DEPARTMENT OF ANIMAL HEALTH
Address: No. 15/79 Giai Phong Rd., Hanoi, Viet Nam
Tel: +84-4-8690788 / Fax: +84-4-8681311 / email: dah.vn@fpt.vn / website: www.dah.gov.vn

Update on HPAI in Viet Nam

Dr. Do Huu Dung

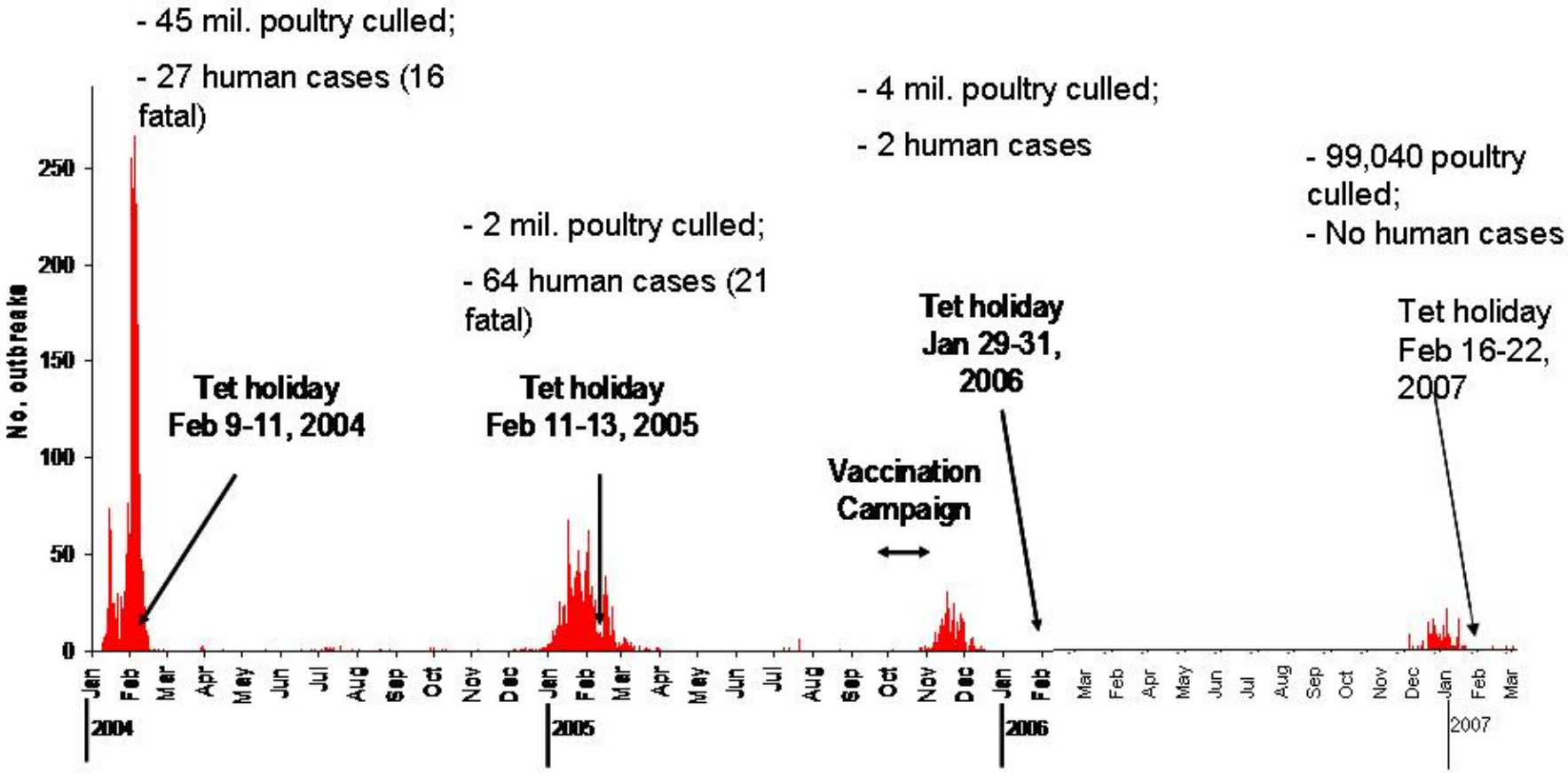
December 2007

Outlines

- Temporal and spatial patterns
- Some epidemiological features
- The challenges for AI control

Temporal Pattern of HPAI outbreaks in Vietnam

Temporal Pattern of 2003/4 (1st), 2004/5 (2nd), late 2005 (3rd) and 2006/7 (4th) AI Epidemics

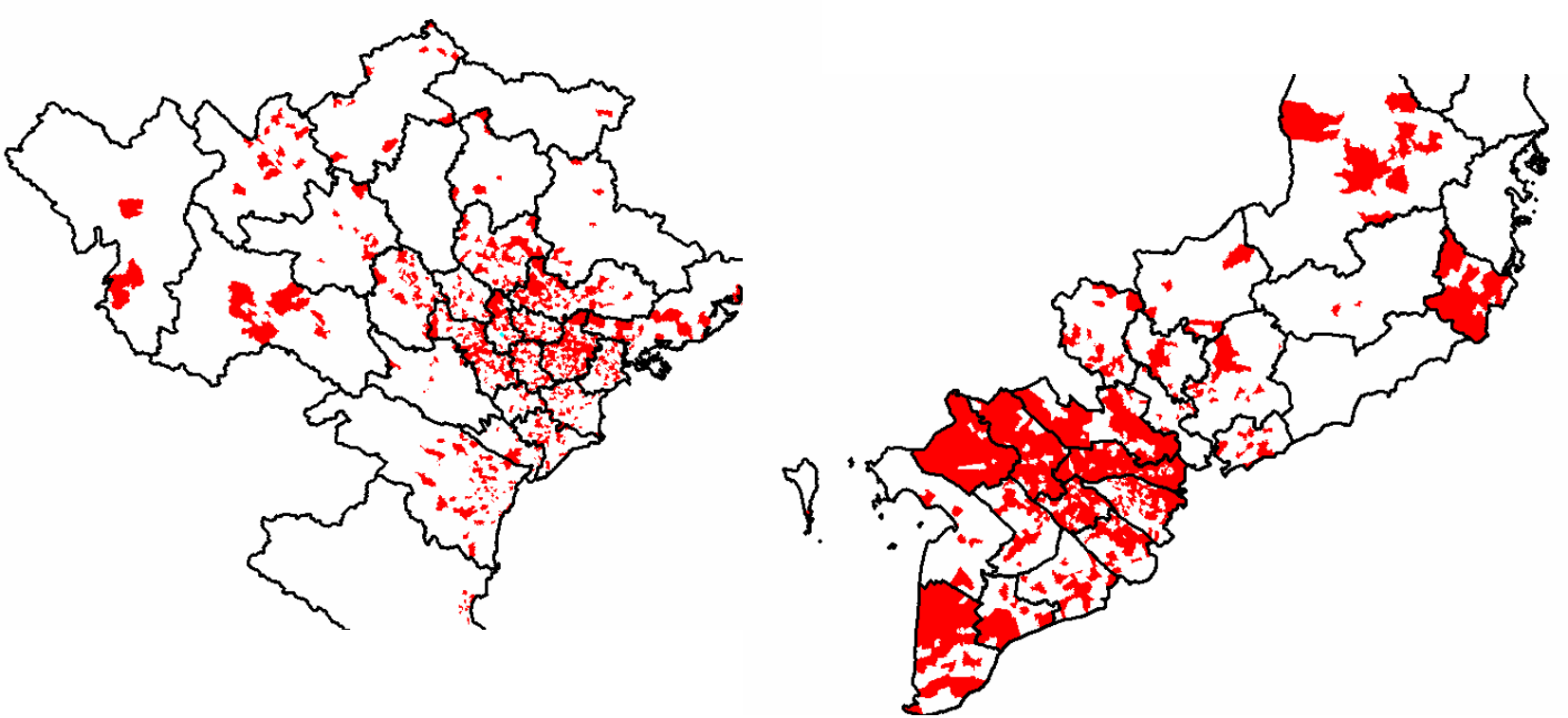


CỤC THÚ Y VIỆT NAM
DEPARTMENT OF ANIMAL HEALTH

Summary of HPAI epidemic waves in Viet Nam

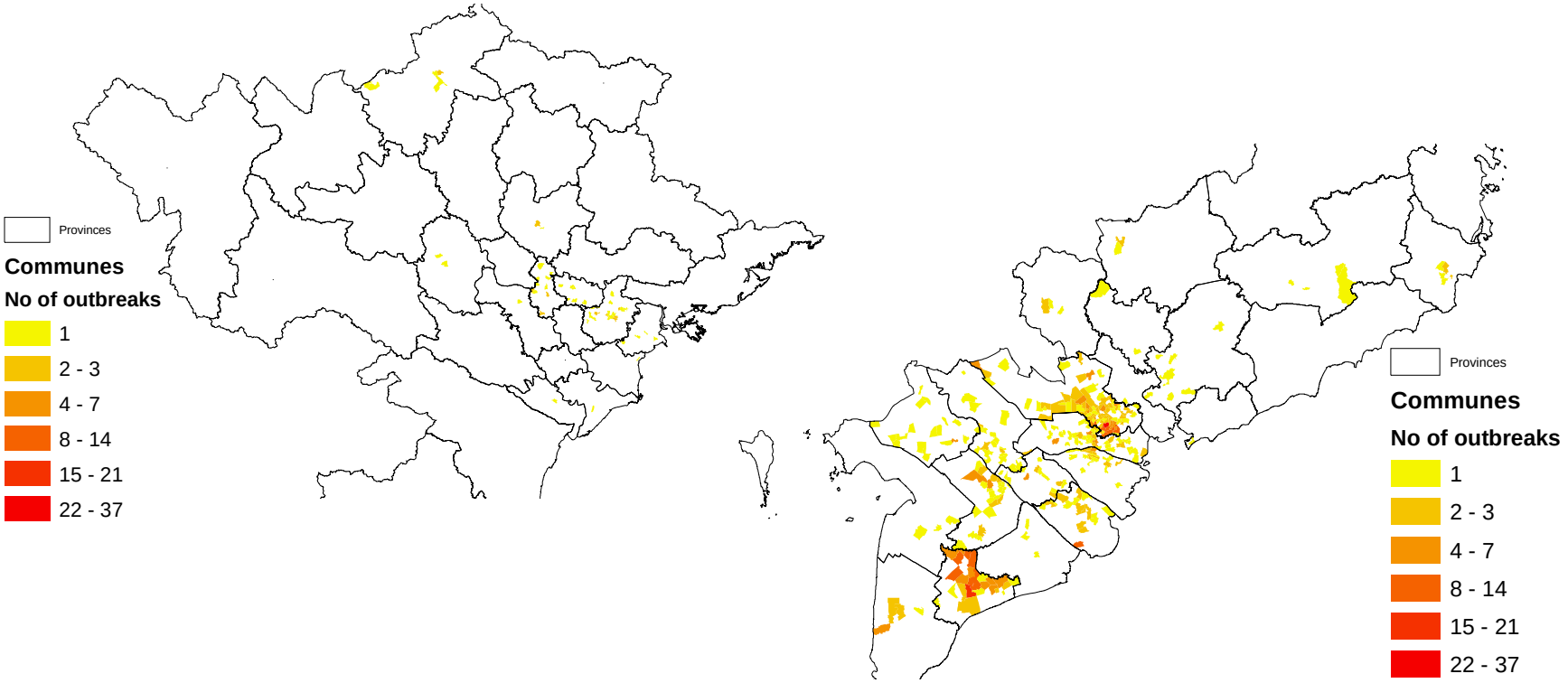
Wave	Time	# provinces infected	# districts infected	# communes infected	# poultry culled or died
1st	Dec 03 – Feb 04	57	381	2,574	43,900,000
2nd	De 04 – Apr 05	36	182	670	1,931,278
3rd	Oct 05 – Dec 05	24	108	305	3,973,000
4th	Dec 06 – Mar 07	11	33	83	103,094
Sporadic	May 06 – present	23	70	167	294,849

Affected Communes - 1st wave (2003-2004)



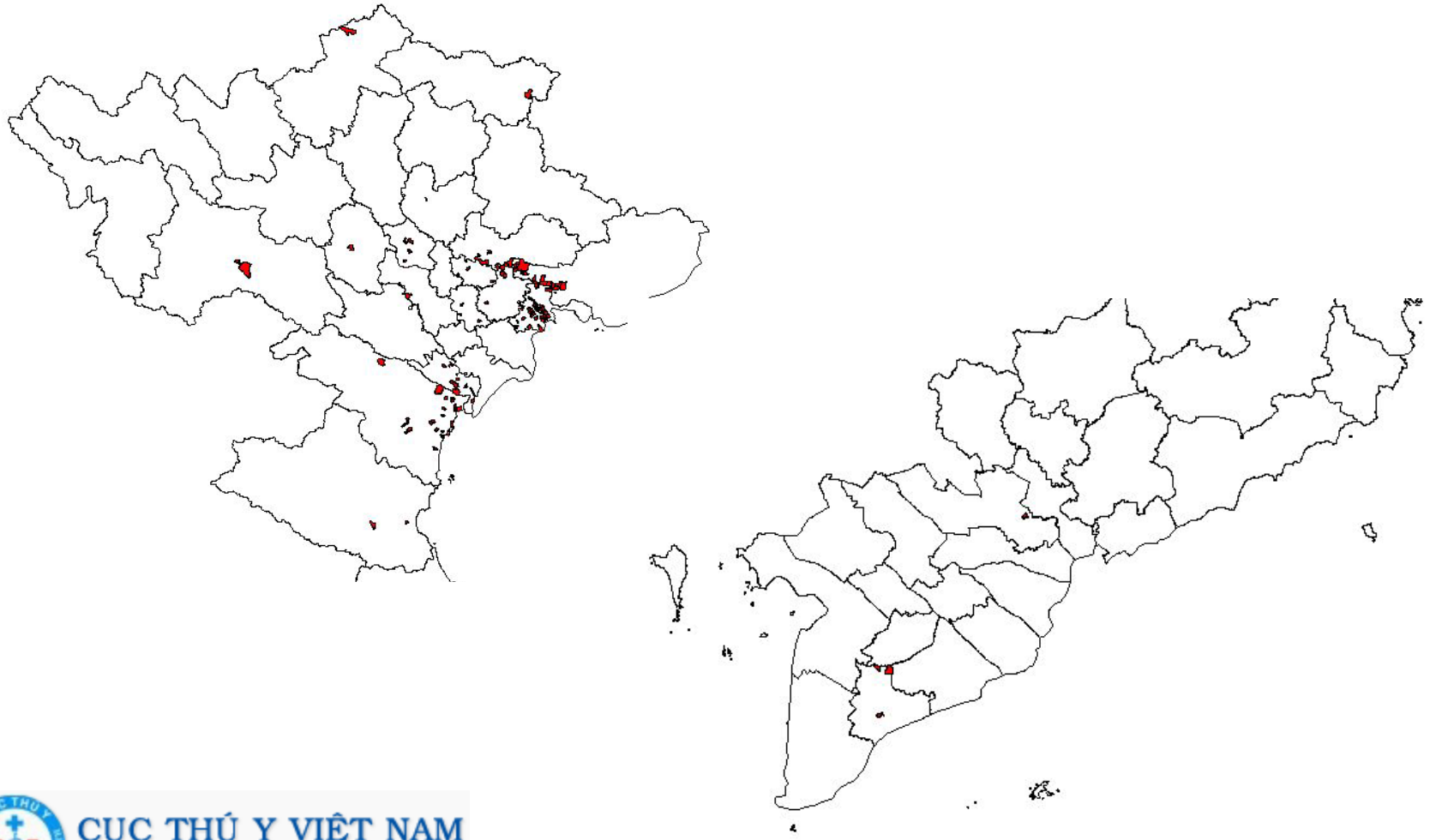
CỤC THÚ Y VIỆT NAM
DEPARTMENT OF ANIMAL HEALTH

Affected Communes - 2nd wave (2004-2005)



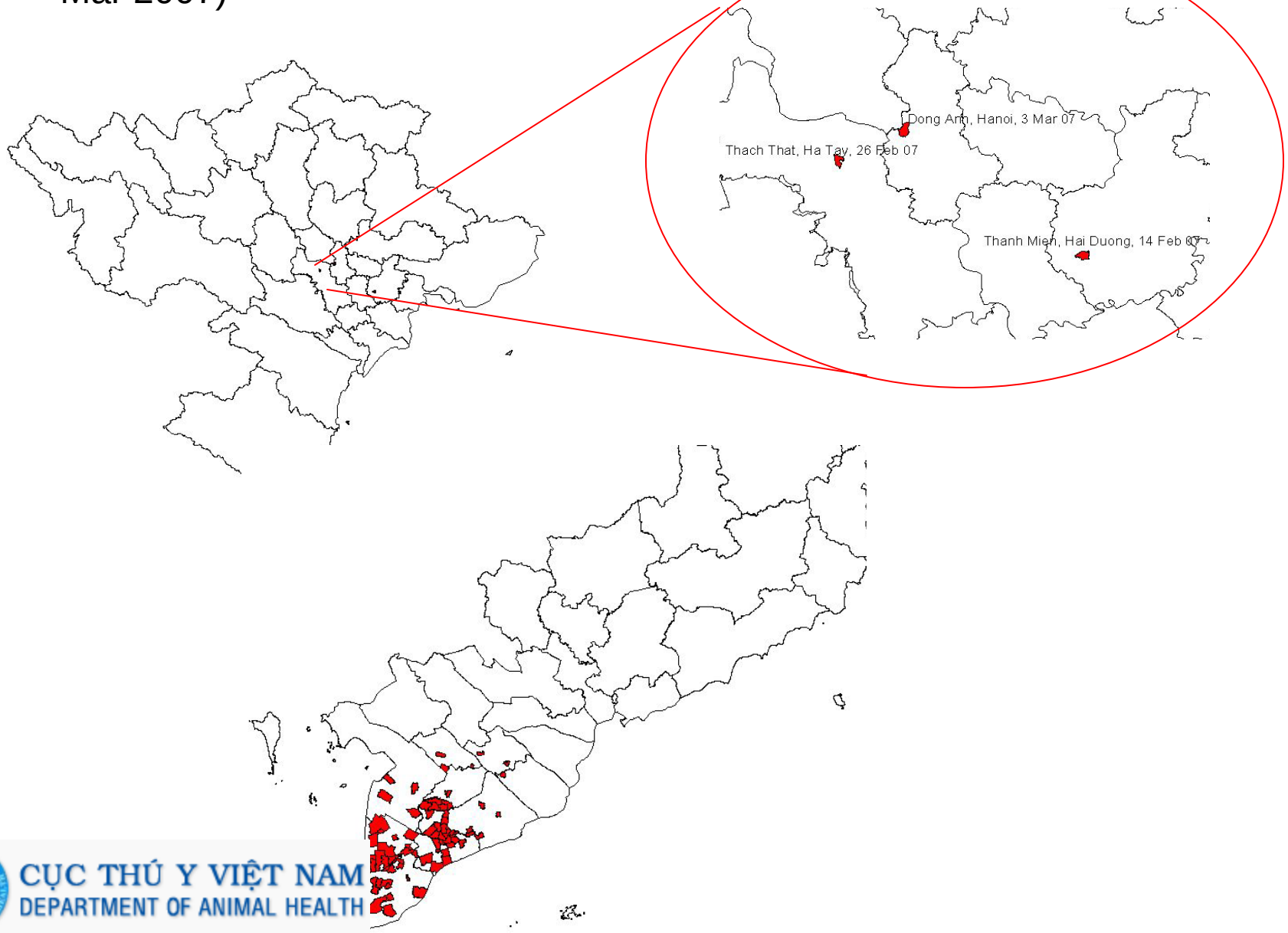
CỤC THÚ Y VIỆT NAM
DEPARTMENT OF ANIMAL HEALTH

Affected Communes – 3nd wave (late 2005)



CỤC THÚ Y VIỆT NAM
DEPARTMENT OF ANIMAL HEALTH

Affected Communes – 4th wave (Dec 2006 – Mar 2007)



CỤC THÚ Y VIỆT NAM
DEPARTMENT OF ANIMAL HEALTH

Epidemiological features

- Outbreaks have been identified always in unvaccinated flocks, particularly in ducks. No reports of disease in fully vaccinated poultry.
- Recent marked increase in duck population (subsequent to cessation of the ban on hatching waterfowl)
- Backyard poultry has been seen as the most vulnerable group though it is more likely to detect outbreaks from Sector 3.
- The effects of vaccination difficult to separate from that of other measures. However, vaccination would have reduced the susceptibility of a significant part of the poultry population

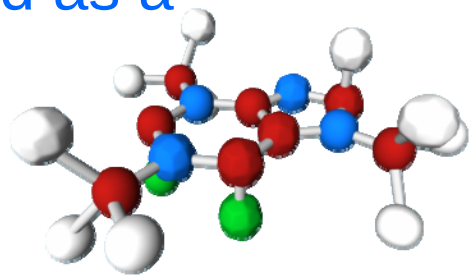
Epidemiological features

- Post-vaccination surveillance: Demonstrated that Chinese vaccines used are capable of producing 'acceptable' levels of immunity one month post-vaccination based on empirical criteria (Taylor & Dung, 2007)
- Virus sequencing work: minor changes (Clade 1 and 2.3 present), not yet affect immunity.
- Pathogenicity testing proved that the circulating viruses are more virulent to ducks, therefore, ducks often now show symptoms and died.

Overview of HPAI control strategies

- Late 2003 – July 2005:
  - Surveillance
  - Rapid destruction of birds in infected farms and at-risk farms
  - Rapid response: Movement control, disinfection of infected premises
  - Ban of hatching of water fowls
  - Closure of live bird markets in urban areas
  - Communications
  - Etc.
- Aug 2005 - present: Vaccination added as a supplement measures.

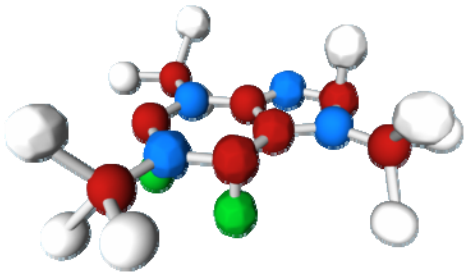
CỤC THÚ Y VIỆT NAM
DEPARTMENT OF ANIMAL HEALTH



Measures implemented in 2005

- In the second half of 2005 a number of measures were implemented or strengthened to reduce the risk of infection with H5N1 viruses
- Vaccination was initially implemented in all provinces covering most high risk populations of poultry
- Vaccination included village households where most of the human cases had occurred
- Other measures included bans on duck breeding (not strictly enforced), public awareness campaigns and closure of urban markets – all leading to a reduced demand for poultry by consumers

CỤC THÚ Y VIỆT NAM
DEPARTMENT OF ANIMAL HEALTH



The challenges for AI control

- Slow progress toward the improvements of poultry production, slaughtering, processing and marketing
- Difficult to maintain high commitments from local authorities over time
- Vaccination:
  - reduced cooperation from farmers due to 12 month outbreak-free period (Dec05-Dec06)
  - currently all vaccines must be imported
- Vaccine delivery: farmers not easy to access to vaccines

The challenges… (Cont'd)

- Inadequate capacity and capability of veterinary services
  - Surveillance and outbreak reporting
    - Procedures
    - Rely too much on Animal Health Workers
  - Poor epidemiological study capacity
  - Legislation and regulations
- Poor field surveillance

Issues with vaccination

Vaccination has proven to be challenging

- Logistics: vaccines, cold chains, etc.
- Vaccinator training
- Payment of vaccinators
- Sustainability
- Cost (and benefits) – about 2c/dose
- Lab and field capacity to do surveillance
- No availability of vaccines that could be used for day-old ducks.
- Current vaccines can not prevent infection

CỤC THÚ Y VIỆT NAM
DEPARTMENT OF ANIMAL HEALTH

Issues need further study

- Decision model on controlling of outbreaks
- Ecology and epidemiology of avian influenza virus
- Molecular epidemiology
- Role of migratory birds
- Humane methods for culling
- Vaccine efficacy trails;
- Survey of free-ranging ducks
- Develop risk-reduction strategies for free-ranging ducks