



Vietnam Ministry of Natural Resources and Environment  
**VIETNAM ENVIRONMENTAL ADMINISTRATION**

# **PIG WASTEWATER MANAGEMENT IN VIETNAM**

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## **LEGAL FRAMEWORK AND FUTURE ORIENTATION**

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*Chiang Mai, February 2017*

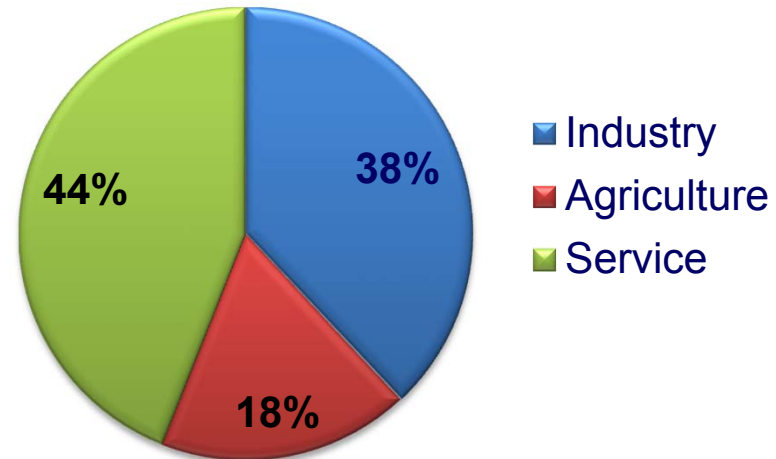
# I. Overview of pig production in Vietnam and its environmental issues





## SOCIAL REPUBLIC OF VIETNAM

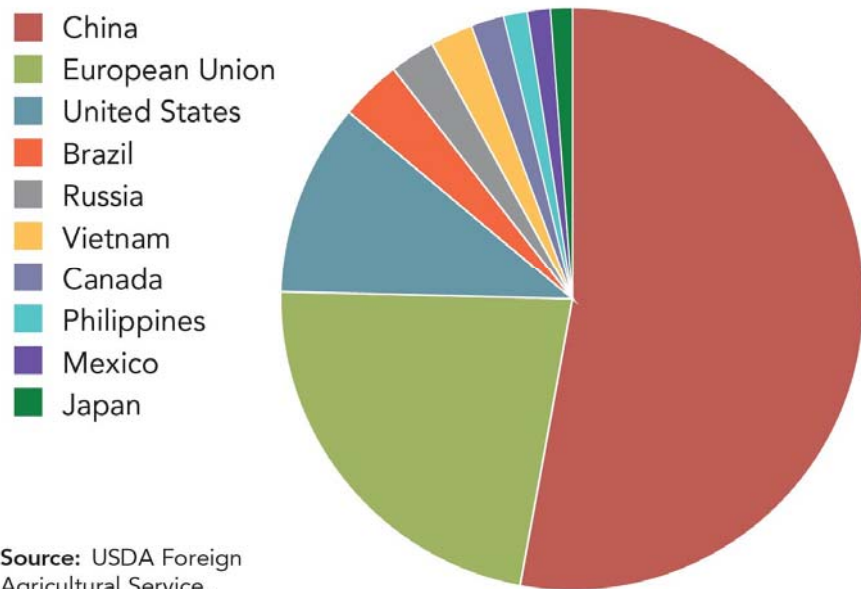
- Total area: 331,698 km<sup>2</sup>
- Population: 90.730.000



### Contribution to Vietnam's GDP by Industry, 2013

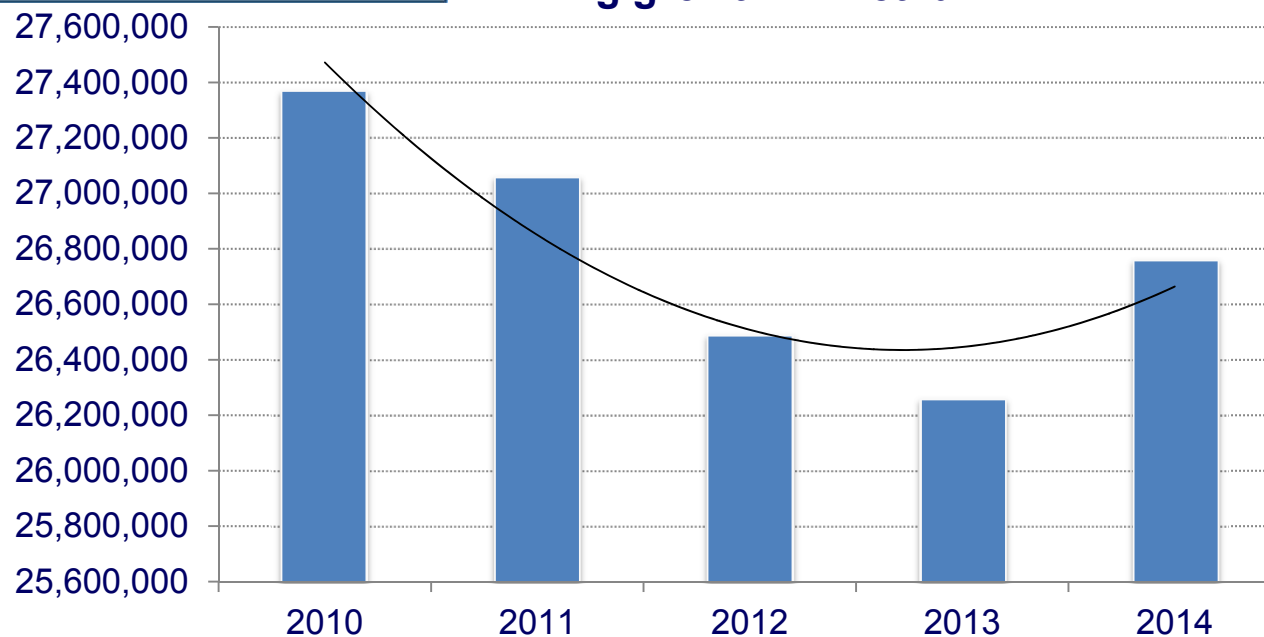
Vietnam has been an agricultural civilization for much of its history. However, the economic development towards industrialization, agriculture still accounts for a high proportion.

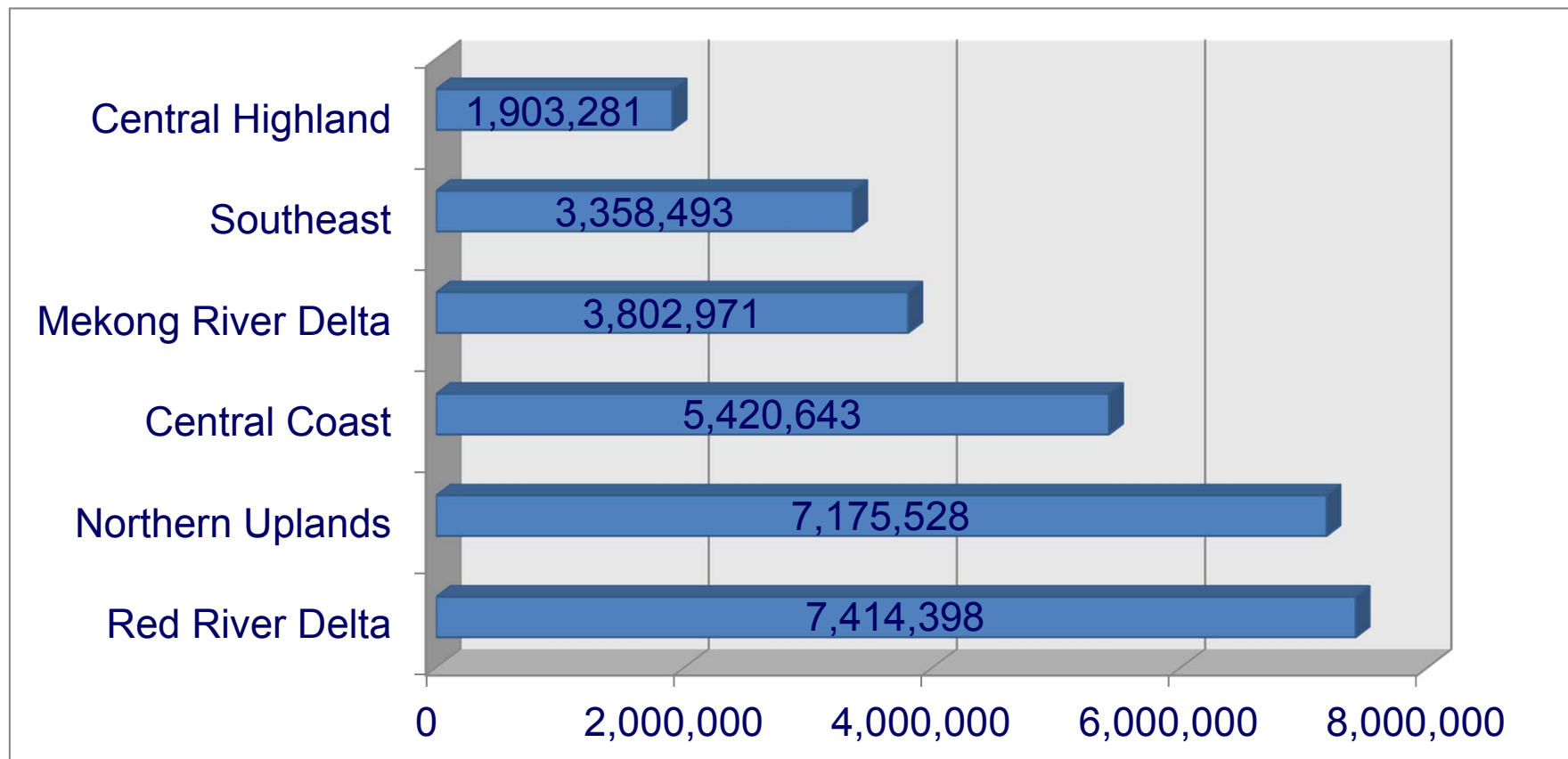
## Top 10 Pork-Producing Countries – 2015



Source: USDA Foreign Agricultural Service.  
Updated: 7.11.16

## Pig growth in Vietnam





**Distribution of pig farming in Vietnam by ecological zones**





**PIG FARMING IN VIETNAM**  
**serious environmental pollution**

- 2003: 7 hot spots
- 2013: + 13 hot spots

**Water pollution**

Wastewater → contains various environmental pollutants with high content of organic matters, suspended sediments, N, P and pathogenic micro-organisms

**Odor pollution:**

- In-cage odor: is carried out by air ventilation system or natural ventilation, which are radiated to the environment.
- Out-cage odor: from solid waste and waste treatment locations.

**Solid waste pollution:**

Pig farming solid waste comprises of manure, padding material, hair, organic compound generated by slaughtering facilities





## **II. Legal framework of pig wastewater management in Vietnam**





# WASTEWATER MANAGEMENT SYSTEM

## Authority system

Government

Ministry

Locality

## Legal document system

**LAW**

**POLICY:**

- Decision of Prime Minister
- Resolution of Government

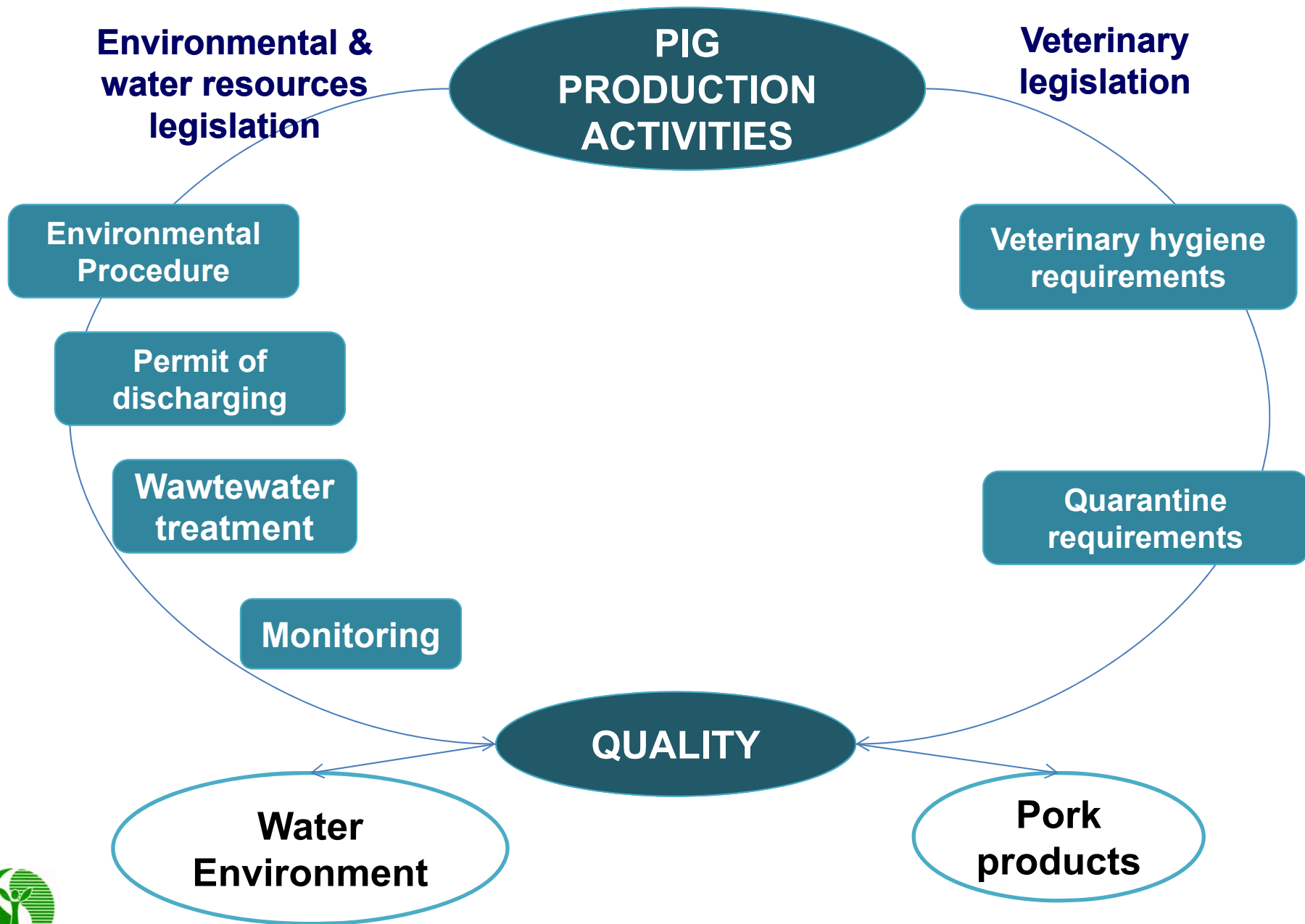
**REGULATION**

→ Legal documents Ministerial level

**Local regulations**

→ specified the general regulations





## #1. POLICY

### Environmental protection

### PIG PRODUCTION ACTIVITIES

### Agricultural growth & Food security

- Decision No.1206/QD-TTg (2012): National Target Program on **environmental remediation and improvement** in the period of 2012 – 2015
- Decision No.1216/QD-TTg (2012): **National strategy for environmental protection** by 2020, and the orientation towards 2030
- Decision No.166/QD-TTg (2014): The Plan for **implementation of National strategy for environmental protection** by 2020, and the orientation towards 2030
- Decision No.122/QD-TTg (2013): the **National strategy to protect, care, and improve public health** during 2011 - 2020 period, and the orientation towards 2030

- Decision No. 10/2008/QD-TTg of Prime Minister on approving the Strategy on **animal breeding development** up to 2020
- Decree No. 210/2013/NĐ-CP of Government on **incentive policies for enterprises investing** in agriculture and rural areas
- Circular No. 09/2015/TT-BNNPTNT of MARD on guiding the **incentive policies** for improving the efficiency of livestock farms during 2015-2020.



## #2. LAW

LEP  
2014

- Indispensable environmental procedures:
  - Strategic environment assessment (Chapter II, Section 2)
    - *Strategies/ planning for development of agriculture, forestry, aquaculture, irrigation, or **animal husbandry***
  - Environmental impact assessment (Chapter II, Section 3)
    - *Construction projects for **livestock establishments** ~ **at least 1,000 m<sup>2</sup>***

- Environmental protection in **agricultural production** (Article 69):
  - Concentrated breeding areas must collect, treat wastewater and solid wastes in accordance with waste management regulations



## LEP 2014

- Wastewater management (Chapter IX, Section 4)
- Wastewater shall be collected and treated in accordance with environmental standards
- The wastewater treatment system shall be monitored periodic before and after the treatment.
- The discharge source which has a large amount of wastewater (> **1,000 m<sup>3</sup>/day**) must be **monitored atomically**

- Environmental protection fee for wastewater:
  - Big scale → industrial wastewater fee
  - Household scale → daily – life wastewater fee



## Law on Water Resource 2012

- Permit of wastewater discharge

All activity of discharge wastewater into environment must be licensed by competent authority,  
except: domestic wastewater; < 5 m<sup>3</sup>/day without harmful chemicals and radioactive substances;

## Criminal Code 2000

- This Code contains provisions relating to environmental crimes in livestock activities, including: crime of water pollution, crime of causing spread of diseases dangerous to humans, animals and plants



### #3. National Technical Regulation – Standards system

#### Environmental & water resources legislation

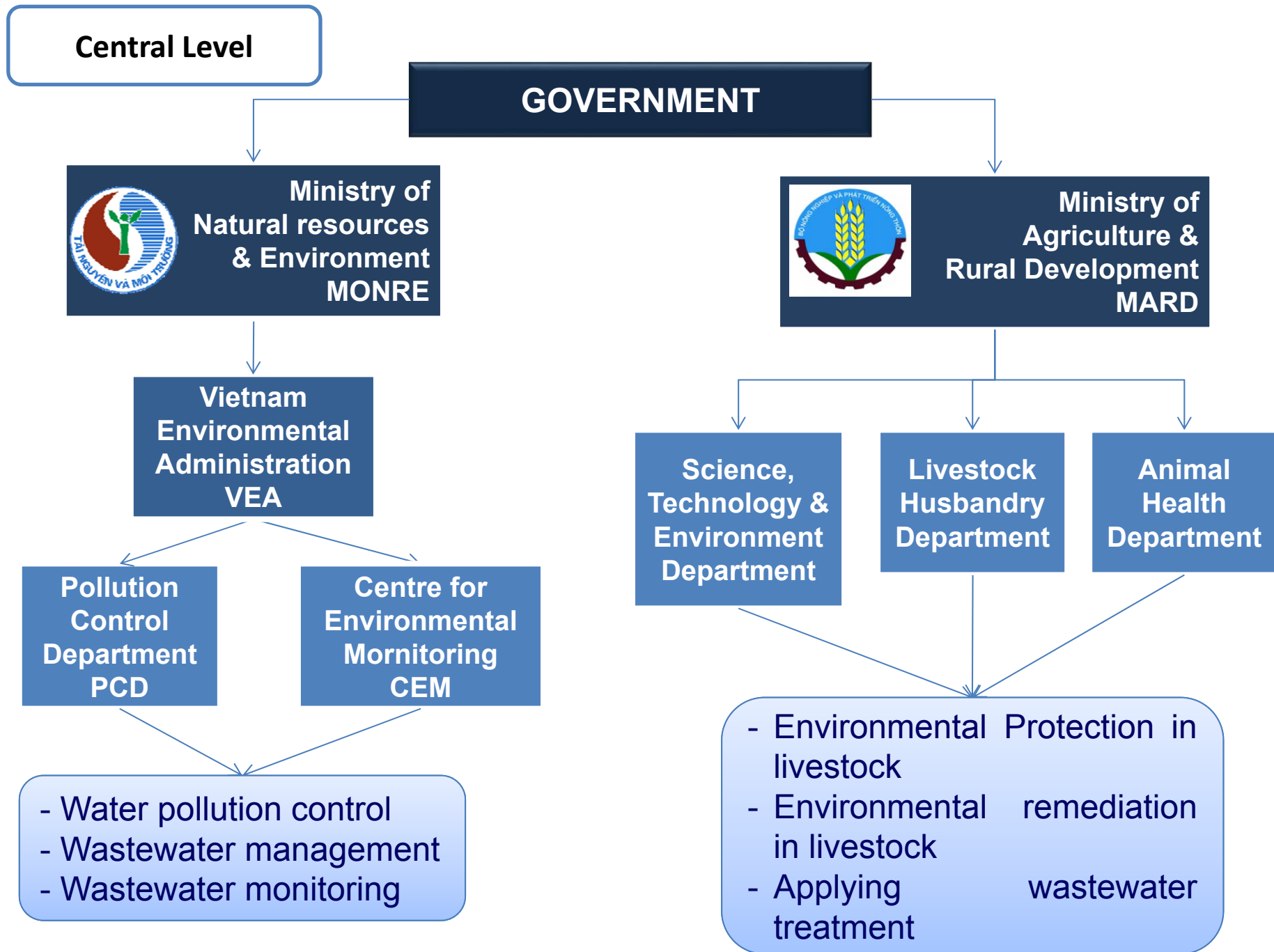
#### PIG PRODUCTION ACTIVITIES

#### Veterinary legislation

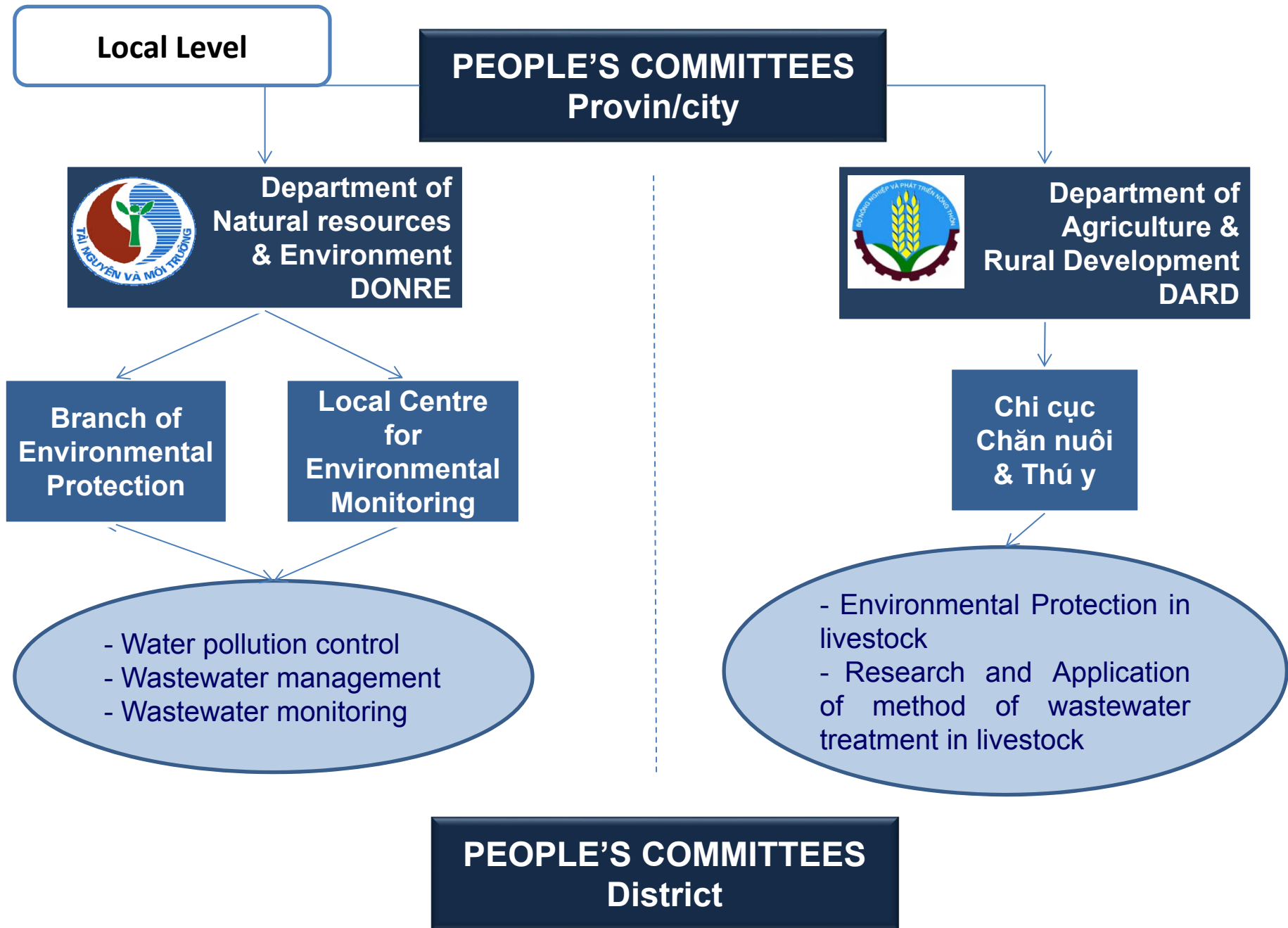
- QCVN 62-MT:2016/BTNMT On the effluent of livestock

Parameter	Unit	Value C	
		A	B
pH		6-9	5.5 - 9
BOD <sub>5</sub>	Mg/l	40	100
COD	Mg/l	100	300
TSS	Mg/l	50	150
Total Nitrogen	Mg/l	50	150
Total Coliform	MPN or CFU/100ml	3000	5000

- QCVN 01 - 14: 2010/BNNPTNT: On conditions for bio-security of pig farm
- QCVN 01 - 79: 2011/BNNPTNT Cattle and poultry farm - Hygiene inspection and evaluation procedure
- QCVN 01-99: 2012/BNNPTNT and QCVN 01-100: 2012/BNNPTNT on veterinary hygiene conditions



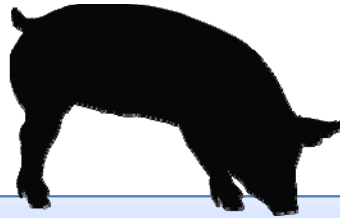




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# Why pig wastewater is pollution problem in Vietnam





## PIG FARMING IN VIETNAM

Environmental quality

> Benefit <

Economical achievements

Problems of Pollution

### The centralized farms:

- 67% have wastewater treatment system but the effect isn't fully processed.
- 2,8% is reported for EIA.

### Household farms:

- Use biogas in household but most are overloaded.
- Discharge directly into the drain

- There is no general guidelines for construction of pig breeding wastewater treatment systems using biogas in Vietnam.
- The requirements n' standards for small biogas constructions are not suitable for the medium ones in farming.
- Can't separate dry manure and wastewater.
- The cost is quite high.
- Awareness of farmers n' farm owner in environment protection is still low.
- The technical level is not high enough, mainly learn experiences from another farm

## Difficulties and shortcomings

- The overlap of functions and tasks in livestock waste management between the MONRE and the MARD
- No legal documents stipulating the regulations on cooperation between the MONRE and the MARD on livestock environmental management, causing to a shortage of information sharing between the two ministries
- The legal provisions relating to waste management and pig wastewater are inadequate, lack of feasibility
- Resources (human, technology, finance) for wastewater management in locality are limited
- Awareness of the business is low, conscious of law enforcement is not high
- Enterprises are unable to access the capital investment incentives for environmental protection.
- The conflict between economical and environmental benefits

# III. FUTURE ORIENTATIONS



➤ **Solution on improvement of policies, legal documents**

- MONRE and MARD: developing regulations on environmental management in livestock:
  - + Guiding for ensuring environmental hygiene in livestock;
  - + Guiding for the application of livestock waste treatment, environmental sanitation measures in livestock
- Developing the guidelines and regulations for environmental protection in livestock; policies to encourage the application of cleaner production in the pig farming operations;
- Developing the regulations on coordination between MONRE and MARD



➤ **Solution on management organization and development planning of livestock**

- Complete the management system, division of responsibilities among the various levels and branches, especially the responsibility for environmental management between the DoNRE and the DARD,
- The DoNRE need to strictly implement on the evaluation and approval process of reports on environmental impact assessment for pig breeding farms.
- Raising awareness, consciousness of compliance regulations on environmental protection and environmental hygiene of livestock
- Review the planning and re-planning the livestock farms with big scale away from residential areas, in order to gradually restrict the small-scale livestock in residential areas.

**THANK YOU FOR YOUR  
ATTENTION!**



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