wpro.who.int/entity/drug_resistance/documents/action_agenda.pdf

cultivation.

In line with the National Action Plan, a number of key actions on AMR were taken during the lead up to the adoption of the OHSP, including:

- Establishment of a National Steering Committee on AMR for the period 2013-2020 (Decision No. 879/2016/QĐ-BYT dated 13/3/2014 and Decision No. 5888/QĐ-BYT dated 10/10/2016).
- Establishment of nine Sub-Committees on AMR for the period 2013-2020 (Decision No. 2888/QĐ-BYT dated 05/8/2014).
- Establishment of the National AMR Surveillance Unit under the Department of Medical Services Administration (Decision No. 3391/QĐ-BYT dated 14 August 2015).
- Official guidance on the management of the use of antibiotics in hospitals (Decision No. 772/QĐ-BYT dated March 04, 2016 of the Ministry of Health).
- Issuing the list and level of antibiotics permitted in feed for growth promotion (Circular No. 06/2016/TT-BNN dated 31 May 2016).
- Issuing Decree No. 39/2017/ND-CP dated 4 April 2017 on management of feeds for livestock and aquaculture, and Circular No. 10/2016/TT-BNNPTNT dated 1 June 2016 promulgating the list of veterinary drugs permitted to be marketed and veterinary drugs banned for use in Viet Nam and the announcement of codes for imported veterinary drugs permitted to be marketed in Viet Nam.
- Establishing an antibiotic stewardship program in 16 hospitals via the Viet Nam Resistance Project (VINARES) that monitors resistance patterns for hospital acquired infections in intensive care units, tracks antibiotic consumption, and institutes microbiological analyses to guide empiric and specific treatment.
- Developing the technical protocol and conducting pilot AMR surveillance in livestock production by the Department of Animal Health of MARD.

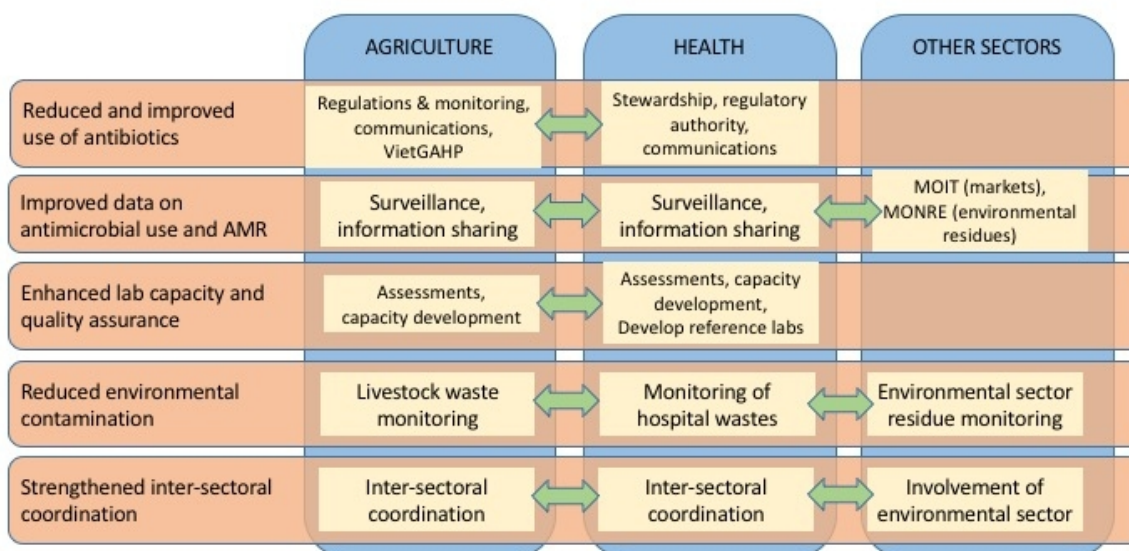
Expected Outcomes and Outcome Indicators

The following expected outcomes and outcome indicators are included in the draft Results Framework for the OHSP, 2016-2020.

<i>Proposed Outcome Statement</i>	<i>Proposed Outcome Indicators</i>	<i>Status as of December 2017 and comments on measurement considerations</i>
6. A One Health approach to antimicrobial resistance (AMR) recognizes the complex transmissibility of bacteria from one host to another and the increasing risk posed by bacteria resistant to antimicrobial treatment. Achievements in this focus area will result in effective stewardship efforts that enhance collaboration, coordination and information sharing within and between the animal and human health sectors to ultimately reduce overuse and improve use of antibiotics in	xiii. Increased AMR Stewardship Activities in Human and Animal Health Sectors	This suggested indicator aims to showcase examples of AMR stewardship activities in related sectors, as well as cross-sectoral linkages. Defining the criteria and measurement methodology for this indicator will require cooperation of a range of relevant national and international partners. Progress on the establishment of a coordination mechanism by NIHE and NHTD (as discussed in late 2017) could also possibly provide a mechanism that could contribute to defining criteria and measuring this

humans and animals through regulation, policy legislation, and infection prevention and control (IPC) measures that reduce hospital acquired infections (HAI).		indicator.
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Key areas for inter-sectoral collaboration on Focus Area 6



Highlighted achievements as of December 2017

- Action Plan for the Reduction of Antimicrobial Use and AMR in the Livestock and Aquaculture Sectors, 2017-2020. Regulations and technical guidance on antibiotic use in agriculture developed and issued.
- National AMR surveillance system under development.
- SOPs for AMR surveillance in livestock and food production system developed piloted.
- A range of communication and public awareness raising activities carried out.
- Hospital infection prevention and control tools and models developed and tested, and guidelines issued.
- National reference laboratories being developed.
- FAO Assessment Tool for Laboratory and Antimicrobial Resistance (ATLASS) tool applied to assess the laboratory capacity of animal health labs
- Mapping and analysis of One Health approach to AMR surveillance
- Studies conducted on related sectors and issues. Sharing of results.

Progress on OHSP Outputs and Targets as of December 2017

Key Outputs & Output Targets	Highlighted activities in 2016/2017	Key directions in 2018
<i>6.1. Reduced use of antibiotics in animals including improved controls on antibiotics critical for human use</i>		
6.1.1. Assess likely effectiveness and feasibility of bans on the use of medically important antibacterial agents for growth promotion in livestock and drugs critical for human treatment. Where feasible, introduce and enforce bans and require purchase by prescription only	NIVR with support from FAO conducted a preliminary study on antimicrobial use in livestock production and aquaculture in Viet Nam. A study on economic impact was also carried out by an FAO RAP mission in May 2017.	
6.1.2. Develop manuals on prescribing and use of antibiotics in animals	DAH with support from FAO has developed regulations and technical guidance on clinical pharmacological activity, drug use in treatment, and drug descriptions, and has standardized professional materials/protocols related to diagnostics and treatment with antibiotics.	
6.1.3. Develop a list of permitted antibiotics for animals	MARD has issued the list of substances banned for use in livestock production, including melamine, beta-agonist and some chemicals and antibiotics (Circular No. 10/2016/TT-BNNPTNT, Circular No. 28/2014/TT-BNNPTNT, Circular No. 42/2015/TT-BNNPTNT).	DAH with support from FAO will review and develop further legal documents on managing and monitoring the use and import of antibiotics.
6.1.4. Prescribe and enforce residue limits	<p>The Government issued Decree No. 39/2017/ND-CP on the management of animal feeds, regulating the ban on the use of antibiotics for the purpose of stimulating the growth of livestock from 2018. Decree No. 119/2013/ND-CP on sanctioning administrative violations is being revised.</p> <p>DAH with support from FAO has developed the Viet Nam Action Plan for the Reduction of Antimicrobial Use (AMU) and Antimicrobial Resistance (AMR) in the Livestock and Aquaculture Sectors for the period 2017-2020. The plan was approved according to MARD Decision No. 2625/2017/QD-BNN-TY. The overall objective of the plan is to mitigate the risk of AMR in public health through controlling the antibiotic usage in livestock production and aquaculture in Viet Nam. MARD has also established the National Steering Committee for Prevention and Control of Aquatic Animal Disease, antimicrobial use and AMR in aquaculture.</p> <p>DAH with support from FAO organized workshops/meetings between government agencies, companies, associations on AMU and AMR to identify</p>	

	<p>current problems, gaps and difficulties in the control of AMU and AMR.</p> <p>DLP has organized a program on signed commitments not to use banned substances in livestock production.</p>	
6.1.5. Establish monitoring systems for appropriate use of antibiotics	<p>MARD has issued Decision No. 5208/2017/QD-BNN-TY on the plan for examining and reviewing veterinary drug business in 2018-2020, and Decision No. 2803/2016/QD-BNN-TY on management and supervision of imported antibiotic materials for veterinary drug production in 2016-2020.</p> <p>DAH has inspected all importers (28 companies) for veterinary medicine products and raw materials, especial for raw antibiotics to identify how did they import, use and sell antibiotic products and raw materials of antibiotics, and inspected veterinary drug shops to check whether they sell the registered antibiotic products and all shops are not allowed to sell antibiotic raw materials directly to farmers.</p> <p>The Drug and Vaccine Management Division of DAH, with support from FAO, is developing a database on antimicrobial use for livestock production and aquaculture.</p> <p>FAO provided technical assistance to DAH on surveillance on AMR in livestock and food production system, the development of SOPs for AMR surveillance and for sampling for non-typhoidal Salmonella and Escherichia coli on pig abattoirs and chicken markets/slaughter points as part of the Antimicrobial Resistance Surveillance Program in Livestock in Viet Nam.</p> <p>FAO supported three surveys during 2017:</p> <ul style="list-style-type: none"> • The survey of AMU & AMR on tilapia and traditional fish in Hai Duong province. • The survey on the use of antibiotics along the whole value chain of pangasius catfish aquaculture (hatchery, grow-out and post-harvest). • The protocol on sampling and laboratory testing of AMR and piloting of the first round of AMR surveillance in pigs and chickens. <p>MARD Decision No. 1038/QD-BNN-TY dated 29/3/2017 sets out the national programme for active surveillance of diseases in shrimp and pangasius to be exported between 2017 – 2020.</p>	<p>DAH will continue to organize the inspection and supervision of conditions for import and production of veterinary drugs, the sampling of veterinary drugs produced and circulated to check the quality of veterinary drugs, and the monitoring of trading conditions, quality of veterinary drugs, the trading and use of veterinary drugs.</p> <p>DAH with support from FAO will continue to develop a pilot AMR monitoring program in the livestock production system, including monitoring of antibiotic residues.</p> <p>DAH with support from FAO will develop a national antimicrobial use surveillance program on aquaculture, focusing on shrimp, pangasius catfish and tilapia, in line with Decision No. 1038/QD-BNN-TY.</p> <p>Piloting of the first round of AMR surveillance in pigs and chickens will be completed (surveillance period from December 2017 to January 2018).</p> <p>FAO will support research on current situation of typical anti-microbial substances in healthcare wastewater, and carry out an assessment of the AMR situation in wastewater for policy and roadmap development.</p>
6.1.6. Enhance farm biosecurity measures and promote GAHP	<p>As noted under 1.14.2, MARD has issued regulations on biosecurity and GAHP.</p> <p>The application of VietGAP and GlobalGAP have been promoted for improved aquaculture practices in shrimp, pangasius, tilapia and other aquatic species. Training activities on good antibiotic use principles in aquaculture have been organised. Research and</p>	<p>FAO will support the development of guidelines for antibiotic usage in livestock, and promote good animal production practices.</p>

	<p>evaluation of alternative treatment measures (probiotic products, herbal/plan extract products) have been promoted as an alternative to antibiotics.</p> <p>(See also the separate section on farm biosecurity FA1.14.2)</p>	
<p><i>6.2. Reduced and improved use of antibiotics</i></p>		
<p>6.2.1. Widespread implementation of antibiotic stewardship programs and behavioural change campaigns for the public:</p> <ul style="list-style-type: none"> • Compile documents for training • Develop IEC materials • Organise communications activities 	<p>DAH with support from FAO organized a workshop in Hanoi (September 2017) and Tien Giang (October 2017) on engaging the private sector in the implementation of the Viet Nam Action Plan for the Reduction of Antimicrobial Use (AMU) and Antimicrobial Resistance (AMR) in the Livestock and Aquaculture Sectors for the period 2017-2020.</p> <p>FAO has translated some regional communication materials into Viet Nameese, and has produced a video clip on AMR for use with stakeholders in Viet Nam. (https://www.youtube.com/watch?v=zxoAL8XB4Zc)</p> <p>HAIVN has worked with the National Paediatric Hospital (NPH) to implement activities for the Hospital Hand Hygiene Day.</p> <p>DAH and FAO have implemented communication activities in the livestock and aquaculture sectors for Antibiotic Awareness Week (annually since 2013). In 2017 this included promotion of a global AMR photo essay contest.</p> <p>DAH with support from FAO implemented public awareness activities with VTV1, VTC16, newspapers to develop a mass media awareness raising program on antimicrobial use and AMR.</p>	<p>WHO will support an evaluation of Antimicrobial Stewardship (AMS) implementation in hospitals (including national survey), and will support the establishment of an AMS network to support lower level hospitals.</p> <p>WHO will carry out an assessment of the National Regulatory Authority (WHO-GMP certification)</p> <p>DAH with support from FAO will develop and implement an advocacy and communications plan on antimicrobial use and AMR in the livestock and aquaculture sector.</p> <p>DAH with support from FAO will develop a risk communication kit (including leaflets, posters, clips, etc.) to increase awareness on antimicrobial use and AMR. Risk communication materials will be disseminated and communication campaigns conducted to increase AMR awareness for livestock and aquaculture farmers and the general public.</p> <p>Antibiotic Awareness Week (AAW) activities will be conducted by VAMS, DAH, FAO and WHO.</p>
<p>6.2.2. Assess knowledge of the community about AMR</p>	<p>FAO engaged the Institute of Environmental Health and Sustainable Development Institute (IESD) to conduct a survey on knowledge, attitudes and practices (KAP) on antimicrobial use and AMR in livestock and aquaculture production in Viet Nam, focusing on farmers, veterinary workers and animal health drug sellers in six provinces (Nam Dinh, Bac Giang, Phu Tho, Dong Nai, Ca Mau and An Giang provinces).</p> <p>CENPHER/HUPH, the Thai Nguyen University of Agriculture and Forestry and VNUA, with support</p>	<p>Develop evidence based materials to promote good practices in both livestock and aquaculture production in targeted production areas.</p> <p>Consider engaging the private sector in the awareness raising activities.</p>

	<p>from ILRI and the University of Queensland and funding from CGIAR, the Australian Government and the Crawford Fund are carrying out research to understand how decisions around veterinary antimicrobial use and stewardship are made by household farmers and their animal health networks, and to identify leverage points for improved antimicrobial stewardship (AMS) in Viet Nam.</p>	
<p><i>6.3. Improved data on antimicrobial use and antimicrobial resistance</i></p>		
6.3.1. AMR priority pathogens identified	<p>Prioritized pathogens in antibiotic resistance have been identified in the National Action Plan.</p>	<p>Organize surveillance of antibiotic resistance to identified prioritized pathogens.</p>
6.3.2. Establish surveillance systems	<p>VAMS with support from WHO, US CDC and OUCRU is developing a national AMR surveillance system, based on the existing Viet Nam Resistance Project. The surveillance system was established according to Decision No. 6211/2016/QD-BYT. Training was organised in 2017 for the 16 AMR sentinel surveillance laboratories in 16 hospitals throughout the country.</p> <p>CIRAD has carried out a mapping and analysis of actors involved in the surveillance of ABR and ABU in Viet Nam focused on identification of factors influencing the operationalization of the national surveillance strategy and recommendations to support its implementation.</p> <p>GDPM and DAH, with support from WHO and FAO, hosted a meeting in Hanoi in January 2017 on Multi-Sectoral action on antimicrobial resistance in Cambodia, Lao PDR and Viet Nam.</p> <p>DAH with support from FAO organised a consultation workshop on AMR surveillance in the livestock and food production system in March 2018 in order to develop a surveillance plan.</p>	<p>A national AMR surveillance program for the agriculture sector will be developed.</p> <p>CIRAD will assess the appropriateness and efficacy of inter-sectoral and inter-disciplinary collaboration within the surveillance system of ABR and ABU, and evaluate the impact of this collaboration on the value of the surveillance.</p> <p>CIRAD will develop an innovative method to promote collaboration across sectors and disciplines using participatory modelling, through a case study of the surveillance of ABR and ABU in Viet Nam.</p>
6.3.3. Developed and disseminated national policies and guidelines for AMR surveillance in hospitals (including susceptibility testing) and agriculture	<p>Decision No. 6211/QD-BYT issued by MOH dated 17/10/2016 provides for the establishment and regulation of the roles and duties of the surveillance network for microbial-resistant bacteria in medical facilities.</p> <p>VAMS with support from WHO has developed national guidelines for HAI surveillance. These have been submitted for official review and approval by MOH.</p> <p>WHO supported Cho Ray Hospital in HCMC to develop a model on hospital acquired infection (HAI) surveillance and to share the results of this model with other hospitals.</p> <p>HAIVN has developed protocols and training materials for monitoring and improving surveillance of bloodstream infections (BSI) and surgical site infections (SSI) in hospitals. A pre-implementation</p>	<p>Further national policies and guidelines for surveillance of antibiotic resistance in hospitals and agriculture will be developed and shared.</p> <p>VAMS will discuss with CDC, PATH and WHO to develop detailed workplan for expanding the HAI surveillance models from 6 hospitals to 20 hospitals in 2018-2019.</p>

	<p>workshop was held with surveillance staff from four intensive care units (ICUs). Piloting has commenced in these ICUs (Neonatal, Paediatric, Surgical, and Cardiac ICUs).</p> <p>FAO and OUCRU worked together on training and development of standard protocols for sampling, isolation, identification and antimicrobial susceptibility testing of Escherichia coli and non-typhoidal Salmonella from pigs and chickens at slaughterhouses and slaughter-points. OUCRU hosted training courses on laboratory testing in Hanoi in May and August 2017.</p>	
6.3.4. Develop a database of antibiotic use and antibiotic resistance (human and animal)		Software will be developed for the national database.
<i>6.4. Develop a database of antibiotic use and antibiotic resistance (human and animal)</i>		
6.4.1. Widespread implementation of IPC programs in hospitals	<p>A national scientific conference on Infection Prevention and Control (IPC) was organized, with more than 100 delegations and more than 30 scientific papers on IPC activities at all levels of health care across the country, contributing to the evidence base for IPC policy making and investments in Viet Nam as well as sharing of research findings and lessons.</p> <p>VAMS with support from WHO has conducted annual an IPC model hospital review meeting, in order to share experiences and lessons learned from IPC model hospitals, such as model on HAI surveillance, Hand hygiene, and outbreak preparedness and response, and to facilitate the application of best practices on IPC in health care facilities and to identify opportunities to expand IPC model hospitals in the coming years.</p> <p>VAMS with support from WHO has prepared a revised circular on Guiding the organization of the implementation of infection control activities in medical examination and treatment establishments (to replace the existing Circular No. 18/2009).</p> <p>VAMS with support from WHO has developed infection control guidelines for patients with urine sonde, and infection control guidelines for catheters. These have been submitted for official review and approval by MOH.</p> <p>The HAIVN project has worked with the HCMC Infection Control Society (HICS) on the development of IPC training curricula, including IPC training materials for undergraduates of Medical and Nursing universities, basic IPC for healthcare workers starting their career in IPC, advanced IPC for healthcare workers continuing their education for proficiency, and continuous medical education in IPC. This work has commenced with the materials for undergraduates of Medical and Nursing universities.</p> <p>HAIVN has support the development and</p>	<p>HAIVN will continue working with the HCMC Infection Control Society (HICS) on the development of IPC training curricula, and submission to the Scientific Board of MOH for review. HAIVN will support the use of these curricula for training once completed.</p>

	<p>implementation of assessment tools for hospital IPC, HAI, staff knowledge and practice, including:</p> <ul style="list-style-type: none"> • Hand hygiene (adapted from WHO documents) • IPC link staff • Surveillance of HAI • Prevention of Central Line Associated Bloodstream Infections (CLABSI) • Prevention of Multidrug resistant organisms (MDRO) • Prevention of Ventilator Associated Pneumonias (VAP) • Prevention of Surgical site infections (SSI) 	
<p><i>6.5. Enhanced laboratory capacity for testing for AMR using quality assured programs</i></p>		
6.5.1. Fund existing and new AMR testing laboratories	<p>FAO supported DAH and NIVR to assess the current laboratory of the NIVR and National Veterinary Hygiene Inspection Centre No I (NVHIC No I) using the ATLASS tool developed by the regional FAO ECTAD programme. The assessment was completed in 2017 and results disseminated to stakeholders.</p>	<p>In 2018, it is planned to extend the ATLASS assessment to the NVHIC in HCMC.</p>
6.5.2. Building appropriate laboratories including reference laboratories for animal health - National Center for Veterinary Hygiene and Inspection – and human health – The National Hospital for Tropical Diseases	<p>VAMS with support from WHO and other international partners conducted preparatory activities for the establishment of a National Reference Laboratory for AMR.</p> <p>NHTD with support from OUCRU and the Fleming Fund of the UK Government are working to establish a coordinating/ reference laboratory capacity for AMR at NHTD.</p> <p>DAH with support from FAO conducted capacity and equipment assessment and organized training for laboratory staff of the National Veterinary Hygiene Inspection Centre.</p>	<p>VAMS will continue to work with WHO and other international partners on the development of a National Reference Laboratory for AMR.</p> <p>NHTD with support from OUCRU and the Fleming Fund will continue working to establish a coordinating/ reference laboratory capacity for AMR at NHTD.</p> <p>VAMS will continue discussions with WHO regarding possible enrolment in the Global Antimicrobial Resistance Surveillance System (GLASS).</p>
6.5.3. Quality management systems for laboratories	<p>FAO worked with DAH to apply the FAO Assessment Tool for Laboratory and Antimicrobial Resistance (ATLASS) to assess the laboratory capacity of the National Centre for Veterinary Hygiene Inspection Centre No 1 (VHI1) and with NIVR.</p>	
6.5.4. Established national laboratory network of 18+ laboratories with ISO 15189 compliance and accreditation for AMR surveillance		

(health sector)		
<i>6.6. Reduced environmental contamination with antibiotics</i>		
6.6.1. Reduced use of AM compounds in farms and animals, and improved waste disposal	<p>Inspection teams have been established to monitor the use of antibiotics in livestock production and waste treatment.</p> <p>The Institute of Environmental Health and Sustainable Development (IEHSD), with technical support from the University of Antwerp, is conducting research to determine the presence of gram-negative bacteria (and the harboured resistance determinants) in environmental reservoirs (water, soil/sludge and food) and in the human gut.</p>	<p>Development of inspection teams to monitor the use of antibiotics in livestock production and waste treatment will continue.</p> <p>NIN and NIVR with support from ILRI and funding from DANIDA will carry out a study to identify factors that influence veterinary health management and veterinary drug use practices at pig farms in Bac Ninh province, review current guidelines for antimicrobial use, assess contextual dimensions and networks that influence pig health management and antibiotic use, establish quality and quantity of antibiotic drugs used in pig production, strengthen local capacity in surveillance of antibiotic use, prevalence of antibiotic resistance and antibiotic residues in pigs and pork products, and strengthen local stakeholder interactions and communication channels to advance animal health, reduce the use of antibiotics and diminish the spread of antibiotic resistance and residues related to pig production.</p> <p>NIVR with support from ILRI and funding from CGIAR will develop and test an intervention at farm level to reduce AMR and AMU through increased awareness and knowledge of all stakeholders on antibiotic smart-use in pig farms.</p>
6.6.2. Enhance control on discharge from farms that will contain AM and resistant bacteria (MONRE)		
<i>6.7. Strengthened inter-sectoral coordination on efforts related to anti-microbial use and AMR</i>		

<p>6.7.1. Strengthening inter-sectoral coordination of national and international actors</p>	<p>CIRAD has carried out a mapping and analysis of actors involved in the surveillance of ABR and ABU in Viet Nam focused on identification of factors influencing the operationalization of the national surveillance strategy and recommendations to support its implementation.</p> <p>NIHE and NHTD with support from OUCRU and the Fleming Fund and the Newton Fund of the UK Government organised a meeting to bring together national and international actors to update on the status of ongoing AMR projects in Viet Nam across different sectors and to formulate a proposal to establish an AMR partnership to support coordination of national and international partners and activities for coordinating AMR activities.</p>	<p>NIHE and NHTD with support from OUCRU will take forward the proposal on strengthened coordination on AMR.</p> <p>FAO will continue to support to DAH to share information and lessons learnt on AMR risk mitigation, AMU management and residue monitoring in both livestock and aquaculture through:</p> <ul style="list-style-type: none"> a) Promotion on reduction of AMU in livestock production b) Better engaging the private sector; <p>Semi-annual and annual review of the NAP implementation and identification of gaps.</p>
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Potential gaps and areas for further consideration

As discussed at the AMR workshop organised in Hanoi in late 2017 by NIHE and the NHTD, there are many actors and activities now working on AMR across the three sectors of human health, animal health and environmental health. An effective coordination mechanism is needed at the working level, involving all three sectors and both national and international partners.

Is it necessary to strengthen the coordination mechanism and allocation of human resources to address AMR in the agriculture sector?

Further funding needs to be identified for AMR surveillance in the agriculture sector, for dealing with review and removal of previously-approved veterinary drugs for which permission has now been removed as they are on the list of priority antibiotics to reserve for treatment of humans, and other issues.

FOCUS AREA 7: ONE HEALTH APPROACHES TO OTHER ZOO NOTIC DISEASES AND FOODBORNE ZOO NOSES

Background and context

A number of other zoonotic diseases are present in Viet Nam and cause significant health and economic losses but with little or no potential to become pandemic agents. During the period from 2016 to 2020, work is expected to progress on reducing the impact of the priority diseases - anthrax, leptospirosis and *Streptococcus suis* - using a One Health approach.

Table: Other priority zoonoses identified in the OHSP (in addition to influenza and rabies)

Priority zoonosis	Comments
Anthrax	One of the priority diseases listed in the annex to Circular 16 (2013) Localised outbreaks associated with consumption of animals that died from anthrax
Brucellosis	Need to monitor given high levels in region, expansion of dairy sector and high volume of trade in live cattle with neighbouring countries.
Leptospirosis	One of the priority diseases listed in the annex to Circular 16 (2013) No evident occupational risk but higher risk in rural communities. High prevalence of exposure in rats in southern Viet Nam.
<i>Streptococcus suis</i>	One of the priority diseases listed in the annex to Circular 16 (2013) Some disease due to occupational exposure, consumption of raw pork or pig blood, but some with no known exposure to pork
Other	A range of other zoonotic agents occur or have occurred and could re-emerge. Most are associated with individual cases of disease rather than outbreaks

Foodborne diseases of animal origin also cause a substantial burden of disease in Viet Nam and can best be tackled with a One Health approach. These diseases are caused by zoonotic agents such as Salmonella, Campylobacter, Listeria as well as parasitic diseases/agents like cysticercosis, hydatidosis, and fish-borne trematodes.

Chemical contamination of animals and animal products represent a major food safety challenge and solutions require involvement of the environmental sector. These diseases are managed through mechanisms other than the One Health Partnership and are not considered in depth in the OHSP. Nevertheless, some of the measures needed to improve food safety such as animal identification systems are also highly relevant for addressing chemical contamination of food.

Strategic directions

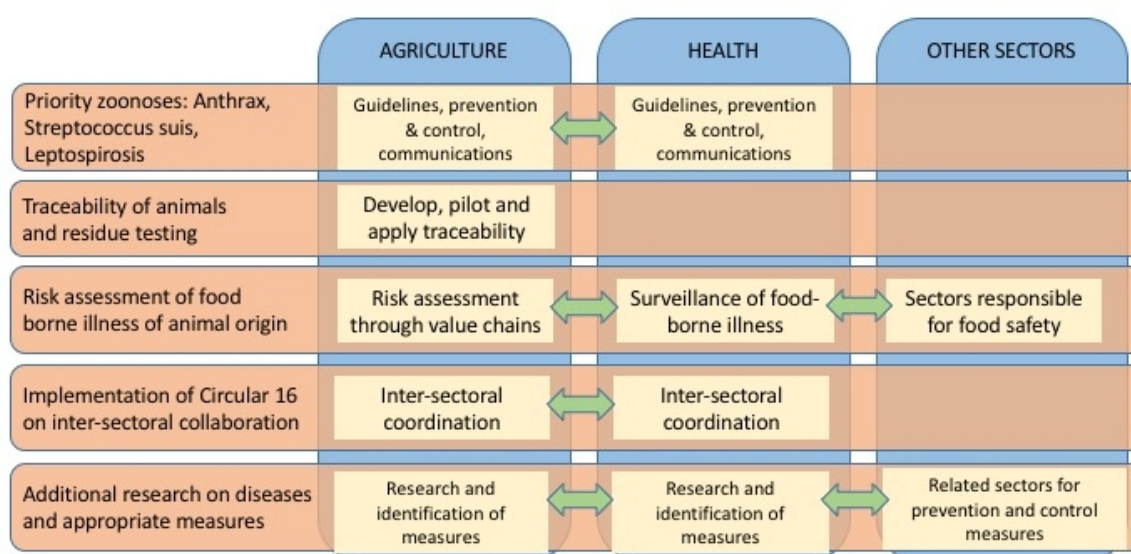
The main objectives in relation to applying One Health approaches to other zoonotic disease and foodborne zoonoses by 2020 include conducting research and developing guidance on directions for future work. Prevention and control of priority zoonoses requires effective inter-sectoral collaboration in line with the inter-ministerial Circular 16 (2013). Systems for identification and traceability as well as strengthened testing for residues in food are included under this focus area.

Expected Outcomes and Outcome Indicators

The following expected outcomes and outcome indicators are included in the draft Results Framework for the OHSP, 2016-2020.

<i>Proposed Outcome Statement</i>	<i>Proposed Outcome Indicators</i>	<i>Status as of December 2017 and comments on measurement considerations</i>
<p>7. Other important zoonotic diseases will benefit from One Health coordination to reduce disease transmission and minimize economic disruptions to society. Animal-based food production systems (e.g., livestock, aquaculture) can also cause a high burden of diseases and economic impacts if there is contamination in the value chain. Achievements in this focus area can be made through effective research to policy interventions, regulation, traceability initiatives and behaviour change to reduce cases.</p>	<p>xiv. Increased application of One Health approaches to priority zoonotic diseases and Food Safety</p>	<p>This suggested indicator aims to identify an overview of the application of One Health approaches. Measurement will require combining report data from different related sectors and partners.</p>

Key areas for inter-sectoral collaboration on Focus Area 7



Highlighted achievements as of December 2017

- MARD and MOH have issued guidelines on prevention and control of priority zoonoses including Anthrax, Streptococcus suis and Leptospirosis.
- Provincial piloting and evaluation of Circular 16 implementation.
- Traceability of pig origins on farms, transportation, quarantine inspection and slaughtering has been improved.
- A number of risk assessment studies and meetings on zoonoses have been carried out.

Progress on OHSP Outputs and Targets as of December 2017

Key Outputs & Output Targets	Highlighted activities in 2016/2017	Key directions in 2018
<i>7.1. Anthrax control</i>		
7.1.1. Improved public awareness in high risk areas and enhanced vaccination	<p>MOH has developed and issued guidelines on surveillance and prevention and control of anthrax in humans, with support from WHO.</p> <p>MARD has issued Circular No. 07/2016/TT-BNN-PTNT on the prevention and control of terrestrial animal diseases, including anthrax (Appendix 12).</p> <p>DAH has directed Provincial Sub-DAH in affected, threatened and high-risk areas to carry out vaccination and to implement disease reporting and outbreak control when outbreaks happen.</p> <p>National targeted program 30a has support the allocation of vaccines to affected districts.</p>	<p>BCC campaigns and vaccination will be implemented in affected, threatened and high-risk areas.</p> <p>National targeted program 30a will continue supporting the allocation of vaccines for livestock in affected districts.</p>
<i>7.2. Reduction in burden of disease due to Streptococcus suis</i>		
7.2.1. Behavioural change (where possible) especially consumption of raw pig products	<p>MOH has issued guidelines on surveillance and prevention and control of Streptococcus suis in humans.</p> <p>MARD has issued Circular No. 07/2016/TT-BNN-PTNT on the prevention and control of terrestrial animal diseases, including Streptococcus suis (Appendix 17).</p> <p>The human and animal health sectors are cooperating to investigate and inspect suspected outbreaks of Streptococcus suis.</p>	BCC campaigns will be implemented, especially related to the consumption of uncooked pig products.
<i>7.3. Reduction in burden of disease due to Leptospirosis</i>		
7.3.1. Community awareness of the dangers of leptospirosis in periods of heavy rainfall	<p>MARD has issued Circular No. 07/2016/TT-BNN-PTNT on the prevention and control of terrestrial animal diseases, including Leptospirosis (Appendix 14).</p> <p>DAH has directed localities to carry out vaccination for Leptospirosis and to take blood samples for periodic testing in accordance with Circular No. 07/2016/TT-BNN-PTNT.</p>	<p>BCC campaigns will be implemented.</p> <p>DAH will continue to direct vaccination for Leptospirosis and collection of blood samples for periodic testing.</p>
7.3.2. Communications to improve awareness about leptospirosis among the medical profession	MOH has developed and issued guidelines on surveillance and prevention and control of Leptospirosis in humans, with support from WHO.	
7.3.3. Improved diagnostic capacity for leptospirosis in human and animals	<p>DAH has directed localities to implement Circular No. 07/2016/TT-BNN-PTNT on prevention and control of terrestrial animal diseases.</p> <p>Training has been provided for all seven RAHOs, and</p>	Implementation of Circular No. 07/2016/TT-BNN-PTNT and training and equipment will continue to

	for some provincial Sub-DAHs with sufficient capacity, on diagnosis guidance and improving diagnostic procedures for animal Leptospirosis, and laboratory equipment has been provided.	be provided.
<i>7.4. Enhanced traceability of animals and residue testing</i>		
7.4.1. Practical animal identification systems such as pig tattoos linking animals in slaughterhouses to individual farms or small-scale traders	Ear numbering and lead wire clamps have been implemented on swine farms to identify pig origins from transportation to quarantine inspection and slaughtering.	Legal documents on tracing systems will be developed and issued. FAO will support out a feasibility study on traceability and value chain of livestock commodities, and a need assessment and feasibility study on the development of a poultry egg traceability model
<i>7.5. Risk assessment of food borne illness of animal origin</i>		
7.5.1. Conduct a risk assessment to help justify investments in this area	DAH has assigned risk assessment trainers to provide training to RAHOs and some provincial Sub-DAHs on risk assessment.	Training will continue, and risk assessments for foodborne diseases will be conducted.
7.5.2. The systems for identification of food animals going to slaughter will have been examined for feasibility, such as a tattoo system for pigs, to allow traceability of pigs and carcasses back to farms or traders.	MARD has sent some staff abroad to attend trainings on risk assessment. Risk assessment approaches are being applied in the development of tracing systems.	DAH will direct the localities to carry out risk assessments at slaughterhouses based on the swine traceability system.
7.5.3. A risk assessment on food safety will have been completed highlighting areas where improvements to food safety are required and can be made.	MARD has sent some staff abroad to attend trainings on food safety risk assessment. Training on food safety and hygiene has been provided to RAHOs and some provincial Sub-DAHs by international experts with funding from international organizations and the central budget. FAO facilitated sharing of information through the Food Safety Technical Working Group. The ACIAR-funded SafePORK project being implemented by HUPH, VNUA and NIAS together with Biospring and Bac Tom company, with assistance from ILRI, the University of Sydney and the Royal Veterinary College, is developing and evaluating market-based approaches to improving food safety with the overall aim of reducing the burden of foodborne disease in informal, emerging formal, and niche markets targeting small- and medium-scale producers. This includes generating evidence on the efficacy, feasibility and reach of current approaches for improving pork safety in Viet Nam, and developing,	Training will continue, and risk assessments for food safety and hygiene will be conducted. The SafePORK project will continue.

	piloting and testing incentive-based approaches to food safety, in close partnership with the private sector.	
<i>7.6. Circular 16 will be fully implemented at all levels with reporting of all cases in the human and animal sector to both MOH and MARD (as well as their local counterparts)</i>		
7.6.1. See focus area 1	GDPM with support from WHO is developing guidelines for surveillance and control of Anthrax and Leptospirosis for the preventive medicine sector.	
<i>7.7. General target</i>		
7.7.1. Additional research to further define the extent of these diseases and to develop appropriate control and preventive measures, building on work already undertaken	<p>EI/RA meetings:</p> <ul style="list-style-type: none"> • A meeting on influenza A(H7N9) was conducted by MOH, DAH and NIHE with support from WHO, FAO, US CDC and USAID in March 2017. • A meeting on Dengue and HFMD was conducted by GDPM together with NIHE, Ha Noi PMC, NHTD and WHO in June • Meetings were also conducted by GDPM with support from WHO on Yellow Fever (June 2017), Dengue, Diphtheria and Japanese Encephalitis (July 2017), and Zika (September and October 2017). <p>Through the Pestforecast project, ILRI and other international partners have worked with agencies within MARD, MOH, MONRE and the HSPH to conduct a cross-sectional study to estimate the Japanese encephalitis virus seropositive status of pigs at slaughterhouses in 5 provinces (Hanoi, Son La, Nghe An, Dak Lak and An Giang). This report highlighted the challenge in estimating the prevalence of Japanese encephalitis virus in pigs throughout Viet Nam.</p> <p>Through the Pestforecast project, ILRI and other international partners have worked with agencies within MARD, MOH, MONRE and the HSPH to evaluate the sero-prevalence and incidence of presumptive infective leptospira serovars in fattening pigs at slaughterhouses in five provinces in Viet Nam including Son La, Hanoi, Nghe An, Dak Lak and An Giang in 2016. This study found that leptospirosis in pigs may be a useful indicator of the human/animal burden in Viet Nam and a risk assessment tool. The presence of some of the identified serovars suggests that wildlife may play an important role in the transmission of leptospirosis to domesticated pigs in Viet Nam. Therefore, strengthened monitoring and surveillance systems are needed to better understand the epidemiology of the disease and prevent or reduce infection in humans and animals.</p> <p>Through the Pestforecast project, ILRI and other international partners have worked with agencies within MARD, MOH, MONRE and the HSPH to evaluate alfatoxins in maize and pigs in the dry and wet seasons in Viet Nam. The study found that pigs are</p>	<p>The EI/RA approach will be applied to other zoonotic diseases and foodborne zoonoses as necessary.</p> <p>GDPM will continue working with VFA to develop a concept note for a coordination mechanism on foodborne disease surveillance and outbreak management and response between the preventive medicine sector, hospitals and food safety agencies.</p> <p>The ECOMORE and CRP projects will continue.</p>

	<p>exposed to the toxins through the feeds, and this likely has negative effects on the pig industry in Viet Nam. In addition, it is possible that pork products may contain aflatoxins, contributing to human exposure. Awareness of aflatoxins was found to be very low, particularly among minorities. More awareness campaigns were recommended, particularly on methods to reduce fungal growth and produce safer maize.</p> <p>Through the ECOMORE project funded by AFD, NIHE and Institut Pasteur are conducting a study in Ha Tinh, Thai Binh and Can Tho to assess the epidemiological status of Leptospirosis and to identify the main risk factors of transmission in various social and climatic environments.</p> <p>Through the CRP project, NIVR, DAH and NCVD, with support from ILRI and funding from CGIAR, are carrying out a study in ten provinces to evaluate the sero-prevalences of zoonotic diseases (leptospirosis, Japanese encephalitis and brucellosis) in pigs as well as to identify the potential risk factors.</p>	
7.7.2. Continued increase in the coverage of JE vaccine for children eligible under the National Immunisation Schedule with reductions in the number of human cases of Japanese encephalitis	GDPM with support from WHO conducted a joint risk assessment on Dengue, Diphtheria and Japanese Encephalitis was conducted in July 2017.	
7.7.3. Risk assessment on brucellosis from trade in ruminants from neighbouring countries	<p>DAH has provided regular direction to the RAHOs, Regional Quarantine Sub-Departments and the provincial Sub-DAHs of border provinces to enhance the quarantine of cross-border cattle and buffalo trade in order to prevent disease incursions from neighbouring countries, including brucellosis.</p> <p>An OUCRU study published in 2017 described human <i>Brucella melitensis</i> infections in southern Viet Nam.</p>	Border control and quarantine activities will continue.

Potential gaps and areas for further consideration

Remote, mountainous and poor areas face particular difficulties for access, awareness, prevention and control of priority zoonoses.

There may be a need for further investigation on the status of brucellosis in animals and humans.

ANNEXES

I. List of signatories to the Partnership Framework of the OHP

1. Ministry of Agriculture and Rural Development (MARD)
2. Ministry of Health (MOH)
3. Ministry of Natural Resource and Environment (MONRE)
4. United Nations in Viet Nam: Food and Agriculture Organization of the United Nations (FAO), United Nations Development Programme (UNDP), World Health Organization (WHO)
5. Embassy of the United States of America in Viet Nam: United States Agency for International Development (USAID), Centers for Disease Control and Prevention (CDC), Defense Threat Reduction Agency (DTRA)
6. World Bank
7. Asian Development Bank (ADB)
8. Embassy of France in Viet Nam
9. Agence Française de Développement (AFD)
10. Agricultural Research for Development (CIRAD)
11. The Wildlife Conservation Society (WCS)
12. International Livestock Research Institute (ILRI)
13. Oxford University Clinical Research Unit (OUCRU)
14. Viet Nam Farmers Union (VNFU)
15. Viet Nam Red Cross Society (VNRC)
16. Viet Nam National University of Agriculture (VNUA)
17. Hanoi Medical University (HMU)
18. Institute for Preventive Medicine and Public Health (IPMPH)
19. Hanoi School of Public Health (HSPH)
20. Centre for Public Health and Ecosystem Research (CENPHER)
21. Viet Nam One Health University Network (VOHUN)
22. Viet Nam Public Health Association (VPHA)
23. Viet Nam Veterinary Association (VVA)
24. Animal Husbandry Association of Viet Nam (AHAV)
25. Viet Nam Poultry Association (VPA)
26. National Institute of Veterinary Research (NIVR)
27. National Institute of Animal Husbandry (NIAS)

II. List of current One Health programmes and projects in Viet Nam

<i>Project title</i>	<i>National Partners</i>	<i>International Partners</i>	<i>Donors</i>
1. A crossborder transdisciplinary One Health approach to rabies control in dogs in Southeast Asia	NIHE	Swedish University of Agricultural Sciences – Uppsala University ILRI	Swedish Research Links
2. A Hospital- and Community-Based Investigation of Rickettsial Diseases, Scrub Typhus and Q Fever in Vietnam[To be completed]	National Hospital of Tropical Diseases (NHTD) National Institute of Malariology, Parasitology and Entomology (NIMPE) Hanoi Medical University (HMU) Hanoi University of Science, Faculty of Geology, Geography	US Navy Medical Research Center	U.S. Defense Threat Reduction Agency/Cooperative Biological Engagement Program (DTRA/CBEP)
3. AMS in Thai Nguyen: A systems approach to livelihood-sensitive veterinary antimicrobial stewardship in Vietnam	CENPHER HUPH Thai Nguyen University of Agriculture and Forestry VNUA	University of Queensland ILRI	CGIAR Research Program on Agriculture for Nutrition and Health (A4NH) Australian Government Research Training Program Crawford Fund (minor)
4. Antibiotic resistance in Vietnam: moving towards a One Health surveillance system	NIVR VNUA CENPHER	CIRAD	Grease network French Ministry of Agriculture French Embassy in Vietnam France Veterinaire International
5. Biorisk Management (BRM) Training	GDPM	DTRA/CBEP	US DTRA/CBEP

<i>Project title</i>	<i>National Partners</i>	<i>International Partners</i>	<i>Donors</i>
	DAH Military Institute of Preventive Medicine (MIPM)	contractor: CH2M/ Jacobs company, and subcontractors: Battelle Memorial Institute and University Research Corporation	
6. Combating the emergence and spread of antimicrobial resistant infectious diseases in Viet Nam (V-RESIST)	Woolcock Institute of Medical Research in Vietnam	University of Sydney's Woolcock Medical Research Institute	Australian Government Department of Foreign Affairs and Trade (DFAT)
7. Community-based emerging infectious disease risk reduction in the Mekong: Live Animal Marketing and Production (LAMP)	Departments of Animal Health/Livestock Production in Cambodia, Lao PDR, Myanmar, Viet Nam and Thailand	USAID ASEAN Sectoral Working Group on Livestock Avian - Influenza Group for ASEAN (AIGA) FAO Civil Society, Academia and Private Sector	DFAT Australia
8. Defining the burden of antibiotic resistance in Vietnam across different ecosystems	Institute of Environmental Health and Sustainable Development (IEHSD)IEHSD	University of Antwerp (UA), Faculty of Medicine and Health Sciences, Vaccine & Infectious Disease Institute (Vaxinfectio), Laboratory of	NAFOSTED

<i>Project title</i>	<i>National Partners</i>	<i>International Partners</i>	<i>Donors</i>
		Medical Microbiology (LMM)	
9. Developing a National Antimicrobial Resistance Reference Laboratory and Surveillance Programme in Vietnam	NHTD	OUCRU	UK Department of Health and Social Care
10. ECOMORE 2	NIHE	Institute Pasteur	AFD
11. Emergency Operations Center Exercises (EOC Exercises)	GDPM DAH NIHE, PI-HCMC, PI/Nha Trang, Central Highlands Institute of Hygiene and Epidemiology		US DTRA/CBEP
12. Exploring the replacement of antibiotic use by nano silver in pig production in Vinh Phuc province	NIVR	ILRI	CGIAR Research Program on Agriculture for Nutrition and Health (A4NH)
13. FMM/RAS/298/MUL: Strengthening capacities, policies and national action plans on prudent and responsible use of antimicrobials in fisheries	DAH NIVR Research Institute for Aquaculture	FAO	FAO
14. Foot and mouth disease (FMD) surveillance in Viet Nam	DAH	USDA	USDA
15. GCP/GLO/710/UK (FF2): Engaging the food and agriculture sectors in sub-Saharan Africa and South and South-East Asia in the global efforts to combat antimicrobial resistance using a One Health approach	NIVR	FAO	Fleming Fund, UK

<i>Project title</i>	<i>National Partners</i>	<i>International Partners</i>	<i>Donors</i>
16. Global Health Security Partner Engagement: Expanding Efforts and Strategies to Protect and Improve Public Health Globally	General Department of Preventive Medicine (GDPM) Vietnam Administration of Medical Services Pasteur Institute National Institute of Hygiene and Epidemiology Vietnam Authority of HIV/AIDS Control (VAAC)	PATH	Centers for Disease Control and Prevention (USCDC)
17. Greater Mekong Sub-region Health Security Project – Asian Development Bank	General Department of Preventive Medicine (GDPM) Ministry of Health (MOH)	Asian Development Bank (ADB)	Asian Development Bank (ADB)
18. Hepatitis E virus prevalence in Vietnam	NIVR HUPH	ILRI Aberdeen's Robert Gordon University (RGU)	CGIAR Research Program on Agriculture for Nutrition and Health (A4NH) Rakuno University (RGU), Japan
19. Implementation Circular 16 in 4 provinces Thanh Hoa, Binh Dinh, Ha Giang and Quang Nam	NIHE GDPM	WHO	USAID
20. Integrating Financing for Health Security in East Asia Pacific Region	MOF MARD MOH	World Bank, in collaboration with key development partners, including WHO, FAO, OIE, US CDC, USAID, etc	DFAT Australia
21. LISN: Longitudinal Influenza Surveillance Network in Quang Ninh and Dong Thap provinces	NIHE GDPM PI-HCMC	WHO	USAID

<i>Project title</i>	<i>National Partners</i>	<i>International Partners</i>	<i>Donors</i>
22. Livestock CRP: Sero-prevalence of zoonotic diseases in pigs in Vietnam	NIVR DAH NCVD	ILRI	CGIAR research programs on Livestock Agri-Food Systems (Livestock CRP) and on Agriculture for Nutrition and Health (A4NH)
23. Manufacturing technology Project H5N1 bird flu vaccine: Research creating influenza vaccine strains A/H5N1 bang new technologies; Research on H5N1 prevention vaccine production of new varieties; Implementation of the model vaccine production	Institute of Biotechnology/Academy of Sciences of Vietnam/Company of veterinary drugs (NAVETCO)		
24. Market and policy analysis to support international economic integration and food safety in Vietnam	VNUA	ACIAR	ACIAR
25. Metropolitan mosquitoes: Understanding urban livestock keeping and vector-borne disease in growing tropical cities – the potential of sustainable control methods and the risks for emergence to Sweden	NIVR NIHE HUPH	Swedish University of Agricultural Sciences – Uppsala University	The Swedish Research Council (Formas)
26. OSRO/RAS/502/USA: Addressing Antimicrobial Usage in Asia's Livestock Production Industry	DAH	FAO	USAID
27. OSRO/VIE/402/USA: Risk Mitigation and Management of Human Health Threats along Animal Value Chains	DAH NAEC DLP CITES MA	FAO	USAID
28. Pestforecast: Surveillance and early-warning systems for climate-sensitive diseases in Vietnam	NIVR	ILRI	CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) CGIAR Research Program on Agriculture for Nutrition and

<i>Project title</i>	<i>National Partners</i>	<i>International Partners</i>	<i>Donors</i>
			Health (A4NH)
29. Project for Capacity Development for Medical Laboratory Network on Biosafety and Examination of Highly Hazardous infectious Pathogens in Vietnam, Laos and Cambodia	National Institute of Hygiene and Epidemiology (NIHE) Pasteur Institute in Ho Chi Minh City (PIHCMC)	National Institute of Infectious Diseases (NIID), Japan	Japan International Cooperation Agency (JICA)
30. Protecting and Improving Public Health Globally: Building and Strengthening Public Health Impact, Systems, Capacity and Security	GDPM	USCDC	US CDC
31. Safe Food for Growth (SAFEGRO)	MARD, MOH, MOIT		Canada
32. SafePORK: Market-based approaches to improving the safety of pork in Vietnam	HUPH CENPHER VNUA) NIAS Associated partners: Biospring and Bac Tom company	ILRI University of Sydney Royal Veterinary College (associated partner)	ACIAR
33. Safer indigenous pork and healthier ethnic minorities in Vietnam through better management of parasitic pig-borne diseases (PPBD)	HUPH CENPHER NIAS	ILRI, Freie Universitaet Berlin (FUB), Germany Institute for Risk Assessment (BfR), Germany	German Federal Ministry for Economic Development Cooperation, (BMZ), Germany
34. Sampling air for avian influenza virus: Bioaerosol Sampling to Detect Avian Influenza Virus in Hanoi's Largest Live Poultry Market	NIVR	ILRI Duke University	Duke University
35. Stop Transboundary Animal Diseases and Zoonoses (STANDZ)	Departments of Animal Health/Livestock in all	OIE ASEAN Sectoral	DFAT Australia

<i>Project title</i>	<i>National Partners</i>	<i>International Partners</i>	<i>Donors</i>
	ASEAN Member States, China and Mongolia	Working Group on Livestock FAO WHO Academia and Private Sector	
36. Strengthen the coordination between animal and human health sector in prevention, surveillance and response to zoonotic diseases	NIHE GDPM	WHO	WHO USAID
37. Strengthening capacity for the implementation of One Health in Viet Nam, Phase 2 (SCOH2)	MARD ICD GDPM	UNDP	USAID UNDP
38. Strengthening Pandemic Preparedness	MOH MARD	World Bank	Japan
39. Surveillance at the animal-human interface of influenza and other zoonotic diseases in Vietnam	DAH	US CDC	US CDC
40. TCP/RAS/3620: Strengthening One Health approaches for countries in the Asia Pacific Region	MARD MOH MONRE	FAO	FAO
41. The Partnership for Health Advancement in Vietnam (HAIVN)			
42. TWG: Meeting to establish Intersectoral Antimicrobial Resistance Surveillance Technical Working Group	NHTD NIHE	OUCRU	The Fleming Fund and Newton Fund, UK Government
43. USAID EPT/PREDICT USAID's Emerging Pandemic Threats (EPT2) Program – PREDICT 2		WCS	USAID

<i>Project title</i>	<i>National Partners</i>	<i>International Partners</i>	<i>Donors</i>
44. USAID's Emerging Pandemic Threats (EPT2) Program – USAID EPT/One Health Workforce (OHW): Vietnam One Health University Network	VOHUN	University of Minnesota Tufts University	USAID
45. USAID's Emerging Pandemic Threats (EPT2) Program – USAID EPT/Preparedness and Response (P&R)	GDPM OHP Secretariat	DAI	USAID
46. Veterinary Intervention for Antimicrobial Reductions in Chicken Production (ViParc)	University of Can Tho	OUCRU	Welcome Trust
47. VIDAPIG: Health and Antibiotics in Vietnamese Pig Production	NIVR NIN	ILRI	DANIDA
48. Vietnam Livestock Competitiveness and Food Safety	DAH, DLP	World Bank	
49. Vietnam One Health University Network	VOHUN – HUPH	VOHUN	USAID
50. Women Led Output Based Aid (WOBA) project	Water for Women Thrive Networks – East Meets West Vietnamese Women's Union Ministry for Agriculture and Rural Development (MARD) Ministry of Health (MOH)	Water for Women partners with Thrive Networks – East Meets West	The Australian Government Department of Foreign Affairs and Trade (DFAT)
51. ZELS: Combating avian influenza through systematic analysis of antigenic drift, genetic variation, and development of novel diagnostic tools and vaccines	DAH NCVD)	Biotechnology and Biological Sciences Research Council (BBSRC)	The Pirbright Institute, UK

Source: Information collection for the updated Directory of One Health Projects and Programmes in Viet Nam, May 2018. Further projects are expected to be added as information is provided to the OHP Secretariat.