

# Current situation of livestock industry and livestock wastewater in neighborhood countries

## Tetsuo Kuyama

Manager (Water Resource management)  
Natural Resource and Ecosystem Services Area  
Secretariat of Water Environmental Partnership in  
Asia (WEPA)



## Water Environmental Partnership in Asia (WEPA)

Recognizing the **improvement of water environmental governance** is essential to solve water pollution problems in the Asian region, the Water Environmental Partnership in Asia (WEPA) was launched in 2004 by the Ministry of the Environment, Japan. WEPA conducts its activity on a 5-year cycle and the third phase started in April 2014

WEPA consists of partners in **13** Asian countries

1. Democratic Socialist Republic of Sri Lanka (Sri Lanka)
2. Federal Democratic Republic of Nepal (Nepal)
3. Japan (Japan)
4. Kingdom of Cambodia (Cambodia)
5. Kingdom of Thailand (Thailand)
6. Lao People's Democratic Republic (Lao PDR)
7. Malaysia (Malaysia)
8. People's Republic of China (China)
9. Republic of Indonesia (Indonesia)
10. Republic of Korea (Republic of Korea)
11. Republic of the Philippines (Philippines)
12. Socialist Republic of Viet Nam (Viet Nam)
13. Union of Myanmar (Myanmar)



## MOEJ's Strategies to Improve Water Environment in Asia

### Water Environmental Conservation in Asia

Water Environmental Partnership  
in Asia (WEPA)



Collaboration



Pilot Projects for Water Environment  
Improvement in Asia

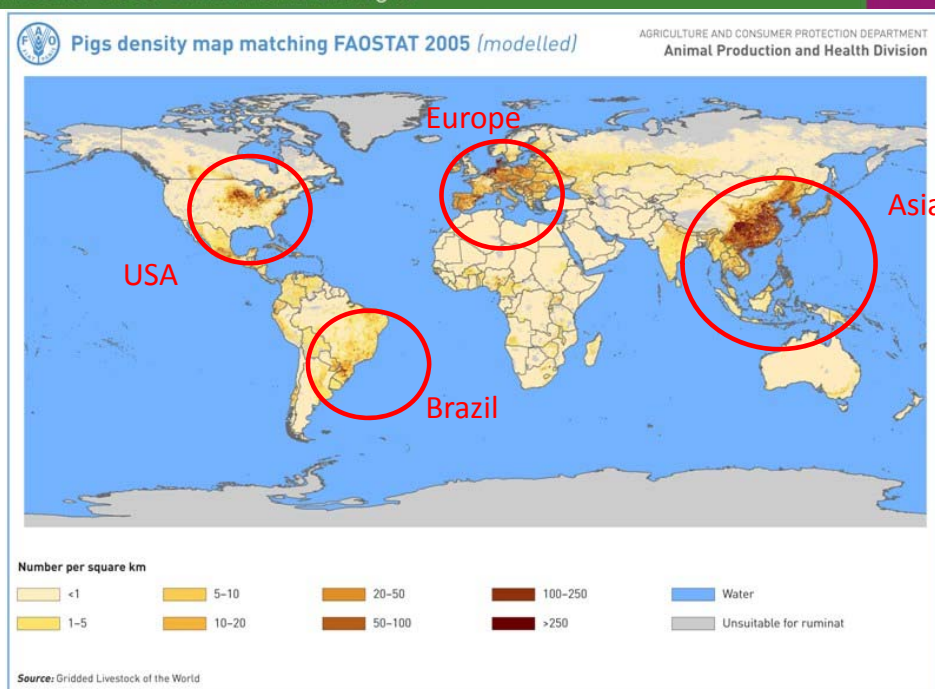


## Today's presentation

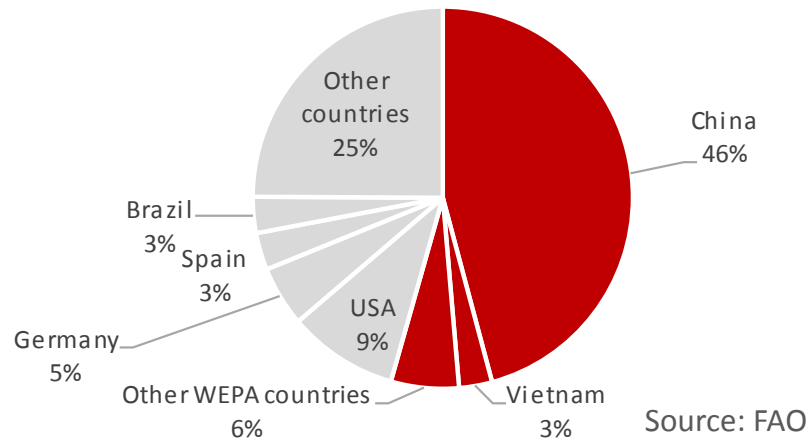
- Pig industry in WEPA countries
- Impacts of pig industry to water environment of WEPA countries
- Pig wastewater management in Indonesia, Thailand and Myanmar (to be explained by WEPA partners after my presentation)

## Pig Industry in WEPA countries (Outlook)

- **55** % of global pig production (2011)
- About **580 million** heads (as of live pig in 2014) in WEPA countries
- **Rapid increase of pig population** in China, Vietnam, Myanmar
- **Few exported pigs**: Most of pigs are consumed in each country. Pig production increase is supposed to be due to human population increase and change of food culture
- **Increase of large scale producer**: China, Japan, Thailand, Vietnam
- **High pig density around big cities**: China, Thailand, Vietnam, Philippine

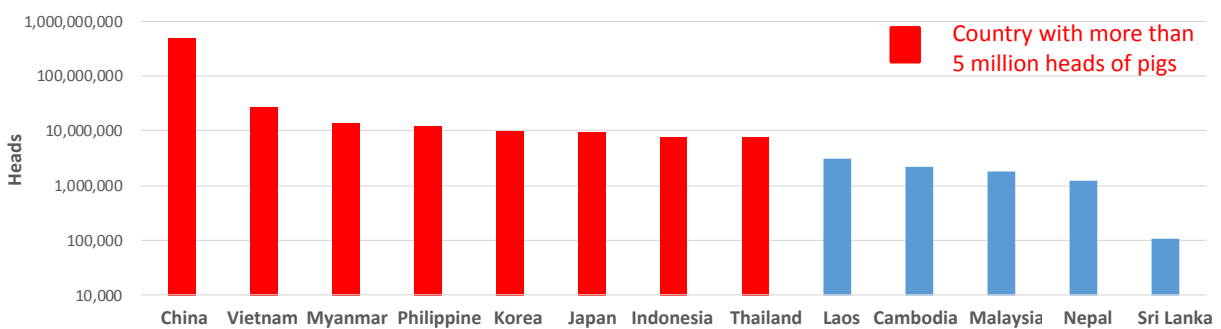


## Global Pig Production in 2011



Total Production over the world: 110 million tones

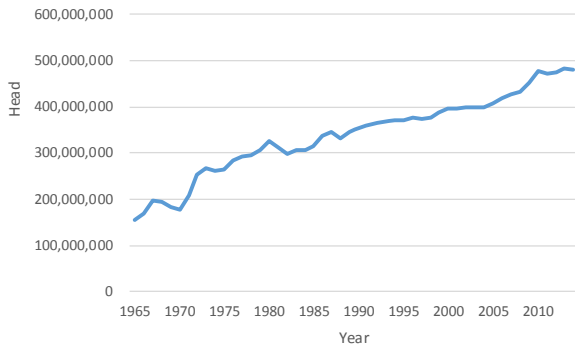
## Number of Live Pig in WEPA Countries (2014)



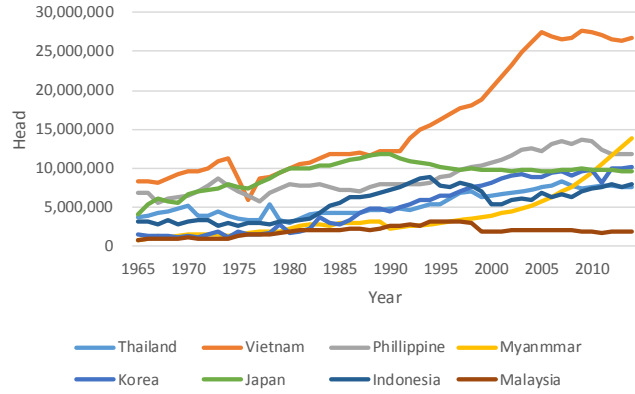
Source: FAO

WEPA total: About 580 million heads

## Change in Number of Live Pig in WEPA Countries



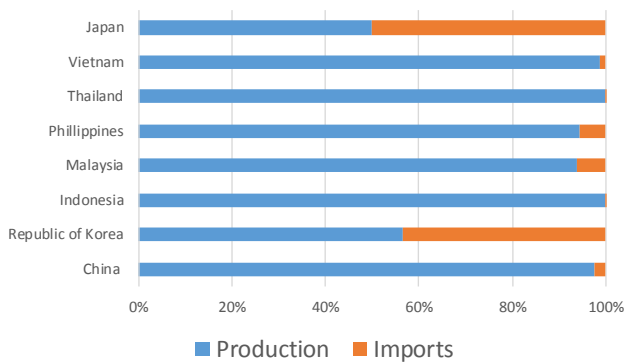
China



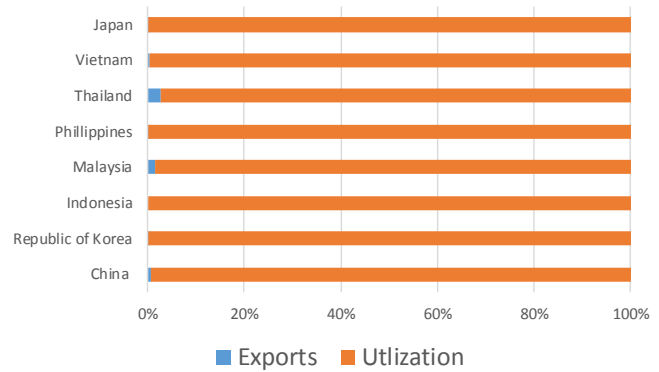
Source: FAO

Other selected WEPA countries

## Pig meat import/export in WEPA countries (2011)



Production/Imports



Utilization/Exports

Source: FAO

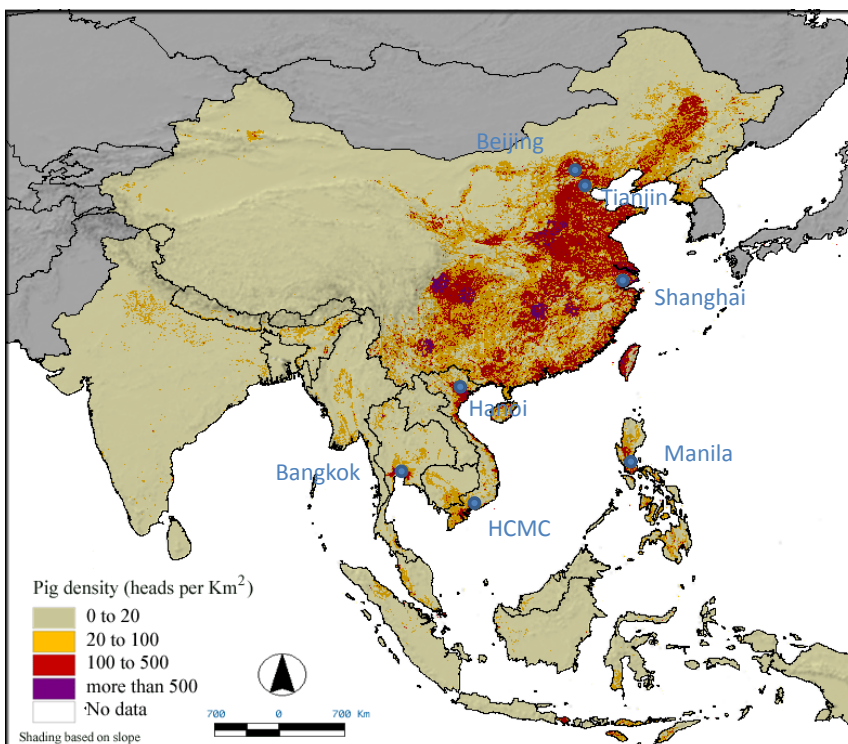
## Size of Pig Industry in WEPA countries

Share of pigs slaughtered by farm size in Thailand (1993 and 2013)

Number of pigs slaughtered	Pigs slaughtered by farm size (%)	
	1993	2013
1-500	73	25
>500	27	75

Source: Agricultural Census and FAO

Same trend in China, Japan and Vietnam



Pig Density in Asia

Source: FAO, LEAD Project

## Supposed Issues caused by Pig Industry related with Water Environment

- **Pollution load increase** from pig industry to water environment
- **Change in pattern of pollution loading** from pig industry to water environment
- **Severe negative environmental/social impact** from pig industry **in the city near high pig density area** in addition to pollution from domestic wastewater

## Cases of Water Environmental Pollution caused by Pig Industry reported in WEPA Countries

### Thailand

- According to Pollution Control Department in 1999, 23 % of BOD loading in **Tha Chin River (western part of Bangkok city)** was caused by pig industry. In 2000, water quality at Tha Chin River became critical as the level of DO has dropped to near zero in the most part of the river. In addition, there was complaint that pig production is a cause of water pollution in **Bangpakong River** in the eastern region. Consequently, in 2001, PCD added the pig industry in the regulated list (source : FAO).

### Philippine

- In **Balanac River, which is a tributary of Laguna de Bay** and Benig River in Tarlac located in Luzon, water pollutions caused by pig industry were reported, and therefore DENR investigated these rivers. In addition, river waters in Lantapan, Bukindo in Mindanao have also become polluted with E.coli and there was suspicion that the pollutants must have come from human and livestock waste (source: FAO)

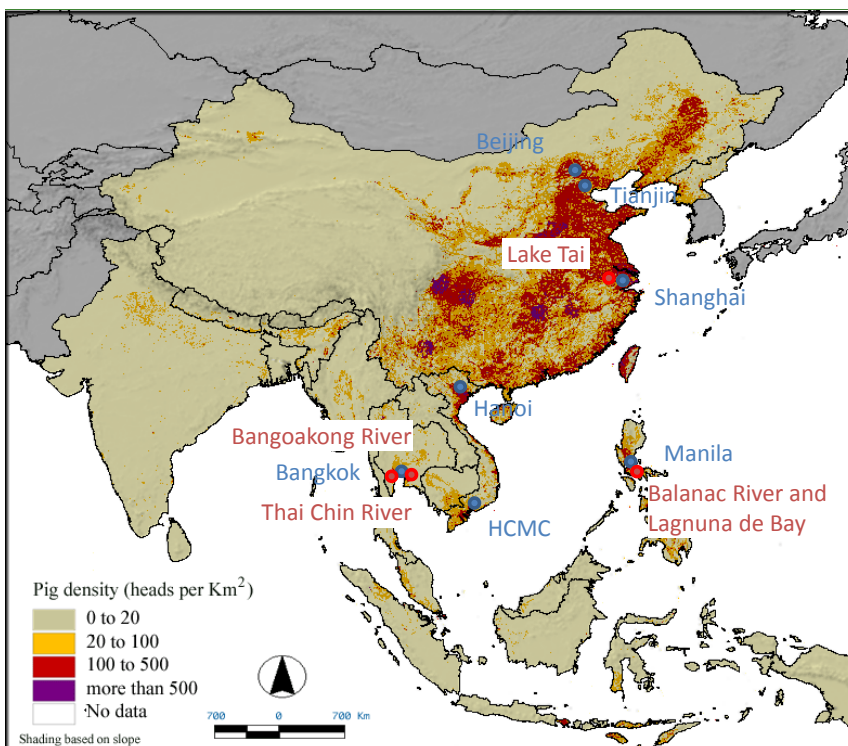
## Cases of Water Environmental Pollution caused by Pig Industry reported in WEPA Countries

### China

- According to 12<sup>th</sup> National Five Years Plan of Livestock Pollution Prevention, 59 % of total pollution load to **Lake Tai** is reported to be caused by agricultural sector, mainly from livestock industry. In addition, Chinese government conducted national pollutant inventory survey in 2009 and 2010. The result of the survey in 2010 illustrated that 45% of COD load and 25 % of NH<sub>3</sub> load were from livestock industry. Consequently, Chinese government started to intensify livestock pollution prevention from 12<sup>th</sup> National Five Years Plan.

### Vietnam

- ????



Pig Density in Asia



Thank you in advance for your active discussion

