

AN ASSESSMENT OF VETERINARY LEGISLATION AND ITS APPLICATION TO WILDLIFE FARMING FACILITIES AND WILDLIFE TRANSPORTATION ACTIVITIES



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Acronyms

CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
FAO	Food and Agriculture Organization of the United Nations
GIZ	German Agency for International Cooperation
SARS-CoV	Severe acute respiratory syndrome coronavirus
UNDP	United Nations Development Programme
WCS	Wildlife Conservation Society
WHO	World Health Organization
WOAH	World Animal Health Organisation
VAHIS	Viet Nam Animal Health Information System

PART 1 OVERVIEW

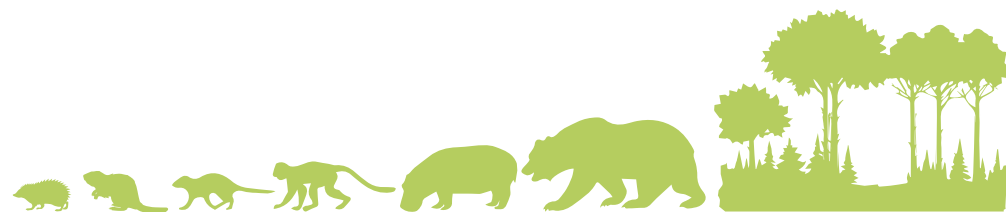
In a modern world that features rapid population growth, socio-economic development and scientific advancement, we are facing more and more emerging and re-emerging zoonoses such as Immunodeficiency Syndrome (AIDS/HIV), Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV), Swine Flu, Middle East Respiratory Syndrome Coronavirus (MERS-CoV) and COVID-19. Among new human pathogens, 75% originated in animals [1], the majority of which originate in wild animals. Wildlife is a natural host for many microorganisms unknown to humans, which do not cause symptoms in natural hosts, but in new hosts to which they are transmitted (such as humans, cattle, poultry or some other livestock species). As a typical example, bats are the natural host for such viruses as SARS-CoV, Ebola, and Nipah [2], which are not disease-causing agents in bats, but, when transmitted to livestock (pigs) and humans, can result in diseases and death in new hosts. In an ecosystem, a close interaction between humans, wildlife, domestic animals and the environment could facilitate the spread of dangerous pathogens.

Wildlife, as defined by CITES, means all undomesticated animal species. The World Organization for Animal Health (WOAH) distinguishes free-living wildlife as those living in the wild, while captive wildlife means animals living in an environment under direct human supervision or control (Table 1). According to Clause 29, Article 3 of the Government's Decree 84/2021/ND-CP amending Decree 06/2019/ND-CP on the management of endangered, precious and rare forest plants and animals and implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, wildlife means animals that live and grow in natural or artificial habitats or animals that are farmed in a controlled environment but are not considered as domestic animals as defined in the legislation on husbandry, and are one of the following species:

- a** Endangered, precious and rare species of fauna and flora prioritized for protection;
- b** Endangered, precious and rare species of forest fauna and flora;
- c** Endangered species of wild fauna and flora in CITES Appendices;
- d** Normal species of forest fauna;
- đ** Other terrestrial animals in the class of aves, mammalian, reptilian or amphibian, except certain species in the lists announced by the Ministry of Agriculture and Rural Development (MARD) in cooperation with the Ministry of Natural Resources (MONRE) and Environment and relevant agencies.

In the world, wildlife farming has been practiced for thousands of years [3]. According to the CITES Management Authority, many countries are farming wildlife listed in CITES Appendix IB and Appendix IIB on different scales for commercial purposes such as the UK, Germany, Czech Republic, Denmark, South Africa and Thailand. Wildlife species farmed around the world are used as food (sturgeon, crocodile, bird's nest); fur and leather material for the garment and fashion industry (fox fur, crocodile skin, python skin); for manufacture of pharmaceuticals and biomedical research (long-tailed macaques); for zoos or used as household pets (certain raptors, arowanas, big cats and ungulates).

In Viet Nam, wildlife farming started in 1980s, but has quickly expanded since 2020 in both quantity and scale, and key farmed species include crocodiles, pythons, softshell turtles, monkeys, porcupines, deers and cobras, for both domestic and international markets [3], [4]. A number of wildlife species have been domesticated and bred to be farmed as domestic animals such as Sika deer (*Cervus nippon*) and wild boars (*Sus scrofa*).



As of 2020, as reported by the Viet Nam CITES Management Authority, there were more than 70 species of wildlife farmed in over 14,000 facilities of different scales in Viet Nam. Some commonly farmed species include long-tailed macaques (*Macaca fascicularis*), Siamese crocodiles (*Crocodylus siamensis*), pythons (*Python molurus*), reticulated pythons (*Python reticulatus*), common cobras (*Naja sp*), king cobra (*Ophopharus hanah*), Asiatic softshell turtle (*Amyda cartilaginea*), Chinese softshell turtle (*Pelodiscus sinensis*) and yellow-headed temple turtle (*Heosemys annandalii*). Wildlife farming in Viet Nam has generated an annual revenue of USD 60 million and created jobs for more than 35 thousand workers. An FAO survey shows that, in 2021, Viet Nam had over 1.8 million wild animals farmed in 6,744 facilities [5].

Many countries have developed and issued regulations and guidelines on wildlife health management programs [6], [7], [8]. In China, disease management in wildlife is under wildlife management and veterinary authorities that are tasked for wildlife disease monitoring [9]; implementation arrangements for monitoring and forecasting; and preparation of emergency response plans for wildlife diseases according to legal regulations. However, China's Law on Animal Disease Control 1997 [10] only provides for provisions on animals that are artificially farmed or legally captured (Article 3) while, according its Article 37, captured wildlife must be quarantined immediately at the place of capture before being transported or sold.

In Thailand, the Animal Epidemics Act 1956 defines that animals, in addition to cattle and poultry, also include elephants, apes, monkeys, ostriches and a number of other species prescribed by competent ministerial authorities [11], which, however, does not apply to animals managed by the Ministry of National Defense (Article 5). This Act promulgates that the Ministry of Agriculture may request veterinary and related agencies to implement the provisions of the Act (Article 7). Veterinary authorities only began to coordinate with wildlife

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70 species of wildlife

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management agencies in controlling wildlife diseases in 2003 when there was the Avian Flu outbreak. Currently, veterinary authorities control wildlife diseases via the Monitoring and Surveillance Center for Zoonotic Diseases in Wildlife and Exotic Animals (MoZWE), with coordination of other ministries, agencies and organizations in joint research and disease surveillance.

Malaysia's Animals Act issued in 1953, amended in 2006, (Act No. 647)[12] defines "animals" to include horses, cattle, sheep, goats, swine, dogs, cats and any four-footed beast kept in captivity or under control, and "birds" to include domestic fowls, ducks, geese, turkeys, guinea fowls and pigeons. Therefore, regulations on disease prevention in wildlife are not regulated in Malaysia's Animals Act.

Indonesia's Law on Livestock Production and Animal Health 2009 [13] defines wildlife as terrestrial, aquatic and/or aerial animals of a wild nature, including those that live freely or are kept by human being (Article 1, clause 6). The application of veterinary services to wildlife is seen as part of animal health conservation (Article 1, clause 32). According to Clause 2, Article 73 of this Law, health rehabilitation, animal health protection and wildlife necropsy will be carried out under cross-sectoral coordination according to the provisions of law.

In Viet Nam, disease management in wildlife farming is carried out mainly according to the Law on Veterinary Medicine, MARD's Circular No. 07/2016/TT-BNNPTNT dated May 31, 2016 and a number of other legal documents. However, due to a lack of specific regulations in disease prevention and control at commercial and non-commercial wildlife facilities or farms, at live wildlife wholesale markets, at places where wild meat is consumed, and during wildlife transportation, state management agencies face certain difficulties in disease prevention and control. However, due to time and resource constraints, within the framework of this study, we conducted a review of current provisions of the Law on Veterinary Medicine on disease prevention and control for terrestrial wildlife breeding facilities, including actual application, to determine key limitations and challenges in prevention and control of zoonotic diseases in Viet Nam, while also suggesting key amendments to current veterinary legislation for more effective disease management of terrestrial wildlife farming activities and wildlife transport.



PART 2

RESEARCH OBJECTIVES AND SCOPE

2.1. General objectives

This study is conducted to make recommendations to amend and supplement the provisions under the veterinary law and legal documents related to veterinary supervision and biosecurity for wildlife breeding facilities and wildlife transportation activities with the aim of better managing, monitoring and responding to zoonotic diseases, with a focus on terrestrial wildlife.

2.2. Specific objectives

- Identify gaps, inconsistencies, or overlaps in veterinary regulations and relevant regulations applicable to wildlife farming and transportation in relation to the prevention of zoonotic diseases.
- Analyze the role and involvement of veterinary agencies in the management of wildlife farming and transportation.
- Develop clear, evidence-based recommendations to revise and finalize the legal framework, including legal documents and guidelines for the management of veterinary surveillance and biosecurity related to wildlife farming and trade.

PART 3

METHODOLOGY

3.1. Desk research

- Provide a summary of current veterinary legal regulations on disease prevention and control at wildlife farming facilities and wildlife transportation in Viet Nam.
- Evaluate the effectiveness of these regulations in preventing the occurrence or spread of zoonotic diseases at wildlife farming facilities or during wildlife transport.
- Identify shortcomings and limitations in current veterinary legislation regarding control of zoonotic diseases at wildlife farming facilities and during wildlife transportation activities.

3.2. Expert interview

- Develop a survey form and conduct interviews with 10 experts in healthcare, veterinary medicine, forest protection and wildlife conservation about the current roles of veterinary authorities according to the Law on Veterinary Medicine and by-law documents in disease surveillance of wildlife farming facilities and during wildlife transportation activities, as well as interdisciplinary coordination plans. The extent to which Viet Nam's legal regulations in disease management on farmed wildlife and wildlife trade are relevant and facilitate the actual implementation process is evaluated by experts on a scale from 1 to 10, with a 10-score meaning that the regulations are highly conducive.
- Group discussion with experts in healthcare, veterinary medicine, forest protection and wildlife conservation at a GIZ workshop held in Hanoi on December 19, 2023, on current inadequacies in the management of wildlife farming activities, especially in aspects related to disease prevention and combat.
- The expert interview also aims to synthesize and suggest amendments to legal regulations are provided to help veterinary authorities effectively implement management of zoonotic diseases at wildlife farming facilities, during wildlife transport activities in Viet Nam.

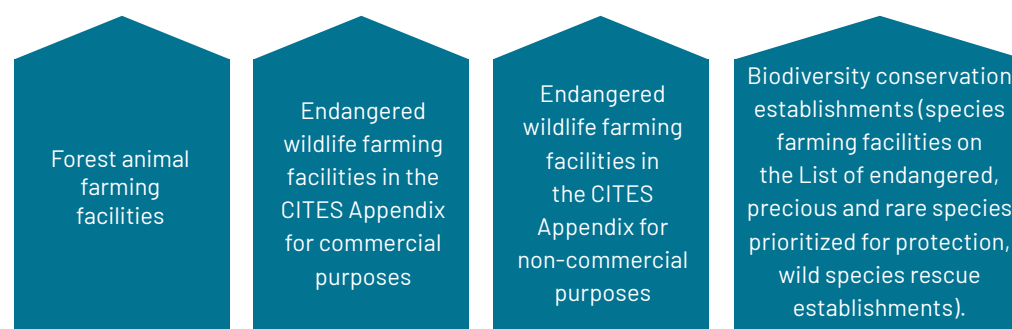
PART 4

RESULTS AND DISCUSSION

4.1. Roles of veterinary authorities in management of wildlife farming facilities in Viet Nam

For effective disease prevention and control at wildlife farming facilities, it is first required that veterinary authorities have administrative management information, thereby being able to accurately provide details on the number of wildlife facilities, location, scale and species of farmed wildlife, total herd size or animal classification, etc. This is similar to administrative management of cattle, poultry, and companion animals (dogs, cats). Agricultural statistics are compiled annually by the State and the General Statistics Office (GSO) publishes data on the total herd and number of farm households, based on which veterinary authorities can develop disease prevention and control plans such as monitoring, vaccination, cleaning, decontamination, disinfection, communication, etc. However, the participation of veterinary agencies in the administrative management of wildlife farming facilities is not clearly regulated.

Currently, terrestrial wildlife farming facilities in Viet Nam include common:

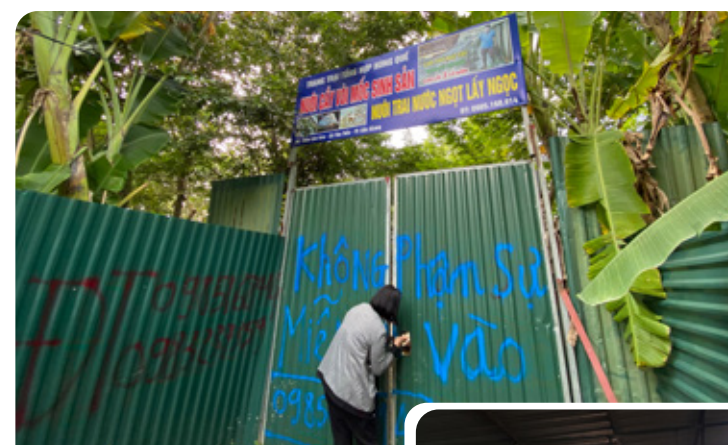


The management system of these facilities shall comply with the current regulations of certain legal documents including Law on Biodiversity (2008); Law on Forestry (2017); Decree No. 160/2013/ND-CP dated November 12, 2013 of the Government; Decree No. 06/2019/ND-CP dated January 22, 2019 of the Government; and related amending Decrees and guiding circulars. A summary of regulations is presented in Table 2. Accordingly, wildlife farming facilities in Viet

Nam are administratively managed by local authorities (People's Committees at all levels) and specialized agencies (forest protection agencies, CITES). Particularly, commercial wildlife farming facilities must register their facility codes with the Viet Nam CITES Management Authority or a local forest protection agency, with details summarized in Table 2 and Figure 1. The regulation of licensing applications, licensing appraisals or management and monitoring of wildlife farming facilities is currently mainly carried out by the above agencies.

Waste treatment at wildlife farming facilities is carried out in accordance with Technical Regulation No. QCVN 62-MT:2016/BTNMT issued together with MONRE's Circular No. 04/2016/TT-BTNMT dated April 29, 2016, promulgating national technical regulations on environment. Government management agencies in charge of the environment shall guide, inspect and supervise the implementation of this Regulation.

According to that, the role of veterinary authorities in the administrative management of wildlife farming facilities is not clearly regulated, specifically not requiring annual compilation of statistics on wildlife farming facilities and farmed wildlife populations or at least provision of information and data on wildlife farming facilities to veterinary authorities. This is one of the biggest barriers to veterinary authorities in their disease prevention and control on farmed wildlife.



4.2. Disease management of wildlife farming facilities

4.2.1. Legal basis for disease prevention and control at wildlife farming facilities and during wildlife transportation activities

Government regulations related to disease prevention and control at wildlife farming facilities and during wildlife transportation activities include:

- Law on Prevention and Control of Infectious Diseases (2007) [15] for zoonotic diseases.
- Law on Veterinary Medicine (2015) [16]
- Circular No. 07/2016/TT-BNNPTNT dated May 31, 2016, by MARD on prevention and control of diseases on terrestrial animals [17]
- Circular No. 25/2016/TT-BNNPTNT dated June 30, 2016, by MARD on quarantine of terrestrial animals and terrestrial animal products [18], (updated by the Circular 35/2018/TT-BNNPTNT dated December 25, 2018 [19]).
- Circular No. 09/2016/TT-BNNTPTN dated June 1, 2016, by MARD on animal slaughter control and veterinary hygiene inspection [20]
- Circular No. 13/2016/TT-BNNPTNT dated June 2, 2016 by MARD on management of veterinary drugs [21]
- Joint Circular No. 16/2013/TTLT-BYT-BNN&PTNT dated May 27, 2013, by Ministry of Health and MARD on coordinated prevention of zoonotic diseases [22].
- According to the interpretation of terms in Clause 1, Article 2 and Article 3 of the Law on Prevention and Control of Infectious Diseases or Clause 6, Article 3 of the Law on Veterinary Medicine, zoonotic pathogens are understood as infectious pathogens that can be transmitted directly or indirectly from animals to humans such as H5N1 Avian Flu, Ebola, Rabies, Streptococcus suis, West Nile Fever, Yellow Fever, Dengue Fever.
- Wildlife in Viet Nam is classified under the group of terrestrial animals for veterinary management (according to point a, clause 1, Article 3 of the Law on Veterinary Medicine) so it can be understood that wildlife is an object regulated in the Law on Animal Health.
- Wildlife products are also regulated clearly, including meat, eggs, milk, honey, beeswax, royal jelly, sperm, animal embryos, blood, innards, skin, fur, bones, horns, tusks, claws and other products (according to Point a, Clause 2, Article 3 of the Law on Veterinary Medicine).

4.2.2. State management responsibilities of government agencies related to prevention and control of zoonotic diseases at wildlife farming facilities

a) Ministry of Agriculture and Rural Development (MARD)

- According to Clause 2, Article 8 of the Law on Veterinary Medicine, MARD is the national authority responsible for wildlife disease management in Viet Nam, including farmed wildlife and wildlife transportation activities.
- The Government, based on the Law on Veterinary Medicine, has authorised MARD to formulate and organise the implementation of policies, legal documents, standards and technical regulations on veterinary medicine; direct, guide, and organise the implementation of prevention, treatment of and response to animal diseases; and to take the lead in disease management in farmed wildlife, including zoonotic diseases.
- MARD shall coordinate with MOH in preventing and controlling zoonotic diseases according to Joint Circular No. 16/2013/TTLT-BYT-BNN&PTNT dated May 27, 2013, by MOH and MARD in four main areas, namely: (1) Disease surveillance; (2) Outbreak investigation and response; (3) Communication on disease prevention and control; and (4) Training and research on zoonotic diseases.
- MARD shall also coordinate with other ministries and local governments in disease prevention and control on wildlife.

b) Ministry of Health (MOH)

- MOH shall implement regulations under the Law on Prevention and Control of Infectious Diseases, including zoonotic diseases. However, this is targeted towards human beings as the focus and not wildlife.
- The Law on Prevention and Control of Infectious Diseases, at Article 20, provides provisions on surveillance of infectious diseases, including: (1) Surveillance of confirmed and suspected cases of infectious diseases; (2) Surveillance of infectious pathogens; and (3) Vector surveillance. Accordingly, vectors are understood to include wildlife.
- MOH shall coordinate with MARD in preventing and controlling zoonotic diseases according to Joint Circular No. 16/2013/TTLT-BYT-BNN&PTNT dated May 27, 2013 by MOH and MARD in four main areas.
- MOH shall coordinate with other ministries and local governments in controlling and preventing zoonotic diseases.

c) Ministries and local governments such as MONRE, Ministry of Industry and Trade (MOIT), Ministry of Defense (MOD), Ministry of Public Security (MPS), Ministry of Information and Communications (MIC), People's Committees at all levels. Perform tasks with the powers authorised, coordinate with MARD and MOH respectively to handle suspected zoonotic diseases found in wildlife/wildlife products and in humans.

4.2.3. Regulations governing organisations and individuals on prevention and control of zoonotic diseases at wildlife farming facilities

a) Control and eradication of zoonotic diseases

Article 18 of the Law on Veterinary Medicine regulates the control and eradication of a number of dangerous infectious diseases in animals and zoonotic diseases. Accordingly, MARD advised the Prime Minister on approval of five national programs and plans to prevent and control diseases in livestock, including two zoonotic diseases, these are:

- 01 National Plan for Avian Influenza Prevention and Control in the period 2019 - 2025 (Decision No. 172/QĐ-TTg dated February 13, 2019);
- 02 National Program for Rabies Prevention and Control in the period 2022-2030 (Decision No. 2151/QĐ-TTg dated December 21, 2021).

Three other zoonotic diseases covered in legislation are covered by:

- 01 National Plan for African Swine Fever Prevention and Control for the period 2020-2025 (Decision No. 972/QĐ-TTg dated July 7, 2020);
- 02 National Program for Foot-and-Mouth Disease Prevention and Control in the period 2021 - 2025 (Decision No. 1632/QĐ-TTg dated October 22, 2020);
- 03 National Plan for Prevention and Control of Lumpy Skin Disease in Cattle in the period 2022 - 2030 (Decision No. 1814/QĐ-TTg dated October 28, 2021).

In these national programs and plans, the Government first focused on two zoonotic diseases, i.e. Avian Flu and Rabies; however, these documents do not target disease prevention and control at wildlife farming facilities.

Viet Nam has not introduced a national program or plan for prevention and control of zoonotic diseases related to farmed wildlife.

b) Surveillance of zoonotic diseases

Decree 4086/QĐ-BNN-TCCB dated 05/10/2023 of the Government regulating the functions, tasks, powers and organizational structure of the Department of Animal Health has clearly regulated the tasks and powers of the Department of Animal Health, or more broadly speaking, the veterinary force in the prevention and control of terrestrial animal diseases, including wildlife. One of the tasks and powers of the branch is to organize periodic supervision of animal epidemics for livestock establishments under its jurisdiction in accordance with law (Point h, Clause 5, Article 2). Point c, Clause 5, Article 16 of the Law on Animal Health stipulates that specialized veterinary management agencies shall organize the supervision of animal diseases as follows: "Periodically or irregularly supervise infectious diseases that may be transmitted between wild animals and domestic animals at wild animal farming facilities, zoos, bird gardens, biodiversity conservation areas, nature conservation areas". However, the specific guidance on animal disease surveillance in Circular 17/2016/TT-BNNPTNT dated 31/5/2016 on the prevention and control of terrestrial animal diseases. Accordingly, Clause 2, Article 3 of Circular 17/2016/TT-BNNPTNT states:

- a) Local specialized veterinary management agencies shall organize periodic disease surveillance of cattle, poultry and dairy cows farming facilities under their management.
- b) The Department of Animal Health shall organize periodic disease surveillance of foreign-invested or centrally managed farming facilities of cattle, poultry and dairy cows.

The periodic supervision of livestock facilities here is only to monitor a number of diseases transmitted between animals and humans for cattle, poultry and dairy cows farming facilities.

Article 6 of Joint Circular No. 16/2013/TTLT-BYT-BNN&PTNT provides guidance on information sharing between authorities in surveillance of zoonotic diseases, which is applicable to both healthcare and veterinary authorities. This Joint Circular does not stipulate the responsibilities in tackling zoonotic diseases of forest protection agencies which are directly involved in administrative management and play an important role in monitoring, detection and reporting of dangerous infectious diseases at wildlife farming facilities.

In addition, there are a number of directives of the Prime Minister and the Ministry of Agriculture and Rural Development related to wildlife management such as: Directive No. 29/CT-TTg dated July 23, 2020 of the Prime Minister on a number of urgent solutions for wildlife management; Directive 04/CT-TTg dated May 17, 2022 of the Prime Minister on a number of urgent tasks and solutions to conserve wild and migratory birds in Viet Nam; Official Letter No. 6461/

BNN-TCLN dated September 27, 2022 of the Ministry of Agriculture and Rural Development on strengthening the protection of wild and migratory birds. These guiding documents request the Ministry of Agriculture and Rural Development (specifically veterinary agencies) to strengthen monitoring and promptly detect diseases and epidemics originating from wild and migratory birds that are at risk of spreading and affecting the health of humans, livestock and poultry, and strengthen the direction of epidemic surveillance measures. veterinary hygiene at wild animal breeding and trading establishments. However, these documents are often directed and urged for a certain period of time, so the implementation efficiency is often not high and does not lead to periodic and regular activities.

The Law on Prevention and Control of Infectious Diseases, at Article 20, provides provisions on surveillance of infectious diseases, including:

01	02	03
Surveillance of confirmed and suspected cases of infectious diseases	Surveillance of infectious pathogens	Vector surveillance

Accordingly, vectors are understood to include wildlife, but veterinary authorities do not receive reports on vector surveillance from healthcare authorities or receive requests for coordinated vector surveillance.

- Articles 14 and 15 of Decree No. 06/2019/ND-CP require facilities that farm CITES-listed endangered species to provide conditions for disease prevention. However, there is currently no technical guidance on disease prevention at these facilities according to this Decree.

Thus, Viet Nam's current legal documents are specific in terms of surveillance of zoonotic diseases on humans, cattle, poultry and companion animals (dogs and cats) and are uniform at all levels of legal documents. However, for wildlife farming facilities, the regulations on disease surveillance, although stipulated in the Law, are not uniform and specifically guided in the guiding documents under the law. The list of diseases transmitted from animals to humans issued under Circular 07 includes 8 diseases, which are also mainly diseases in cattle and poultry. For this, veterinary authorities do not have adequate legal basis to develop annual disease surveillance plans to monitor wildlife farming facilities, as in the case of cattle and poultry farming facilities; forest protection agencies are also not given specific tasks regarding disease surveillance of wildlife farming facilities.

On the other hand, owners of wildlife farming facilities are not obliged to participate in active surveillance programs to detect zoonotic pathogens, given missing specific regulations on this matter.

Surveillance of zoonotic diseases is tasked to healthcare and veterinary authorities, without involving forest protection agencies which directly manage wildlife farming facilities or environmental agencies following the One Health approach.

c) Disease reporting and outbreak investigation

According to Clause 1, Article 7 of Circular No. 07/2016/TT-BNNPTNT, in case animals are sick or dead, or show any signs of infectious diseases, or farmed animals die of unknown causes, farm owners must notify this immediately to the commune-level veterinary workers, the commune-level People's Committee or the nearest veterinary authority according to Clause 1, Article 19 of the Law on Veterinary Medicine. This regulation is effectively enforced on cattle and poultry farming when farm owners, veterinarians, agricultural extension workers and others related to livestock activities, when detecting suspected cases of disease, all notify them to the veterinary authorities. Currently, DAH and provincial/municipal veterinary authorities are using the Viet Nam Animal Health Information System (VAHIS) to report and update information on disease outbreaks in cattle and poultry, and rabies in all animals.

Case reporting by wildlife farming facilities to veterinary authorities are rarely performed because:

- Wildlife farming facilities are administratively managed by the local governments and forest protection agencies. Suspected outbreaks are normally handled by farm owners or reported to forest protection agencies.
- Veterinary authorities mostly receive information and perform outbreak investigations of suspected cases of diseases on the list of zoonotic diseases (Highly pathogenic avian influenza and other strains of avian influenza viruses that cause human diseases, Rabies, Streptococcus suis serotype 2, Anthrax, Leptospirosis, Trichinella Spiralis, Bovine Tuberculosis and Brucellosis), the list of animal diseases banned from slaughtering/treatment and List of animal diseases subject to outbreak declaration issued according to Appendix 01 of Circular No. 07/2016/TT-BNNPTNT. Meanwhile, in farmed wildlife, there may be other zoonotic pathogens that are not listed in Circular No. 07/2016/TT-BNNPTNT such as Monkeypox, which is observed in 115 countries [15], Nipah virus [16] and many others [23];

- Government veterinary officers are not trained in investigation, necropsy and specimen collection on wildlife;
- The VAHIS system does not have a disease reporting component for wildlife; and
- The veterinary laboratory system does not have enough capacity for pathogen detection and disease diagnosis in wildlife.

Currently, reporting zoonotic diseases in farmed wildlife in Viet Nam involves different agencies, forest protection, veterinary and healthcare authorities (Chart 3); however, these agencies have not established mechanisms for coordination in reporting and information sharing regarding diseases at wildlife farming facilities. The veterinary authorities do not receive disease reports from wildlife farming facilities (except for some reports on African swine fever at wild boar farms), the wildlife market management boards, facilities that farm wildlife for ornamental purposes, wildlife rescue centers, zoos, national parks, private laboratories that provide testing for diseases on wildlife. The risk of zoonotic diseases in farmed wildlife is not reported to health care authorities so that measures can be taken to protect the health of those who come into contact with wildlife and may be exposed to pathogens.

Article 9 of Circular No. 07/2016/TT-BNNPTNT guides animal disease outbreak investigations by local governments and veterinary authorities at all levels; Joint Circular No. 16/2013/TTLT-BYT-BNN&PTNT instructs healthcare and veterinary authorities to conduct interdisciplinary outbreak investigations but does not mention the role of forest rangers in case zoonotic outbreaks occur on free-living wildlife or in wildlife farming facilities.

Forest rangers are those who directly inspect wildlife farming facilities and are at risk of exposure to pathogens (if any), but Viet Nam has no formal regulations or technical guidance by the veterinary authorities, to forest rangers, on the use of personal protective equipment, case identification and reporting of diseases on wildlife.

Viet Nam also does not have legal guidance on investigation of diseases in captive wildlife, nor are there any case definitions or wildlife disease outbreak investigation forms.

d) Handling disease outbreaks

- Article 3 of the Law on Veterinary Medicine defines an animal disease outbreak as an area where an infectious disease noted on the List of animal diseases are subject to outbreak declaration occurs. In fact, there will be a number of dangerous diseases in farmed wildlife that are not on the List of animal diseases subject to outbreak declaration in Appendix 01 of Circular

No. 07/2016/TT-BNNPTNT such as those caused by Nipah, Smallpox or COVID-19 viruses; and the veterinary authorities have no legal basis to advise local authorities on how to identify and handle outbreaks coming from such unlisted diseases.

- Article 10 of Circular No. 07/2016/TT-BNNPTNT provides measures to handle outbreaks depending on animal diseases (from Appendix 09 to Appendix 22), such as slaughtering or disposal of infected animals. These regulations are only suitable with domestic animals, not many farmed wildlife species, especially endangered, precious and rare species of very high economic value.

The shortcomings as indicated above have shown that Viet Nam should have specific regulations on handling dangerous infectious disease outbreaks in farmed wildlife, especially zoonotic diseases.

e) Announcement of dangerous disease outbreaks

According to current Law on Veterinary Medicine, a disease outbreak declaration is only carried out for diseases on the List of animal diseases subject to outbreak declaration in Appendix 01 of Circular No. 07/2016/TT-BNNPTNT and these diseases are only common in cattle, poultry, dogs and cats.

For dangerous diseases that can occur in farmed wildlife (such as SARS, COVID-19, Monkeypox...) there are no regulations on declaration of disease outbreaks. In fact, Viet Nam has never declared a disease outbreak in wildlife, including for diseases listed in Appendix 01 of Circular No. 07/2016/TT-BNNPTNT.

f) Regulations on animal disease prevention and treatment

- According to Article 15 of the Law on Veterinary Medicine:
 - + Farms and farming tools must be cleaned, decontaminated and disinfected, and vector reduction measures must be performed periodically and after each farming cycle; farms must meet local requirements or be built upon permissions by a competent authority;
 - + Animal waste must be treated according to the law on environmental protection;
 - + Breeding animals and feed used in animal farming must be disease-free and hygienic according to the provisions of law;
 - + Animals must be subject to mandatory disease prevention against dangerous infectious diseases;
 - + Compulsory vaccinations in animal disease control and eradication programs and emergency disease prevention and control programs are covered by the state budget.

- According to Clause 2, Article 21 of the Law on Veterinary Medicine, organizations and individuals who farm animals for ornamental purposes or biodiversity conservation shall fully and timely care for, feed, and prevent and treat diseases in animals.
- According to Clause 1, Article 104 of the Law on Veterinary Medicine, veterinary drugs must be used according to the manufacturer's instructions, prescriptions of individuals practicing veterinary medicine, and specialized veterinary authorities.
- According to Article 15 of the Law on Prevention and Control of Infectious Diseases, animal farming must be hygienic, prevent environmental and domestic water pollution and the spread of infectious diseases.
- Clause 1, Article 3 of Circular No. 07/2016/TT-BNNPTNT provides mandatory disease prevention measures for terrestrial animals, including periodic cleaning, decontamination and disinfection, and mandatory vaccinations against some dangerous infectious diseases.

In fact, veterinary authorities do not check compliance against regulations on breeding animals, feed, veterinary hygiene, cleaning, decontamination and disinfection, measures to control disease vectors, and vaccinations at wildlife farming facilities due to a lack of by-law documents that are specifically applicable to wildlife farming facilities. Planning for wildlife farming facilities is under local authorities while wildlife farming facility codes are issued by forest protection agencies and CITES.

Animal vaccines in Viet Nam (imported and domestically produced) are mostly made for cattle, poultry, and companion animals and are not intended for use on farmed wildlife. Meanwhile, many farmed wildlife species should be vaccinated, for example, against rabies and Carré disease, for farmed civets and weasels, or against avian influenza for farmed wild fowl and ducks.

Similar to vaccines, veterinary drugs are mainly manufactured for preventing and treating diseases in cattle, poultry, dogs and cats, but not intended for use on farmed wildlife.

g) Disease-free zones and facilities

- Clause 3, Article 14 and Article 17 of the Law on Veterinary Medicine guides the establishment of animal disease-free zones and facilities.
- MARD's Circular No. 24/2022/TT-BNNPTNT dated December 30, 2022, provides provisions on disease-free zones and facilities, including basic eligibility conditions: (1) Biosecurity plan; (2) Disease surveillance plan; (3) Disease response plan.

Viet Nam's existing legal documents do not provide technical guidance on biosafety in cattle and poultry farming as well as wildlife farming facilities. Furthermore, the limitations in surveillance of epidemics in farmed wildlife and in handling and responding to outbreaks as mentioned above explain why wildlife farming facilities are registered in Viet Nam and certified as disease-free facilities in relation to a specific disease.

4.2.4. Regulations governing organisations and individuals on prevention and control of zoonotic diseases during wildlife transport

- According to Article 15 of the Law on Prevention and Control of Infectious Diseases, animal transport must be hygienic, preventing environmental and domestic water pollution or the spread of infectious diseases. Viet Nam has not issued by-laws documents to provide detailed guidance on the implementation of this regulation on farmed wildlife.
- According to MARD's Circular No. 25/2016/TT-BNNPTNT dated June 30, 2016:
 - + No quarantine of wildlife and wildlife products transported within the same province.
 - + Prior to inter-provincial transport of wildlife or wildlife products, the commodity owner must register for quarantine with the provincial or district veterinary authorities (if authorized by the provincial authorities in the latter case).
 - + For exported wildlife and wildlife products, the commodity owner must register for quarantine with the RAHO, the Regional Animal Quarantine Sub-Department under DAH or a Provincial Veterinary Authority authorized by DAH (border-gate animal quarantine agencies).
 - + Quarantine of imported wildlife and wildlife products is carried out according to Articles 9 to 13 of this Circular.
 - + Quarantine of wildlife and wildlife products that are temporarily imported for re-export, temporarily exported for re-import, transferred through border gates and transited through Viet Nam is in line with Article 14 and Article 15 of the Circular. DAH shall review and approve the application before requesting the border-gate animal quarantine agency to perform inspection.
 - + Quarantine of wildlife used for fairs, exhibitions, sports competitions, and art performances; and terrestrial animal products used for fairs and exhibitions shall comply with Article 16 of the Circular.
 - + The list of wildlife subject to quarantine includes elephants, tigers, leopards, bears, deer, gibbons, orangutans, monkeys, pangolins, lorises,

squirrels, weasels, monitor lizards, geckos, pythons, snakes, wild chickens, pheasants, guinea fowls, peacocks and other wildlife species.

- + List of wildlife products subject to quarantine includes meat, offal, medicinal herbs derived from wildlife such as snake venom, bee venom, pangolin scales, bear bile, animal glue; skin; skins and stuffed animals of tigers, leopards, civets, otters and other animals.
- + Quarantine requirements should cover diseases commonly found in many animal species (22 diseases); diseases in ruminants (27 diseases); equine diseases (13 diseases); swine diseases (21 diseases); poultry diseases (22 diseases); diseases in monkeys, rabbits, ferrets and some other species (20 diseases).

In fact, quarantine of exported wildlife is strictly implemented, so as to meet the request of the importing country and for Viet Nam to fulfill international requirements. However, quarantine of wildlife transported domestically between provinces and cities is hardly carried out. Quarantine is not required if wildlife is transported within the same province. In addition, the standards for quarantine for wildlife are also not specifically guided and developed, leading to a lack of technical guidelines and grounds for effective quarantine of wildlife, especially when there is a diversity of circulating wildlife species and information about common diseases and high-risk species have not yet been issued. These are also limitations in preventing and controlling zoonotic diseases during wildlife transportation in Viet Nam.

4.2.5. Regulations on disease risk assessment

Point a, Clause 2, Article 18 of the Law on Veterinary Medicine governs risk assessments of animal diseases. However, Viet Nam does not have by-laws documents providing detailed guidance on disease risk assessment.

In 2019, 2022 and 2023, the Department of Preventive Medicine (DPM) and DAH, with the support of the international organizations such as WHO and FAO, applied the Joint Risk Assessment (JRA) toolkit developed by WHO/WOAH/FAO for a number of zoonotic diseases such as Avian Influenza, Rabies, and Anthrax. Conditions for further use of this toolkit have been prepared, but the toolkit has not been approved by competent health and veterinary authorities.

The disease risk assessment, including zoonotic diseases, for free-living or farmed wildlife is not governed specifically in Vietnamese regulations.

4.2.6. Regulations on biosecurity and biosafety in veterinary laboratories

Regarding biosecurity and biosafety requirements for veterinary laboratories, including wildlife disease laboratories, Viet Nam is currently implementing

regulations under the Law on Prevention and Control of Infectious Diseases, the Government's Decree 103/2016/ND-CP dated July 1, 2016 on biosafety assurance in laboratories, MOH's Circular 41/2016/TT-BYT dated November 14, 2016 on a list of microorganisms causing infectious diseases by risk group and biosafety level and techniques suitable for testing, MOH's Circular No. 37/2017/TT-BYT dated September 25, 2017 on biosafety practices in laboratories, MOH's Circular No. 29/2012/TT-BYT dated December 4, 2012 on procedures for certification and re-certification of bio-safe laboratories.

These regulations apply to microbial agents that cause disease in humans, not to certain pathogens that cause dangerous diseases in wildlife but are not transmitted to humans (for example, foot-and-mouth disease, peste des petits ruminants, classical swine fever disease, African swine fever, Newcastle disease, etc.).

4.2.7. Regulations on penalties for violations in animal disease prevention and control (including wildlife breeding facilities and wildlife transportation activities)

- a) **Criminal handling:** Criminal handling: The Criminal Code 2015 (amended and supplemented in 2017) includes two articles, Articles 240 and 241 directly related to the crimes of spreading dangerous infectious diseases to humans and the crimes of spreading dangerous diseases to animals and plant. In which, criminal acts include entering, bringing out or allowing to be brought in and taken out of areas where there are epidemics of animals, plants, animal products, plants or other articles infected or carrying pathogens and spreading to humans or animals or plants, leading to the declaration of an epidemic, which will be criminally prosecuted, with a maximum sentence of 12 years in prison. These regulations have so far only applied to individuals and do not yet specify the responsibilities of commercial legal entities.



b) Administrative sanctions: Administrative violations in the field of veterinary medicine, including prevention of zoonotic diseases, are handled according to the Government's Decree No. 90/2017 dated July 31, 2017, Decree 117/2020/ND-CP dated September 28, 2020 and Decree No. 07/2022/ND-CP dated January 10, 2022. Decree No. 35/2019/ND-CP dated April 25, 2019, provides for penalties for administrative violations in the forestry sector. According to Point a, Clause 21, Article 23, offenders shall take measures to address environmental pollution and spread of epidemics; and destroy goods or articles which cause harm to human health; however, measures to overcome violations related to wildlife and wildlife products that spread diseases and cause harm to human health are not clearly defined in this Decree.

A summary of legal regulations on prevention and control of zoonotic diseases and the current application of these regulations is presented in Table 4.

4.3. Results of expert interviews

A total of 10 experts in 04 areas: Veterinary Medicine, Healthcare, Forest Protection and Veterinary Training were interviewed. The composition of expert teams is summarized in Chart 4.

The extent to which Viet Nam's legal regulations in disease management on farmed wildlife and wildlife trade are relevant and facilitate the actual implementation process is evaluated by experts on a scale from 1 to 10, with a 10-score meaning that the regulations are highly conducive. For this, the mean score was 6.3. Specifically, veterinary experts gave low scores of 3-6, while forest protection experts gave scores of 7-8, and healthcare experts gave high scores of 8-9. This indicates different perceptions between expert groups of Viet Nam's legal regulations on disease management in wildlife farming and trading.

Most experts agreed that wildlife farming facility owners and owners of wildlife shipments, when finding sick or dead wildlife, tend to treat diseases and handle the situation themselves (slaughtering, destruction or disposal of dead animal

carcasses in public places); and will notify the situation to local forest rangers. Although it was confirmed that, according to current regulations, farming facility owners, when their animals are sick, dead or show signs of infectious diseases, must immediately notify the situation to the commune-level veterinary staff, the commune-level People's Committee or the nearest veterinary management agency, but this reporting rarely occurs. Coordination and information sharing between forest protection, veterinary, healthcare and the environmental agencies in prevention and control of diseases in farmed wildlife is quite limited.

Some key expert recommendations are listed below:

- Improve legal documents on wildlife management and wildlife disease management and define specific responsibilities of each relevant agency in wildlife disease management. Regularly review, update and revise legal regulations depending on actual situation and conditions.
- Develop technical guidelines and coordination regulations between state management agencies related to wildlife.
- Build a database of wildlife farming facilities and build a mechanism to share disease information between these facilities, as well as develop clear regulations on sharing data and information on agents of zoonotic diseases as prescribed in Circular No. 16/2013/TTLT-BYT-BNNPTNT by MOH and MARD.
- Provide training and professional development for veterinarians and relevant persons engaged in disease prevention and control at wildlife farming facilities.
- Develop programs and plans on wildlife disease surveillance and allocate funds for prevention and control of wildlife diseases.
- Strengthen linkages between wildlife farming facility owners, wildlife buyers, sellers, transporters, and state agencies through communication, training, and support to disease prevention and control, so as to protect public health, farmed animal health and wildlife health.



PART V

RECOMMENDATIONS

Given existing limitations in Viet Nam's legal regulations on wildlife disease management, a number of recommendations on amendment and development of legal documents on disease prevention and control at wildlife farming facilities are provided below.

5.1. Amendment and development of legal documents on disease prevention and control on farmed wildlife

- The list of diseases transmitted from animals (including wildlife) to humans includes 08 diseases according to Circular No. 07/2016/TT-BNNPTNT and 05 diseases according to Joint Circular No. 16/2013/TTLT-BYT-BNNPTNT, most of which are diseases transmitted from farmed animals. Thus, competent Vietnamese agencies should review and update the list of infectious diseases that can be transmitted from free-living and farmed wildlife to humans in Viet Nam to the list of diseases in these Circulars. It is necessary to update and specify the list of diseases that can be transmitted from wildlife to humans, apart from 08 diseases prescribed under Circular No. 07/2016/TT-BNNPTNT (Highly pathogenic avian influenza and virus strains that can transmit diseases to humans; Rabies; Streptococcus suis serotype 2; Anthrax; Leptospirosis; Trichinella Spiralis; Bovine tuberculosis; Brucellosis). Consider adding other dangerous zoonotic diseases that can be transmitted from animals (including wildlife) by disease category or animal category, based on international research and assessments in other countries in the region such as: SARS-CoV2; Toxoplasmosis; Salmonella; Echinococcus [24]. This will provide a legal basis for organizations and individuals, when detecting or suspecting a disease outbreak at a wildlife farming facility, to report the situation to a veterinary authority for investigation, verification and handling, and coordinate with others in zoning and containment of zoonotic disease outbreaks at wildlife farming facilities.
- Review and revise Joint Circular No. 16/2013/TTLT-BYT-BNNPTNT in a way that defines the roles of forest protection agencies, in coordination with healthcare and veterinary authorities, in controlling zoonotic diseases at wildlife farming facilities managed by forest protection agencies.

- Update Decree No. 06/2019/ND-CP to specifically stipulate that all wildlife species confiscated for violating Vietnamese law on wildlife may not be sold for commercial purposes, except for breeding purposes. For common wildlife species and endangered, precious and rare species, it is necessary to provide regulations on natural exploitation. If necessary, consider developing some models to manage the sustainable exploitation of certain wildlife species in communities that are heavily dependent on natural resources. National parks, nature reserves and rescue centers can be potential locations to develop and sustainably manage such models like other ASEAN countries [27]

5.2. Development of legal documents on wildlife disease prevention and control

a) Expected documents to be issued by MARD

- For general regulations on prevention and control of diseases in free-living and farmed wildlife: Current legal documents related to prevention and control of diseases in terrestrial animals (Circular No. 07/2016/TT-BNNPTNT and a number of Circulars amending Circular No. 07) mainly guide disease prevention and control for domestic animals (cattle, poultry, dogs, cats). However, wildlife consists of different species, and their environments, habitats, behaviors, etc. are very different from domestic animals. Viet Nam now has a large number of wildlife farming facilities that farm millions of farmed animal heads of different species; however, given limitations in veterinary legislation related to farmed wildlife as analyzed above, MARD should review, develop and issue a new Circular on prevention and control of diseases in wildlife (including free-living and farmed wildlife). International organisations that are supporting Viet Nam in wildlife disease prevention and control, including FAO, GIZ, WCS, etc., can support government agencies such as DAH, Livestock Production Department (LPD), Forest Protection Department (FDP), CITES Management Authority (under MARD), DPM (under MOH) in organising technical consultation sessions to review and finalise the list of wildlife species for farming in Viet Nam and select wildlife species that are prioritised for disease management, and determine the list of diseases to be controlled for these farmed wildlife species (with priority given to dangerous zoonotic diseases). MARD should assign DAH to lead on drafting a Circular on wildlife disease prevention and control. This Circular should provide detailed provisions on surveillance of zoonotic diseases at wildlife farming facilities, outbreak investigation, handling of outbreaks, declaration of disease outbreaks, and disease prevention and treatment for farmed wildlife.

- Regulations on identification and marking of wildlife species including those used for breeding or obtained through reproduction, need to be improved, such as using electric chips, codes, barcodes... to distinguish them from species that cannot be farmed. Implement wildlife management and traceability, evaluate requirements for marking second-generation specimens farmed for commercial purposes, apply appropriate monitoring systems, in which all unlicensed exploitation activities and related documents will be considered illegal, and wildlife farming facility owners are responsible for providing the evidence of origin.
- Regarding slaughter control and veterinary hygiene for farmed wildlife: International organizations such as FAO, WOA and GIZ can support DAH in learning from experiences of other countries that have regulations and guidelines on slaughter control and veterinary hygiene for farmed wildlife (summary of reference documents, participation in international conferences, site visits). Based on the actual situation in Viet Nam, together with international recommendations and experiences of other countries, DAH is the focal point to advise MARD on inclusion of relevant contents into MARD's annual policy development plans and MARD should assign DAH to develop a draft Circular on slaughter control and veterinary hygiene for raised wildlife in Viet Nam.
- For effective coordination between government agencies (Forest protection, CITES, DAH, LPD) in management of farmed wildlife (such as reporting and information sharing on farmed wildlife populations, diseases in farmed wildlife), a formal guidance by MARD is required. Currently, FAO is supporting CITES in developing wildlife management software in Viet Nam and supporting DAH in improving the Viet Nam Animal Health Information System (VAHIS). International organisations such as FAO, WOA and GIZ can suggest MARD in directing its affiliated units to develop and issue regulations on sharing information on farmed wildlife populations and animal diseases.
- Regarding wildlife quarantine, a new Circular or amendments to Circular 25 should be in place to provide detailed provisions on domestic quarantine of wildlife and wildlife products or quarantine similar to domestic animals of the same species category. Some reference documents include draft regulations on veterinary quarantine of countries that have named wild animals a separate category such as Oman, specified in Article 5.4.1.6 and Article 5.4.1.11 [26].

b) Regarding technical guidelines and other documents issued by MARD at DAH's request or issued by DAH as authorized by MARD, the following is suggested:

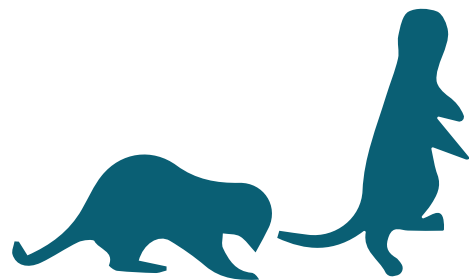
- DAH should advise competent authorities on issuance of national programs and plans for control of a number of zoonotic diseases in farmed wildlife (for example, influenza or SARS-CoV-2).
- DAH should develop technical guidelines on surveillance, epidemiological analysis, investigation, and responses to diseases in wildlife. DAH and WCS are drafting Technical Guidelines on surveillance of SARS-COV-2 virus in wildlife in Viet Nam. In the future, international organisations such as WCS and GIZ should support Viet Nam (DAH and local governments) in surveillance, investigation and responses to a number of other dangerous diseases in wildlife.
- The information system on wildlife populations and dangerous zoonotic diseases originating from wildlife: WOA has announced a web application as part of WAHIS (World Animal Health Information System), which is WAHIS-Wild Interface, providing information on wildlife diseases not listed by WOA that is voluntarily provided by member countries [25]. Since 2018, FAO has supported DAH building the Viet Nam Animal Health Information System (VAHIS). In 2023, DAH added 03 new components including (i) Active surveillance of avian influenza; (ii) Rabies surveillance; (iii) Disease-free zones and facilities in VAHIS. It is suggested that FAO, GIZ and WCS, etc. further support DAH in monitoring and updating wildlife-related epidemic situation in Viet Nam, by using the WAHIS-Wild Interface or developing this component under VAHIS.
- Risk assessment of some dangerous zoonotic diseases originating from wildlife, risk management and communication: It is suggested that DAH and DPM develop a risk assessment plan for a number of dangerous zoonotic diseases originating from wildlife, allowing interdisciplinary disease risk assessments in the near future.
- Diagnosis and testing procedures for some priority diseases in wildlife: After identifying the priority farmed wildlife species for disease management and a number of pathogens in farmed wildlife, it is suggested that DAH develop and issue basic standards on diagnosis and testing procedures for some priority diseases in wildlife.
- Regarding sanctions against acts of spreading diseases from wildlife to domestic animals or humans, it is suggested that competent agencies consider higher levels of sanctions for stronger deterrence.



c) Documents on coordinated guidance between MOH and MARD

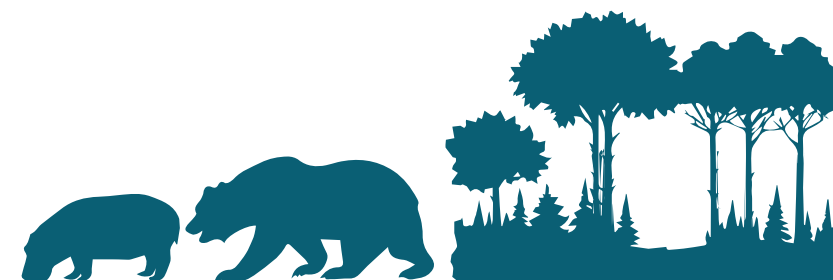
- Monitor wildlife that act as disease vectors according to Article 20 of the Law on Prevention and Control of Infectious Diseases.
- Review and revise Joint Circular No. 16/2013/TTLT-BYT-BNNPTNT in a way that defines the roles of forest protection agencies, in coordination with healthcare and veterinary authorities, in controlling zoonotic diseases at wildlife farming facilities managed by forest protection agencies.
- Provide detailed guidance on the implementation of regulations on prevention and control of zoonotic diseases during transportation of farmed wildlife according to Article 15 of the Law on Prevention and Control of Infectious Diseases.
- Identify wildlife-based food that can be disease vectors according to Clause 1, Article 16 of the Law on Prevention and Control of Infectious Diseases.
- For confiscated wild animals and wild animals as exhibits confiscated in criminal cases, it is necessary to issue formal guidance on how to handle wildlife and wildlife-based products, including procedures for quarantine and veterinary inspection to ensure the health of confiscated animals before inspection results are available.
- There should be specific and detailed regulations on controlling diseases in wildlife and wildlife-based products exported or imported into Viet Nam. It is suggested that DAH coordinate with the Customs Department and MOH in developing and issuing a list of common diseases subject to inspection and analysis before being imported into Viet Nam and zoonotic diseases in circulating in exporting countries for inspection, evaluation and early prevention.

A summary of suggested amendments to legal documents of state agencies on the prevention and control of zoonotic diseases originating from farmed wildlife is presented in Table 4.



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Appendices

Table 1. WOAH's animal classification

WOAH definition		Phenotype selected by humans	
		Yes	No
Animals live under directly human supervision or control	Yes	Domestic animals	Farmed wildlife
	No	Wild animals	Wildlife

Table 2. Summary of legal regulations on administrative management of wildlife farming facilities in Viet Nam

No.	Name of legal documents	Brief description
1	Law on Biodiversity (2008)	<p>Article 42 providing for the establishment of biodiversity conservation facilities:</p> <ol style="list-style-type: none"> 1. Biodiversity conservation facilities that are established for the purpose of biodiversity conservation, scientific research and ecotourism include the following: <ol style="list-style-type: none"> a) Facilities for raising and farming species on the list of endangered, precious and rare species prioritized for protection; b) Wildlife rescue facilities; c) Facility for preserving plant varieties, animal breeds, microorganisms, and fungi that are endemic, endangered, precious, and rare, with special value in science, medicine, economy, ecology, landscape, environment, or culture-history; facility for preserving and storing genetic resources and genetic specimens.

No.	Name of legal documents	Brief description
		<p>Clause 2, Article 45 stipulates, "The breeding and rearing of certain species listed in the category of endangered, precious, and rare species prioritized for protection at breeding and rearing facilities for commercial purposes shall be carried out in accordance with the provisions of the law."</p>
2	Law on Forestry (2017)	<p>Clause 1, Article 49 stipulates, "Organizations and individuals engaging in breeding endangered, precious, and rare forest animals; forest animals listed in the Appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); and common forest animals must ensure the legality of the breeding stock, that breeding facilities are safe for humans and animals, maintain environmental hygiene, prevent diseases, and do not negatively affect the conservation of species populations in their natural environment."</p> <p>Point a, Clause 2, Article 72 stipulates, "The business of specimens of endangered, precious, and rare forest animals; wild forest animals listed in the Appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora must ensure traceability and management along the entire chain from extraction, breeding to processing and consumption."</p>
3	Decree No. 160/2013/ND-CP dated November 12, 2013 of the Government	<p>Article 13 stipulates regulations on breeding and cultivating species listed in the category of species prioritized for protection:</p> <ol style="list-style-type: none"> 1. Conditions for breeding and cultivating species listed in the category of species prioritized for protection:

No.	Name of legal documents	Brief description
		<ul style="list-style-type: none"> a) Serving the purpose of biodiversity conservation, scientific research, and creating initial breeds carried out at biodiversity conservation facilities as prescribed in Clause 1, Article 42 of the Law on Biodiversity, except in cases specified in Clause 4 of this Article; b) Species prioritized for protection must have a legal origin and be listed in the register of species to be bred and cultivated when establishing biodiversity conservation facilities or be licensed by a competent authority as prescribed in Clause 3 of this Article.
		<p>2. Dossier for registering for a breeding and cultivation permit:</p> <ul style="list-style-type: none"> a) Application for breeding and cultivating species prioritized for protection according to Form No. 11, Appendix II of this Decree; b) Project proposal for breeding and cultivating species prioritized for protection as per the registration. The project content includes basic information about: the ecological characteristics of the species; the scale and plan for breeding, cultivating, and developing the species; infrastructure, technical process for breeding and cultivating; financial and professional capacity; measures to ensure safety and environmental hygiene; c) Documents proving compliance with the conditions for breeding and cultivating species, including the information specified in Clause 2, Article 42 of the Law on Biodiversity.

No.	Name of legal documents	Brief description
		<p>3. Procedures for granting permits for breeding and cultivating species listed in the category of species prioritized for protection that are not in the register of species to be bred and cultivated when establishing biodiversity conservation facilities:</p> <ul style="list-style-type: none"> a) The owner of the biodiversity conservation facility submits three (03) sets of dossiers as prescribed in Clause 2 of this Article directly or by mail to the provincial People's Committee; b) Within 30 working days from the date of receipt of a complete and valid dossier, the provincial People's Committee is responsible for reviewing, organizing an on-site inspection, and granting breeding and cultivation permits according to Form No. 12, Appendix II of this Decree. In case of refusal, a written notice with clear reasons must be provided to the owner of the biodiversity conservation facility.
		<p>4. Households and individuals currently breeding and cultivating plant and animal species listed in the category of species prioritized for protection but not meeting the conditions for establishing biodiversity conservation facilities must report to the local authorities and follow the guidance of the specialized agency of the provincial People's Committee.</p>
		<p>5. In case a wild animal individual dies during the breeding process, the owner of the biodiversity conservation facility must report to the specialized agency of the provincial People's Committee for confirmation and decide on one of the following measures:</p>

No.	Name of legal documents	Brief description
		<ul style="list-style-type: none"> a) Transfer to a scientific agency, educational institution, environmental education center, or specialized museum for research, preservation, and raising community awareness; b) Destroy in case the wild animal dies due to disease or cannot be handled according to the measure specified in Point a of this Clause
		6. Revocation of permits for breeding and cultivating species listed in the category of species prioritized for protection:
		<ul style="list-style-type: none"> a) The permit for breeding and cultivating species listed in the category of species prioritized for protection is revoked in the following cases: failure to comply with the contents stipulated in the permit; the breeding and cultivating facility does not meet the conditions for breeding and cultivating as prescribed in Clause 2, Article 42 of the Law on Biodiversity; serious violations of the regulations of the Law on Biodiversity and current legal documents on biodiversity conservation; b) The competent authority that issued the breeding and cultivation permit is responsible for revoking the permit.
		7. The Ministry of Agriculture and Rural Development, in coordination with the Ministry of Natural Resources and Environment, is responsible for developing technical processes for breeding, cultivating, and releasing wild species listed in the category of species prioritized for protection back into their natural habitats.

No.	Name of legal documents	Brief description
4	Decree No. 06/2019/ND-CP dated 1/22/2019 of the Government regulating the management of endangered, precious and rare forest plants and animals and the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora	<p>Regulations on the conditions for breeding common forest animals and endangered, precious, and rare forest animals in groups I and II and Appendices I and II of CITES are stipulated in Articles 11, 14-18, in which facilities must register for a breeding facility code for species listed in the CITES Appendices. The application form requires a description of disease risks and disease prevention measures.</p> <p>Regulations on the export, import, re-export, import from the sea, and transit of specimens from the wild, captive-bred, artificially propagated, and live specimens of endangered wildlife listed in the CITES Appendices are stipulated in Articles 19, 20, and 21.</p>
	Decree No. 84/2021/ND-CP dated 22/9/2021 of the Government amending and supplementing a number of articles of the Government's Decree No. 06/2019/ND-CP dated 22/01/2019 on management of endangered, precious and rare forest plants and animals and implementation of the Convention on International Trade in Species of Wild Fauna and Flora	Regulations on the transportation of wildlife species listed in the CITES Appendices are stipulated in Article 30, which requires an animal quarantine certificate and animal product certification when transporting specimens out of the province according to the provisions of the laws on veterinary medicine and plant protection.

No.	Name of legal documents	Brief description
5	Circular No. 27/2018/TT-BNNPTNT dated November 16, 2018 of MARD on management and traceability of forest products	Clause 2, Article 31 stipulates, "Facilities for breeding and processing specimens of forest animal species must have a logbook for recording activities related to the breeding and processing of endangered, precious, and rare forest animals and endangered wildlife species listed in the CITES Appendices; and for breeding common forest animals according to regulations and the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). They must also have a timber product inventory and other documents related to the legal origin records of forest animals present at the breeding and processing facility as prescribed; and are responsible for managing and retaining the original records for a period of 5 years."

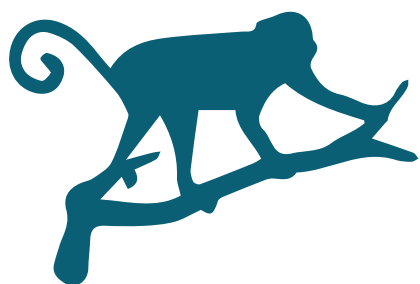


Table 3. Summary of legal regulations on prevention and control of zoonotic diseases originating from wildlife and proposed amendments and new policies

Contents	Existing regulations	Practical application to wildlife farming facilities	Recommendations
Control and eradication of zoonotic diseases	Article 18 of the Law on Veterinary Medicine regulates the control and eradication of a number of dangerous infectious diseases in animals and zoonotic diseases	Viet Nam has not introduced a national program or plan for prevention and control of zoonotic diseases related to farmed wildlife	DAH should advise competent authorities on issuance of national programs and plans for control of a number of zoonotic diseases in farmed wildlife (for example, influenza or SARS-CoV-2)
Surveillance of zoonotic diseases	Article 20 of the Law on Prevention and Control of Infectious Diseases provides provisions on surveillance for disease vectors	Disease vectors may include wildlife, but the veterinary authorities do not receive reports on vector surveillance from healthcare authorities.	MOH should work with MARD in developing guidelines for monitoring wildlife that act as disease vectors.
	Article 16 of the Law on Veterinary Medicine; and Clause 2, Article 3 of Circular No. 07/2016/TT-BNNPTNT provide detailed regulations on periodic monitoring of a number of zoonotic diseases	Only applicable to facilities that farm breeding cattle, breeding poultry and dairy cows, not to wildlife farming facilities.	MARD should issue a new Circular on prevention and control of diseases in wildlife in farming facilities

Contents	Existing regulations	Practical application to wildlife farming facilities	Recommendations
	Article 6 of Joint Circular No. 16/2013/TTLT-BYT-BNN&PTNT provides guidance on information sharing between authorities in surveillance of zoonotic diseases, which is applicable to both healthcare and veterinary authorities	This Joint Circular does not stipulate the responsibilities of forest protection agencies which play an important role in monitoring, detection and reporting of dangerous infectious diseases at wildlife farming facilities	Review and revise Joint Circular No. 16/2013/TTLT-BYT-BNNPTNT in a way that defines the roles of forest protection agencies, in coordination with healthcare and veterinary authorities, in controlling zoonotic diseases at wildlife farming facilities managed by forest protection agencies
	Articles 14 and 15 of Decree No. 06/2019/ND-CP require facilities that farm CITES-listed endangered species to provide conditions for disease prevention	There is currently no technical guidance on disease prevention at these facilities according to this Decree.	DAH should coordinate with CITES, FPD and relevant agencies in developing technical guidance on disease prevention at endangered wildlife breeding facilities.

Contents	Existing regulations	Practical application to wildlife farming facilities	Recommendations
Disease reporting	According to Article 19 of the Law on Veterinary Medicine, and Clause 1, Article 7 of Circular No. 07/2016/TT-BNNPTNT, in case animals are sick or dead, or show any signs of infectious diseases, or in case of sudden unexpected death of farmed animals, farm owners must notify this to the commune-level veterinary workers, the commune-level People's Committee or the veterinary authority	Reporting zoonotic diseases in farmed wildlife in Viet Nam involves different agencies, especially forest protection, veterinary and healthcare authorities; however, these agencies have not established mechanisms for coordination in reporting and information sharing regarding diseases at wildlife farming facilities. The VAHIS system does not have a component for reporting diseases in wildlife.	MARD should direct its affiliated units to develop and issue regulations on sharing information on farmed wildlife populations and animal diseases. DAH should develop a wildlife disease reporting component in VAHIS or update the wildlife disease situation in Viet Nam using WAHIS-Wild Interface

Contents	Existing regulations	Practical application to wildlife farming facilities	Recommendations
Outbreak investigation	Article 9 of Circular No. 07/2016/TT-BNNPTNT regulates the investigation of animal disease outbreaks by authorities and veterinary authorities at all levels; Joint Circular No. 16/2013/TTLT-BYT-BNN&PTNT provides guidance to healthcare and veterinary authorities on interdisciplinary outbreak investigations	It does not mention the role of forest rangers in case zoonotic outbreaks occur on free-living wildlife or in wildlife farming facilities. Viet Nam also does not have legal guidance on investigation of diseases in captive wildlife, nor are there any case definitions or wildlife disease outbreak investigation forms	MARD should issue a new Circular on prevention and control of diseases in wildlife
Handling disease outbreaks	Article 3 of the Law on Veterinary Medicine defines an animal disease outbreak means an area where an infectious disease on the List of animal diseases subject to outbreak declaration occurs The List of animal diseases subject to outbreak declaration is in Appendix 01 of Circular No. 07/2016/TT-BNNPTNT	A number of dangerous diseases in farmed wildlife are not on the List of animal diseases subject to outbreak declaration	MARD should issue a new Circular on prevention and control of diseases in wildlife

Contents	Existing regulations	Practical application to wildlife farming facilities	Recommendations
	Article 30 of the Law on Veterinary Medicine, and Article 10 of Circular No. 07/2016/TT-BNNPTNT provide measures to handle outbreaks depending on animal diseases, such as slaughtering or disposal of infected animals	These regulations are only suitable with domestic animals, not many farmed wildlife species, especially endangered, precious and rare species of very high economic value	MARD should issue a new Circular on prevention and control of diseases in wildlife
Declaration of disease outbreaks	The List of animal diseases subject to outbreak declaration is in Appendix 01 of Circular No. 07/2016/TT-BNNPTNT	Many dangerous diseases that can occur in farmed wildlife (such as SARS, COVID-19, Monkeypox, etc.) are not on the list of animal diseases subject to outbreak declaration	MARD should issue a new Circular on prevention and control of diseases in wildlife

Contents	Existing regulations	Practical application to wildlife farming facilities	Recommendations
Animal disease prevention and treatment	This is practiced according to Article 15 of the Law on Veterinary Medicine; Clause 2, Article 21 of the Law on Veterinary Medicine; Clause 1, Article 104 of the Law on Veterinary Medicine; Article 15 of the Law on Prevention and Control of Infectious Diseases; Clause 1, Article 3 of Circular No. 07/2016/TT-BNNPTNT; Circular No. 13/2016/TT-BNNPTNT	In fact, veterinary authorities do not check compliance against regulations on breeding animals, feed, veterinary hygiene, cleaning, decontamination and disinfection, measures to control disease vectors, and vaccinations at wildlife farming facilities due to a lack of bylaws documents that are specifically applicable to wildlife farming facilities. Many vaccines and veterinary drugs are made for cattle, poultry, and companion animals and are not intended for use on farmed wildlife	MARD should issue a new Circular on prevention and control of diseases in wildlife or develop a list of mandatory vaccinations for farmed wildlife.

Contents	Existing regulations	Practical application to wildlife farming facilities	Recommendations
Disease-free zones and facilities	Clause 3, Article 14 and Article 17 of the Law on Veterinary Medicine; and Circular No. 24/2022/TT-BNNPTNT guides the establishment of animal disease-free zones and facilities	Viet Nam's existing legal documents do not provide technical guidance on biosecurity in cattle and poultry farming as well as wildlife farming facilities. Currently, the term biosecurity in livestock production is being translated as biosafety. Due to limitations in surveillance, handling, and response to outbreaks in farmed wildlife, wildlife farming facilities in Viet Nam have not been registered and certified as disease-free ones.	LPD should provide a definition of biosecurity in livestock production and advise competent authorities to change the term "biosafety" to "biosecurity" in livestock production. DAH should review and guide wildlife farming facilities on registration and certification of disease-free facilities for a number of diseases that pose risks to public health such as Avian Influenza and Rabies.
Regulations on prevention and control of zoonotic diseases during wildlife transport	Article 15 of the Law on Prevention and Control of Infectious Diseases sets hygienic requirements during animal transport, including prevention of environmental and domestic water pollution or spread of infectious diseases.	There is no legal document detailing the implementation of this regulation on farmed wildlife	MOH should lead and coordinate with MARD in issuing detailed guidance on the implementation of this regulation on farmed wildlife

Contents	Existing regulations	Practical application to wildlife farming facilities	Recommendations
	Circular No. 25/2016/TT-BNNPTNT on animal quarantine (including wildlife)	Quarantine of wildlife transported domestically between provinces and cities is hardly carried out.	MARD should issue a new Circular or revise Circular 25 to provide detailed provisions on domestic quarantine of wildlife and wildlife products
Management of wildlife slaughtering and use of wildlife products as food	According to Clause 1, Article 16 of the Law on Prevention and Control of Infectious Diseases, organizations and individuals engaged in farming, capture, preliminary processing, processing, packaging, preservation, transportation and trading of food shall ensure that food is not contaminated with infectious disease agents. According to Article 52, "It is prohibited to trade and consume foods which have been identified to be vectors by competent health agencies".	There is no detailed guidance on determination of wildlife-based food as potential vectors	MOH should lead and coordinate with MARD in reviewing and issuing guidelines on determination of wildlife-based food as potential vectors

Contents	Existing regulations	Practical application to wildlife farming facilities	Recommendations
	Circular No. 09/2016/TT-BNNPTNT	There are no regulations on slaughter control in case of farmed wildlife	MARD should issue a new Circular regulating slaughter control and veterinary hygiene for raised wildlife in Viet Nam.
Disease risk assessment	Point a, Clause 2, Article 18 of the Law on Veterinary Medicine governs risk assessments of animal diseases.	Viet Nam does not have by-laws documents providing detailed guidance on disease risk assessment	DAH and DPM develop a risk assessment plan for a number of dangerous zoonotic diseases originating from wildlife
Regulations on biosecurity and biosafety in veterinary laboratories	Comply with the Law on Prevention and Control of Infectious Diseases, Decree 103/2016/ND-CP, Circular 41/2016/TT-BYT, Circular No. 37/2017/TT-BYT, Circular No. 29/2012/TT-BYT	These regulations are not applicable to certain pathogens that cause dangerous diseases in wildlife but are not transmitted to humans	MARD should advise the Government issuing a Decree on management of veterinary laboratories



Chart 1. Code registration of commercial wildlife farming facilities

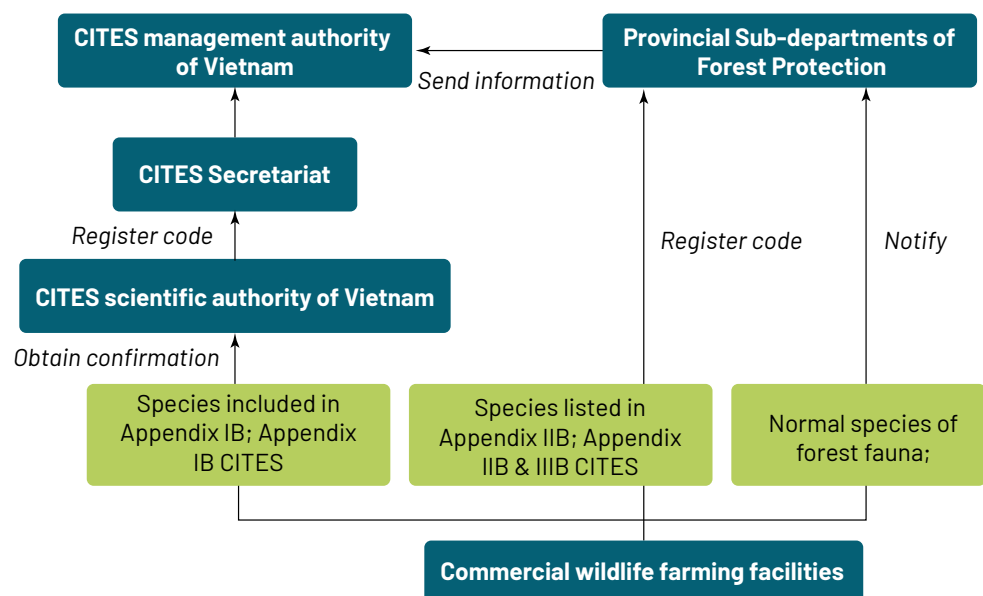


Chart 2. Veterinary management system in relation to wildlife farming facilities

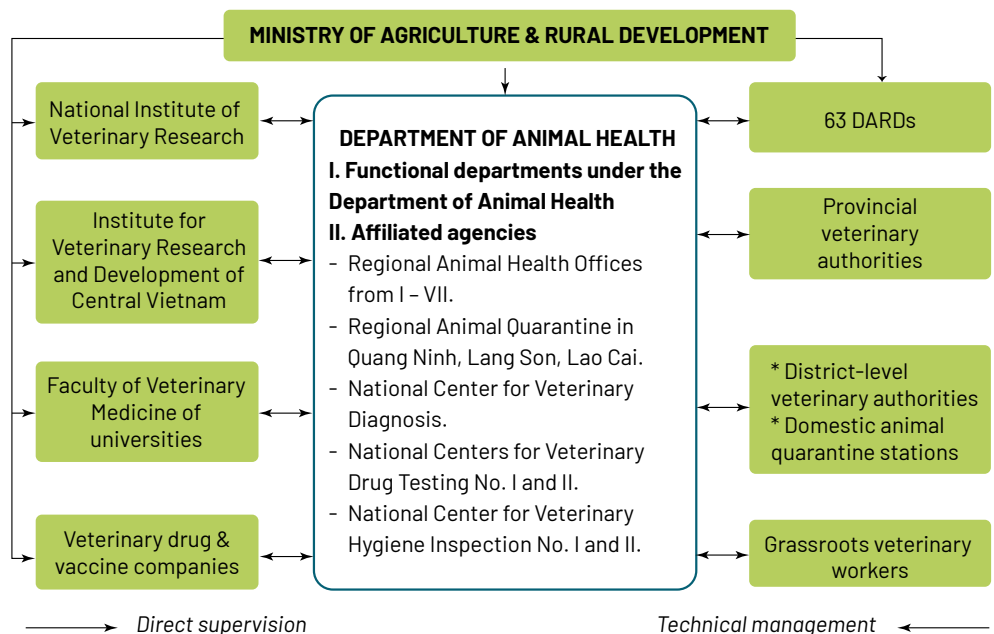


Chart 3. Wildlife disease reporting in Viet Nam

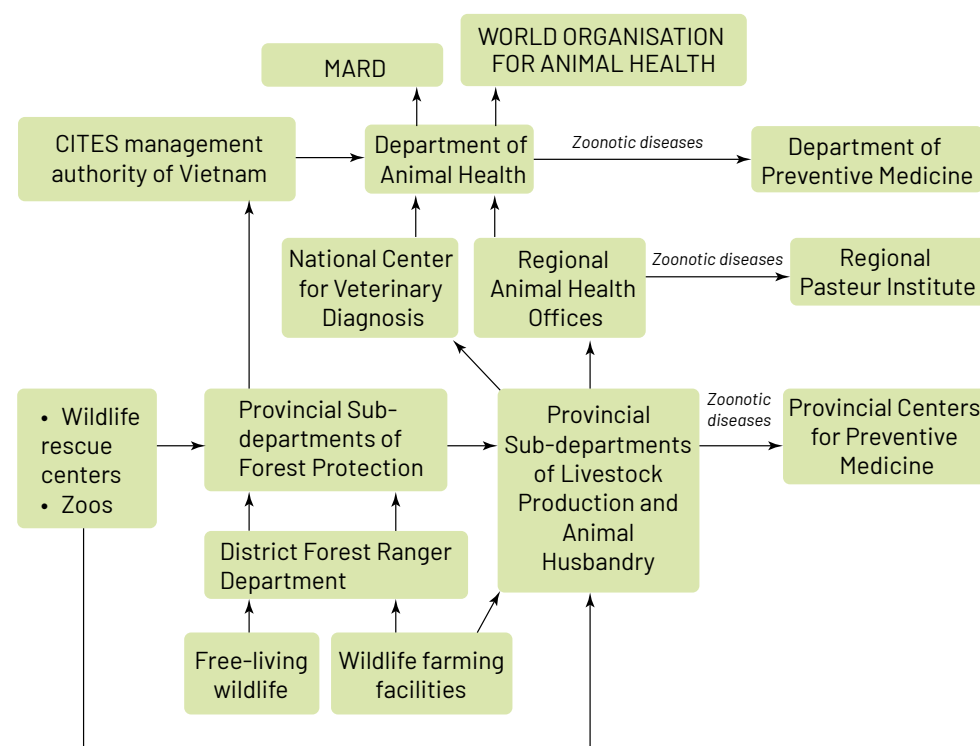
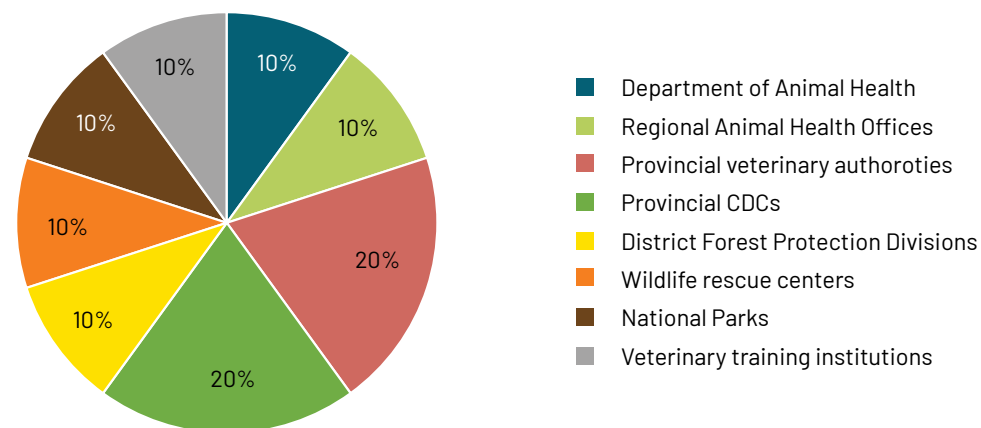


Chart 4. Composition of interviewed experts





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