

# **Aquatic emergency preparedness and response system in Vietnam**

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4. Strengthening aquatic animal health management capacity

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## **1. General introduction**

2. Aquatic animal quarantine system

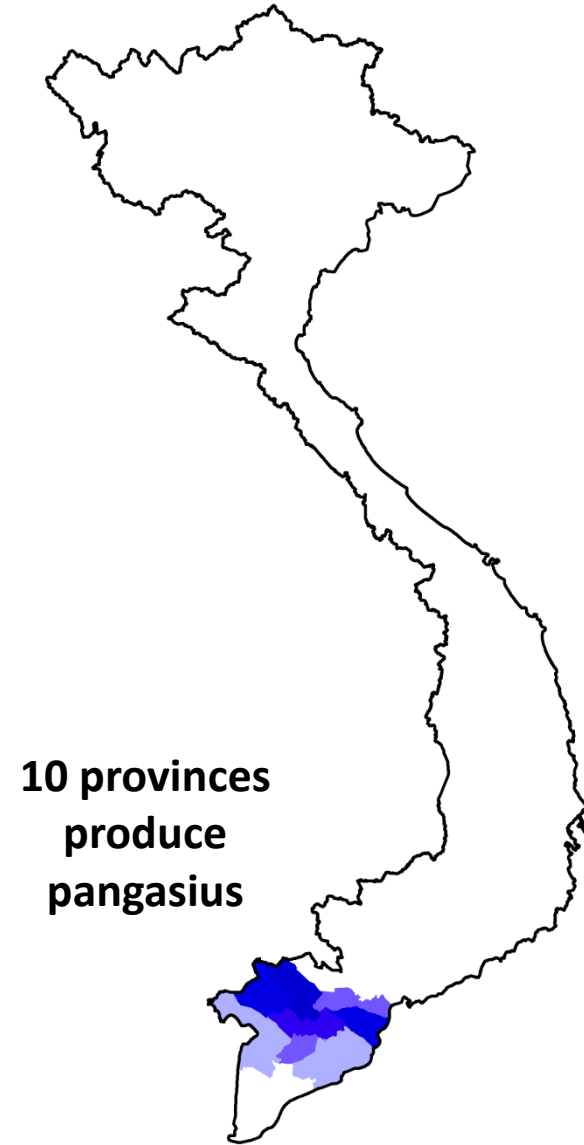
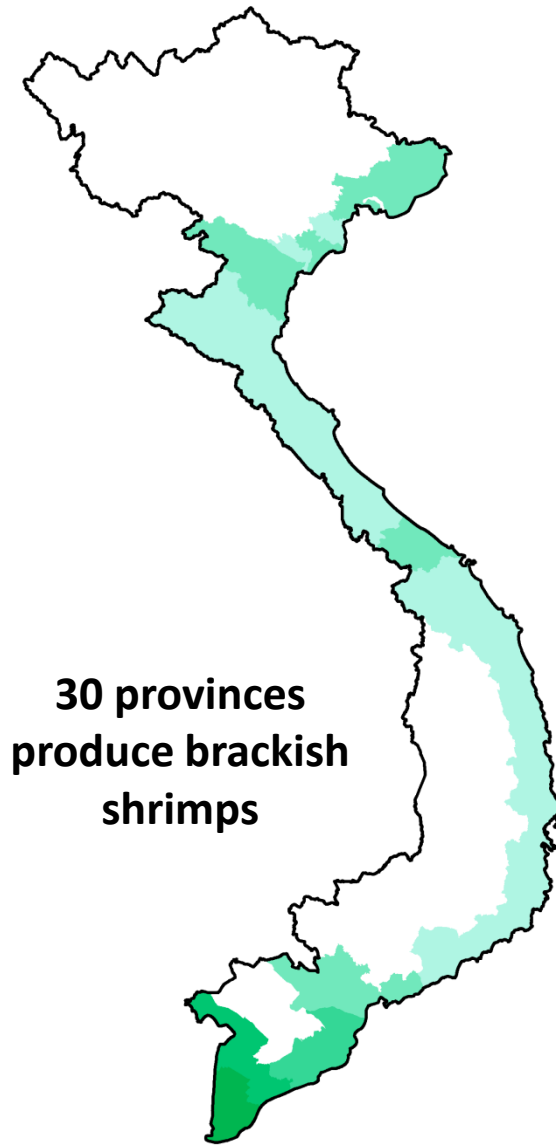
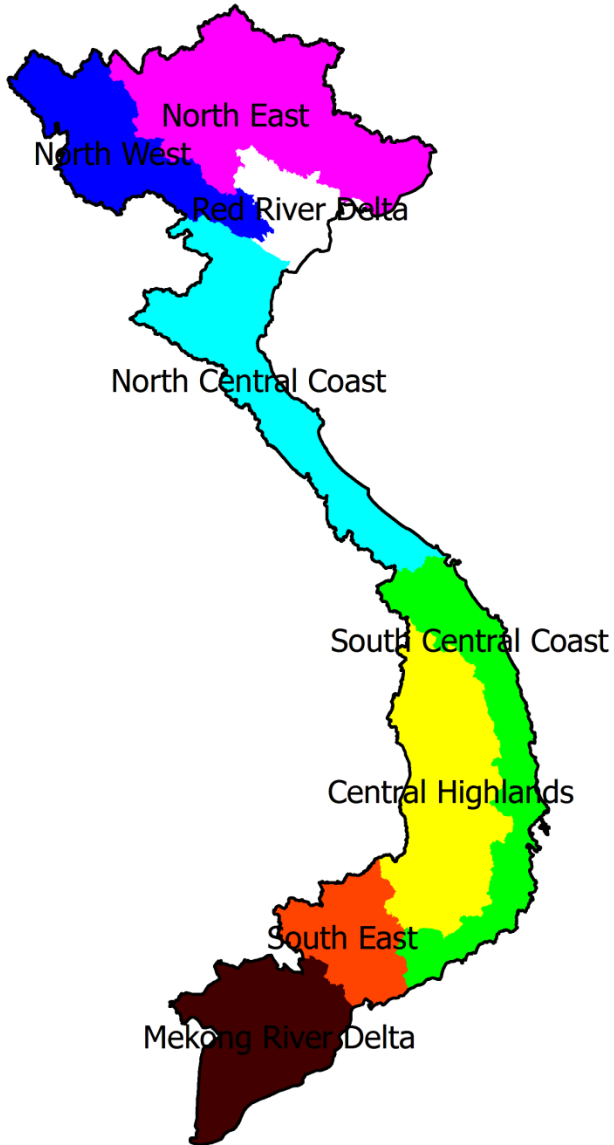
3. Prevention and control of aquatic animal disease system

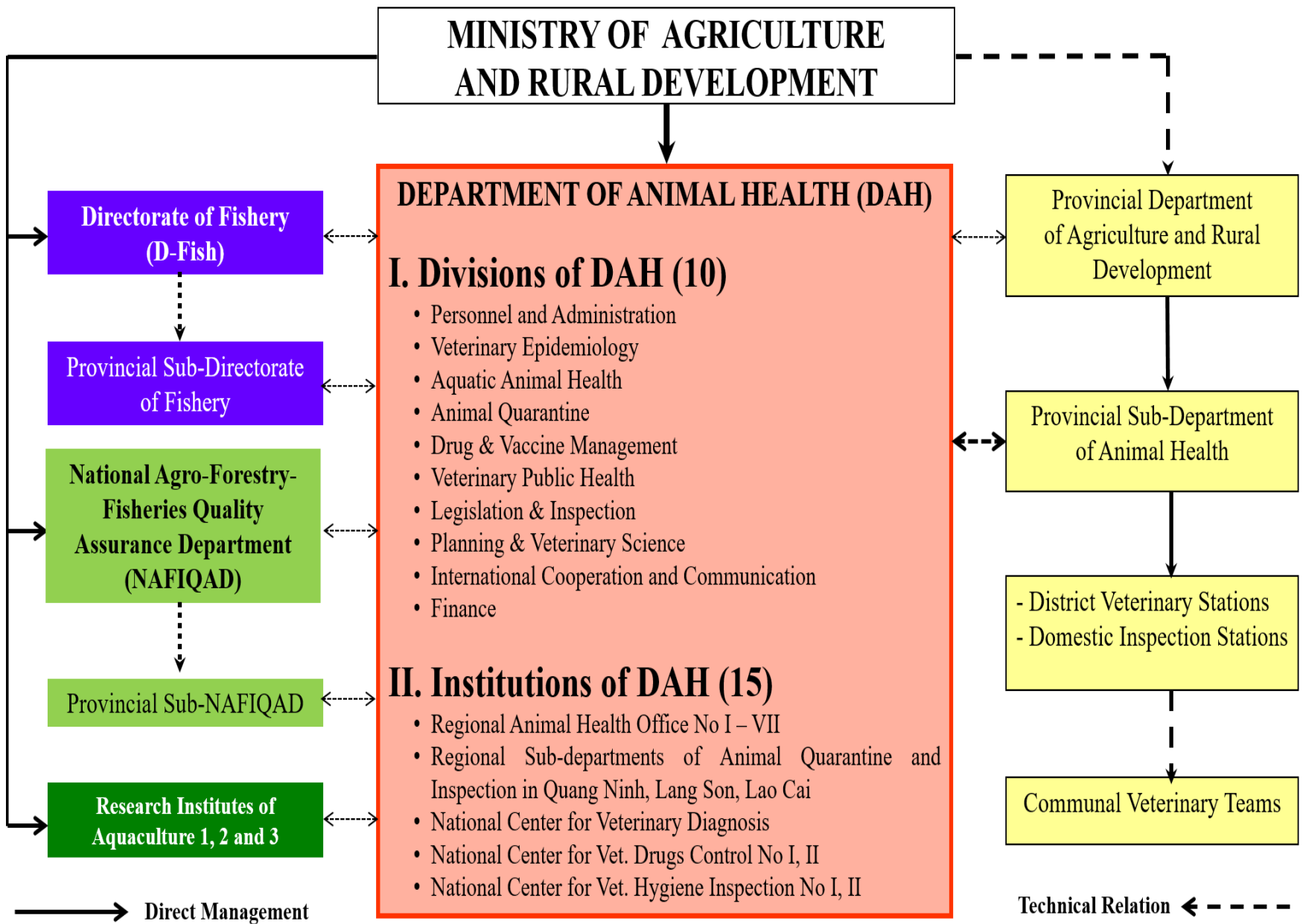
4. Strengthening aquatic animal health management capacity



- Area: 332,000 km<sup>2</sup>
- Population: ~ 90 million (~ 70% practice farming)
- Agricultural production contributed about 20% of national GDP
- Aquaculture contributes about 22 % of total agricultural GDP

# AQUACULTURE





**Organizational structure of animal health system of Vietnam**

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1. General introduction

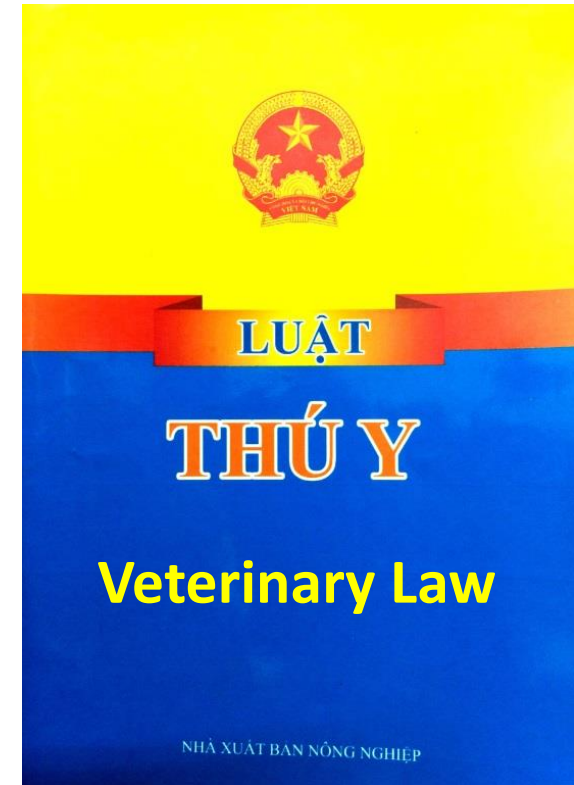
**2. Aquatic animal quarantine system**

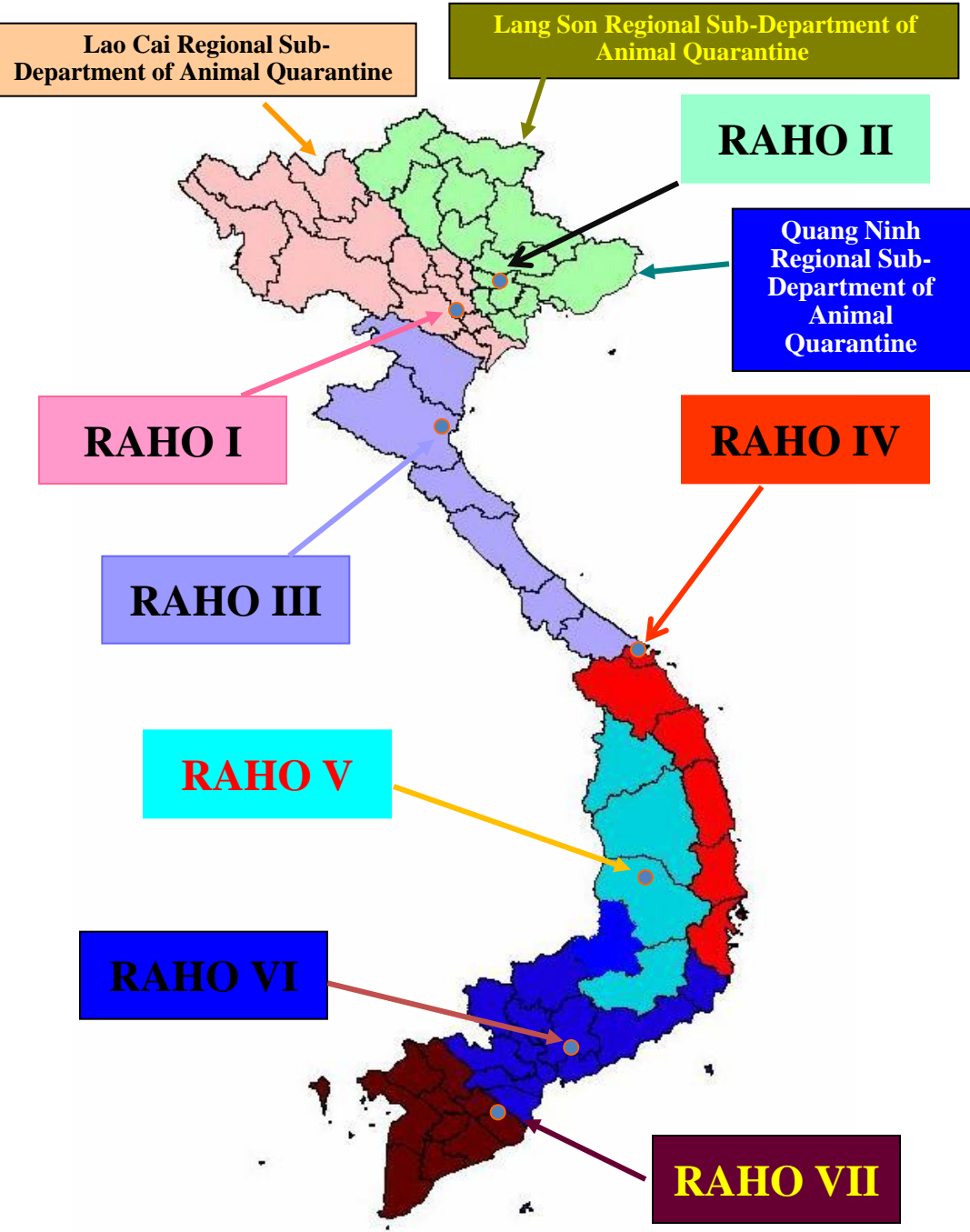
3. Prevention and control of aquatic animal disease system

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# Legislations on import and export of aquatic animals/products

- Animal Health Law in 2015
- Decree No. 35/2015/ND-CP of the Government dated June 15, 2015 of the Government detailing for implementation of number of Articles of the Animal Health Law
- Circular No. 26/2016/TT-BNNPTNT dated June 30, 2016 of the Ministry Agriculture and Rural Development regulating on quarantine of aquatic animals and aquatic animal products



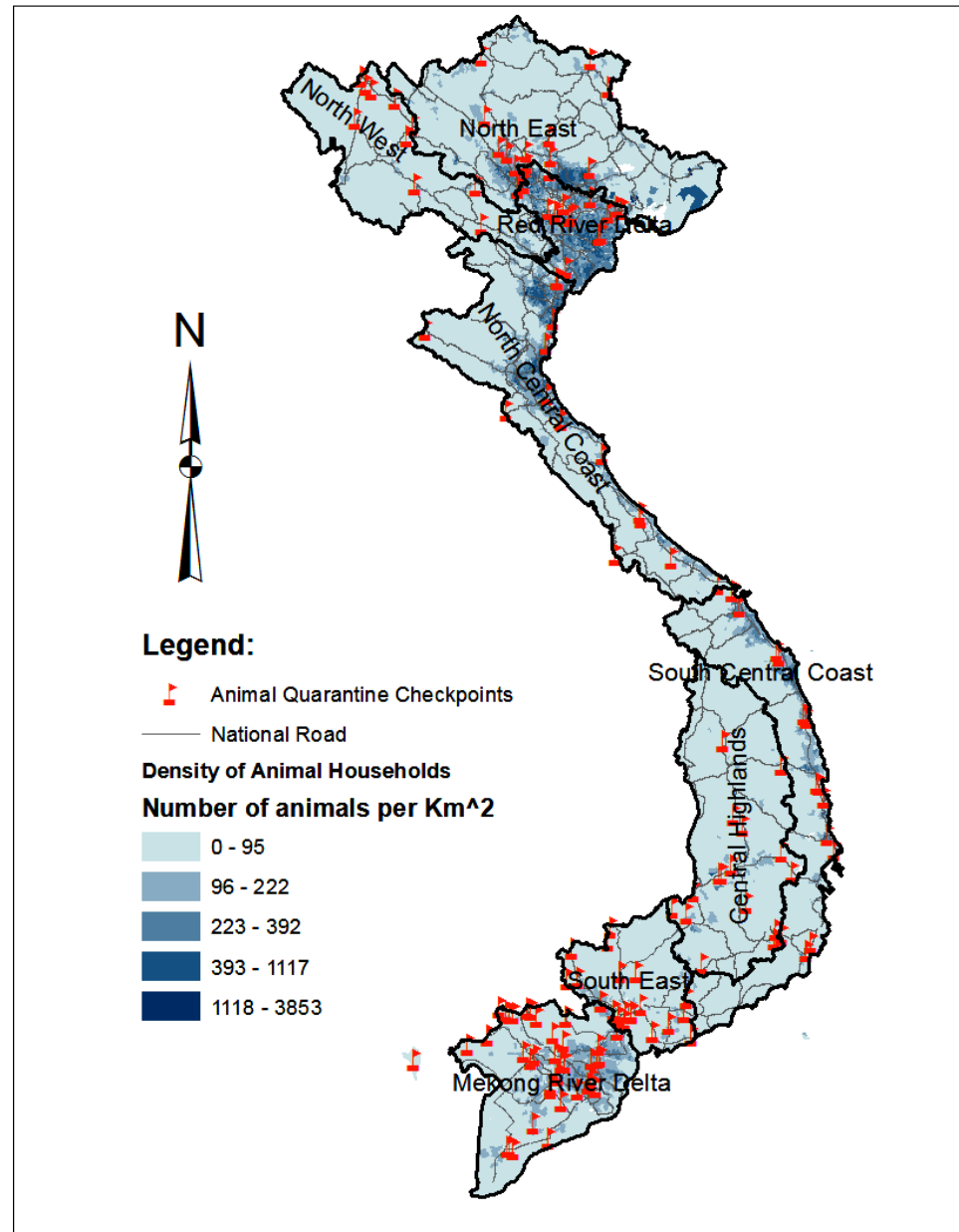


## Animal quarantine system of Department of Animal Health (DAH):

- Animal Quarantine Division - DAH
- 7 Regional Animal Health Offices I-VII - DAH
- 3 Regional sub Department of Animal Quarantine in Lang Son, Lao Cai and Quang Ninh (3 provinces of border gate) - DAH

# Quarantine of aquatic animals/products

- DAH manages import/export all animal and animal products, including aquatic animals
- 63 Sub-DAHs manage local transportation of animal and animals products >>> Animal Quarantine Checking Points along transportation roads



# Aquatic animals/products Quarantine Inspection

1. Local transportation of aquatic animals/products
  - Inspection body: 63 Sub DAHs
  - Inspection procedure: Circular 26/2016/TT-BNNPTNT
2. Quarantine of import/export aquatic animals/products
  - Inspection body: Aquatic Animal Quarantine Division, 7 RAHOs, 3 Regional sub Departments of Quarantine (Lao Cai, Lang Son & Quang Ninh) of DAH
  - Inspection procedure: Circular 26/2016/TT-BNNPTNT (<http://www.cucthuy.gov.vn/Pages/tai-lieu-tieng-anh.aspx>)
  - DAH issues Health certificate for imported/exported aquatic animals/products (except Health Certificate for aquatic animal products exported for human consumption is granted by NAFIQAD)

# List of diseases testing for aquatic animals/products

*(Circular 26/2016/TT-BNNPTNT)*

## 1. Shrimp diseases (8)

- White Spot Disease (WSD)
- Taura Syndrome (TS)
- Yellow Head Disease (YHD)
- Infectious Myonecrosis Disease (IMD)
- Infectious Hypodermal and Hematopoietic Necrosis Disease (IHHN)
- Acute Hepatopancreatic Necrosis Disease (AHPND)
- Lobster Milky Disease (LMD)
- *Enterocytozoon hepatopenaei* (EHP)

# List of diseases testing for aquatic animals/products (Circular 26/2016/TT-BNNPTNT)

## 2. Fish diseases (4)

- Spring Viraemia of Carp (SVC)
- Koi Herpesvirus Disease (KHD)
- Viral Nervous Necrosis/Viral Encephalopathy and Retinopathy (VNN)
- Enteric Septicaemia of Catfish (ESC)

## 3. Mollusk (2)

- *Perkinsus marinus*
- *P. olseni*

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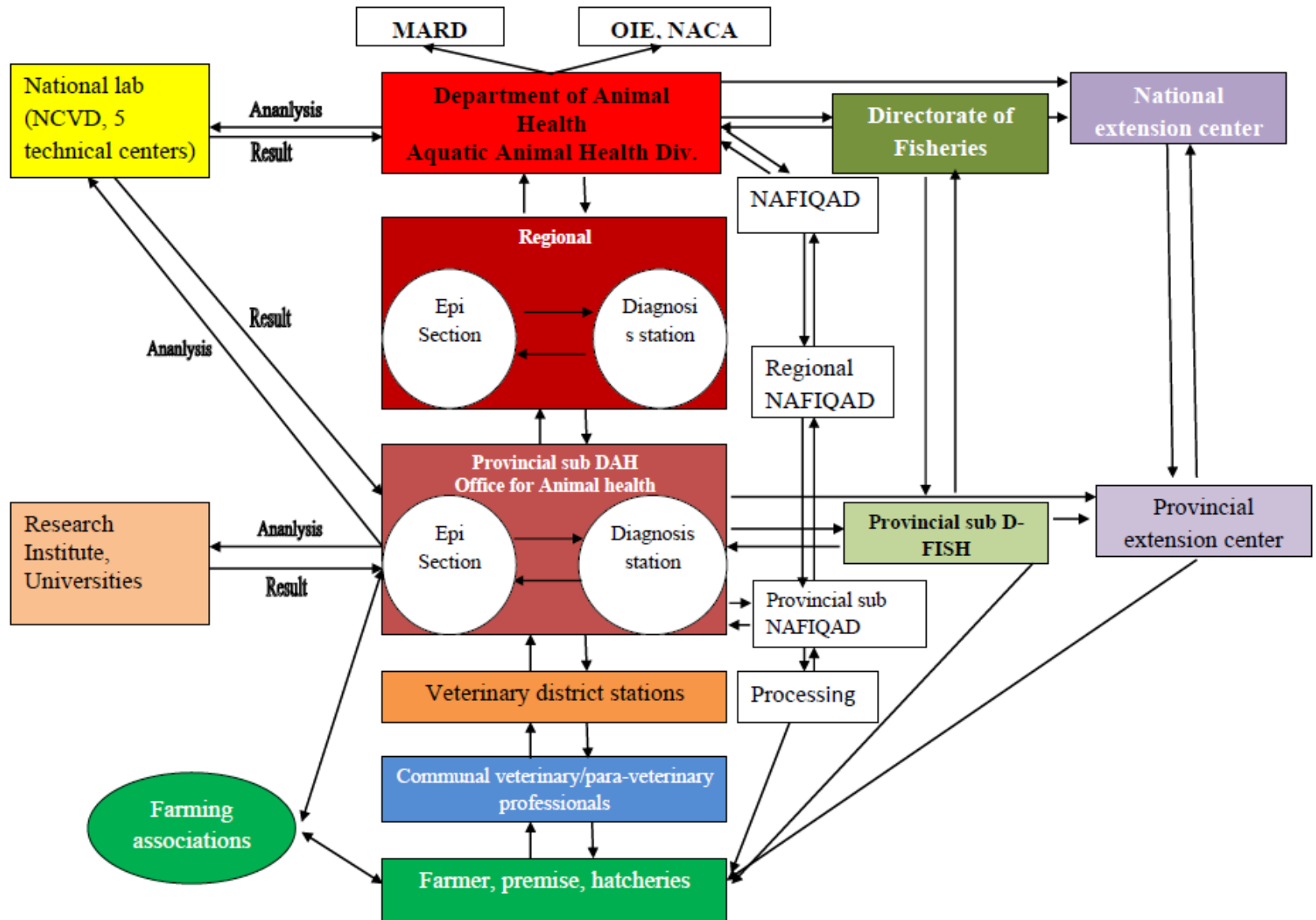
# Prevention and control system of aquatic animal diseases

1. Central level: Aquatic Animal Health Division of DAH and 7 RAHOs
2. Local level: Aquatic animal health section of
  - Provincial Sub DAHs
  - District Veterinary Stations - Sub DAH
  - Veterinary staff/professionals at communes
3. Famers

# Standard operating practices

- Veterinary Law 2015
- Circular No. 04/2016/TT-BNNPTNT dated May 10, 2016 of the Minister of Agriculture and Rural Development regulations on aquatic disease prevention and control
- Circular No. 14/2016/TT-BNNPTNT dated June 02, 2016 regulating disease-free zones and establishments
- National technical regulations

# Flowchart for gathering information and response



# Gathering information and response

## **Farm owners:**

- Carry out surveillance for any clinical signs of diseases
- When an epidemic disease occurs or there is any extra-ordinary change in environment, farmers shall take sample of aquatic animals, environment for diagnosis to identify pathogens and report all of suspicions

## **Local authorities:**

- Receiving information >>> investigation/carry out field surveys of outbreaks

# Gathering information and response

**Local authorities:** Investigation of outbreak

- > Collect initial information: Environmental parameters, determine epidemiology patterns and the existence of outbreak; tracing outbreak origin
- > Carry out on-site investigation: Inspect, compare with the previous reports; indicators, changes, of environment; clinical signs, quantity, species, age, time of abnormal sign identification; area (or number) of diseased aquatic animals, farmed aquatic animals; feed, medicine and chemicals used; fry origin; laboratory test results, quarantine inspection before stocking

# Gathering information and response

**Local authorities:** Investigation of outbreak

- > Take samples for pathogen testing at designated laboratories
- If the sample positive for pathogens >>> guide farmer to clean out aquatic animals in the infected area and disinfect farming area as prescribed in Circular 04/2016/TT-BNNPTNT
- Report the result to Regional Animal Health Offices and DAH

# Gathering information and response

## Local authorities:

- Annually develop and submit to competent authorities for approval of plan for prevention and control of aquatic animal diseases, including active surveillance, information dissemination in locality and organize implementation of the plan after approval
- Organize trainings on prevention and control of aquatic animal diseases for veterinary staff and farming premises; guide, direct veterinary stations to organize training for farming premises in locality

# Gathering information and response

## **The Department of Animal Health (DAH):**

- Receives disease information, guides, inspects, and supervises the implementation of aquatic animal disease prevention and control measures
- Provides technical support/guidelines for provincial sub DAHs
- Develops national programs/strategies on prevention and control of aquatic animal diseases (national program on surveillance, epidemiological research, outbreak investigation)

# Gathering information and response

## **The Department of Animal Health (con't):**

- Builds up national aquatic animal database for analysis to understand epidemiological characteristics of the important diseases
- Responsible for providing information for press and mass media to raise awareness on prevention and control of aquatic animals
- Reports to MARD, international organizations (OIE, NACA)

# Collaborate with other relevant agencies

## Directorate of Fisheries (DFish):

- Develop and implement monitoring and warning of aquaculture environment, guide farmers prevention and control of disease
- Share environmental monitoring results in aquaculture and disease data for early warning and respond to outbreaks

# **Collaborate with other relevant agencies**

## **National Agro-Forestry and Fisheries Quality Assurance Department (NAFIQAD):**

- Collaborate with DAH to certify commodities that meet conditions for export (pathogens testing) – health certificate

## **Provincial Sub NAFIQADs:**

- Collaborate with provincial sub DAH to monitor harvesting and transport of aquatic animals to processing plants
- Monitor diseased aquatic animals in processing premises after receiving a notification from provincial sub DAH
- Share information on violence of food safety at breeding, commercial and farming premises with provincial sub DAH to carry out investigation of the origin

# **Collaborate with other relevant agencies**

## **National and Provincial Extension Centers:**

- Collaborate with animal health system in prevention and control of aquatic animal diseases
- Propaganda and promote good farming models to farmers

## **Farming associations:**

- Collaborate with animal health system in prevention and control of aquatic animal diseases
- Propose measures for prevention and control of aquatic animal diseases

# **Collaborate with other relevant agencies**

## **Research Institute for Aquaculture and universities:**

- Provide testing and diagnosis services
- Provide information of research and experiment for extra-ordinary or new disease for the DAH
- Propose research on measures for prevention and control of aquatic animal diseases

# Aquatic animal disease surveillance programs

## 1. Surveillance of shrimp diseases:

### From 2014-2015:

- Active surveillance for WSSV and AHPND in brackish water shrimps in seven provinces
- 8,771 samples were collected, including shrimp, water, mud, crustacean and feed from 169 commercial establishments in 5 provinces (Quang Ninh, Nam Dinh, Ha Tinh, Ben Tre and Soc Trang) and 60 breed establishments in 2 provinces (Ninh Thuan and Binh Thuan)

# Aquatic animal disease surveillance programs

## 1. Surveillance of shrimp diseases (con't):

### In 2016:

- Conduct active surveillance for WSSV, AHPND, EHP, and IHHNV in brackish water shrimp in Ninh Thuan, Binh Thuan, Ben Tre, Bac Lieu and Soc Trang provinces from July to December of 2016
- On 29 March 2017, the Minister of MARD issued Decision No. 1038/QD-BNN-TY approving *“National Plan for disease surveillance in shrimps and pangasius in the period between 2017 and 2020”*

# Aquatic animal disease surveillance programs

## 2. Surveillance of pangasius diseases

- On 20 November of 2014, the Minister of MARD issued Decision No. 4995/QĐ-BNN-TY approving “*National Plan for prevention and control of diseases in Pangasius, in the period from 2015 to 2020*”
- On 29 of March 2017, the Minister of MARD issued Decision No. 1038/QĐ-BNN-TY approving “*National Plan for disease surveillance in shrimps and pangasius catfish in the period between 2017 and 2020*”

# Testing and diagnosis capacity

- There are 41 government laboratories for aquatic animal disease testing at both national and local levels; 20 government laboratories were granted with ISO 17025 and accredited by Competent Authorities
- 6 labs accredited in line with ISO 17025 under Agro-Forestry and Fishery Quality Assurance Department management (NAFIQAD)
- Labs of 3 Research Institute of Aquaculture (RIA 1,2,3) and Universities of Fishery
- Some private laboratories are accredited to provide testing service for aquatic diseases

# Testing and diagnosis capacity

- Official laboratories under Aquatic Animal Health System:
  - National level: 8 laboratories located at seven Regional Animal Health Offices (RAHOs) and the National Centre for Veterinary Diagnosis (NCVD)
  - Provincial level: 27 laboratories in provincial sub DAHs
  - All of the labs are equipped with conventional and Real-time PCR



Tủ an toàn sinh học cấp II

Máy đồng nhất mẫu MP-Fastprep 24



Máy chiết tách DNA/RNA tự động



Máy xử lý mẫu mô



Phòng chuẩn bị Master Mix



Phòng máy PCR và Realtime PCR



Máy đổ khuôn paraffine

Máy cắt tiêu bản vi thể



Phòng điện di



Máy giải trình tự gene GS junior 454 - Roche

# Aquatic Animal Health Laboratory

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# Strengthening AAH management capacity

## Training and education programs:

- Annually, based on the demands for training and education, the aquatic animal health institutions from local to central levels shall develop training and education plans, submit for approval and implementation
- Official training and education programs at national level (630 participants per year on average) conducted as follows:
  - The National Target Program for Food Safety includes contents on strengthening aquatic animal disease diagnosis capacity through organizing training courses (from 2009 to 2010)

# Strengthening AAH management capacity

## Training and education programs (con't): National level

- Bio-Technology Program from 2012-2013
- The Project on strengthening state management for veterinary sector (including aquatic animal between 2012 and 2020)
- Applied Veterinary Epidemiology Training Program (AVET) for regional and provincial staff
- National Surveillance Plan for aquatic animal diseases in shrimps and pangasius catfish to export in the period between 2017 and 2020



# Strengthening AAH management capacity

## Training contents:

- Enhancing aquatic animal disease management capacity for veterinary officials from central, regional and provincial levels
- Strengthening capacity of local aquatic animal health system on legislation, disease surveillance, reporting and response to disease outbreaks; organize workshops on improving capacity of local veterinary system
- Raise awareness of local staff and farmers on prevention and control of aquatic animal diseases, and promote sustainable development of aquaculture



**International  
cooperation**







Whole Pangasius with head off  
Cá tra nguyên con bỏ đầu



Pangasius Fillets  
Cá tra filet tạo hình sạch



Pangasius Portion cut  
Cá tra cắt miếng



Cá tra cắt khúc  
Pangasius Steak



Pangasius Skewer  
Cá tra nướng



Pangasius Rolls  
Cá tra cuộn



**THANK YOU FOR YOUR ATTENTION**