

# Economic Impacts of HPAI in Indonesia: A need of more micro and household studies

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*Background paper 1<sup>st</sup> draft*

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# Outline of Presentation

1. Brief introduction of Indonesian agriculture
2. The poultry industry: Major challenges
3. HPAI Outbreak and bio-security issues
4. Economic impacts of HPAI outbreak
5. Research Gaps: More micro and household studies

# Map of Indonesia



# Growth of Indonesian Agriculture (%)

Itemized Sub-sector	Conso- lidation 1967-78	High Growth 1978-86	Decon- struction 1986-97	Crisis Years 1997-00	Decentra- lization 2001-06
GDP agriculture	3.39	5.72	3.38	1.57	3.45
➤ Food Crops	3.58	4.95	1.90	1.62	2.63
➤ Estate Crops	4.53	5.85	6.23	1.29	4.10
➤ Livestock	2.02	6.99	5.78	-1.92	4.47
➤ Fisheries	3.44	5.15	5.36	5.45	4.20

Sources: Calculated from BPS and FAOSTAT, 2007

# The Indonesian Poultry Industry

Source: Indonesian Poultry Business Association (2004)

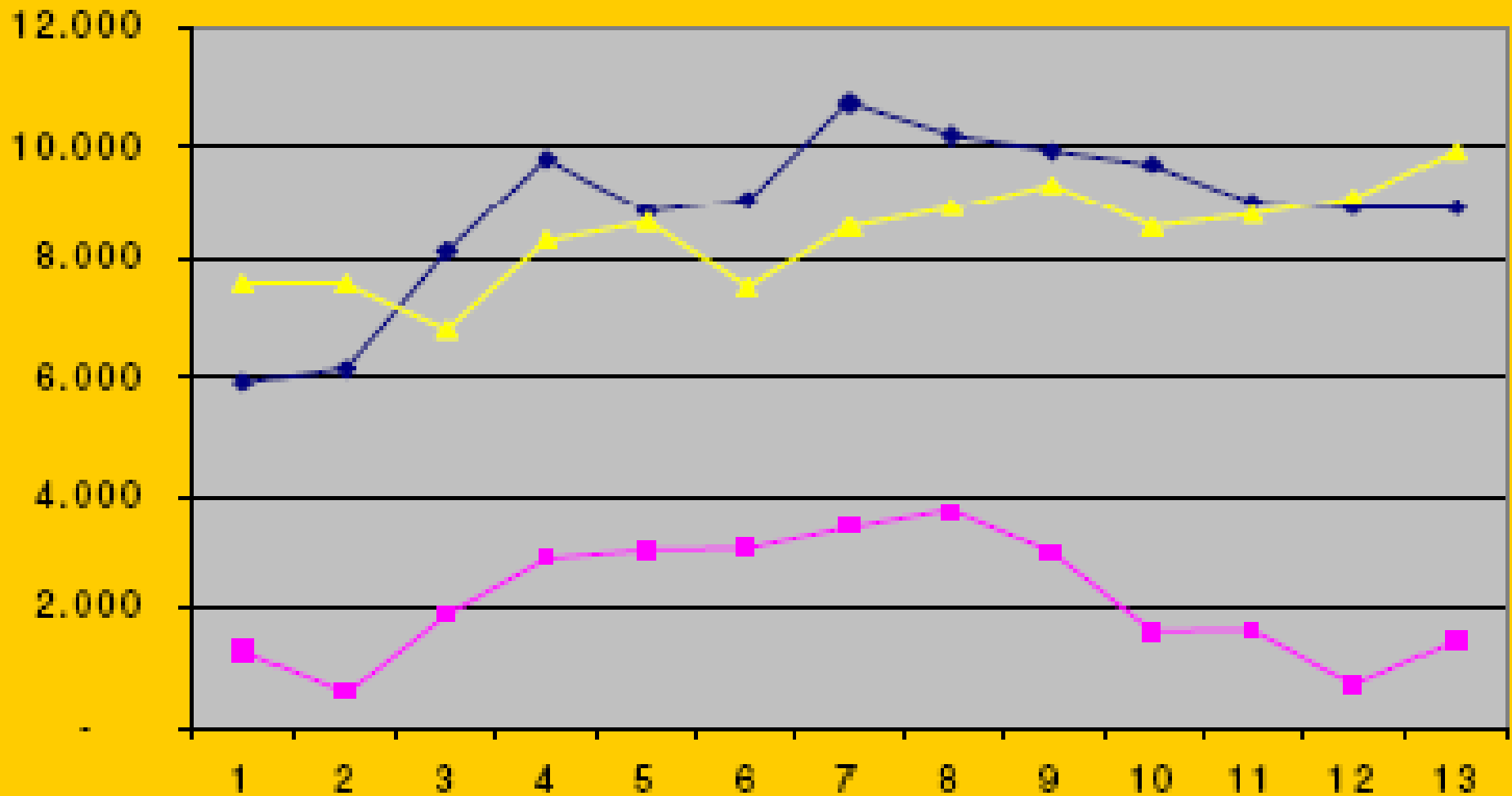
## Standing population: >620 million

- Native/village chicken: 317 million (~630 million annually)
- Layer: 106 million, Broiler 175 million (~1 billion annually)
- Duck: 35 million, plus others: quail, pigeon, goose, etc.

## Important economic indicators of the poultry industry

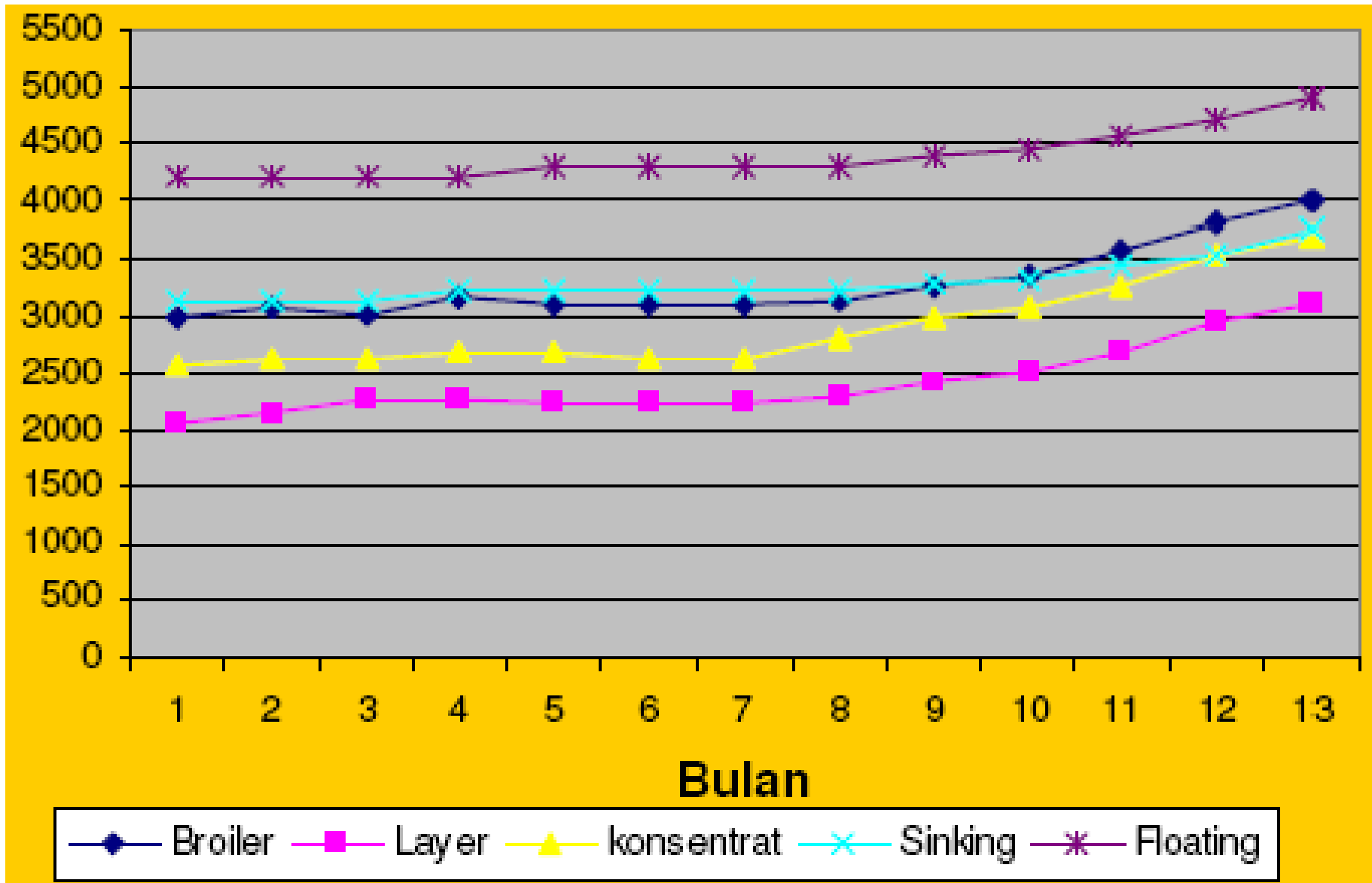
- Total investment: US\$ 35 billion; Turnover: US\$ 30 billion pa
- People employed: >10 million; Feed production 7.5m MT pa
- DOC broiler: >1 billion pa, DOC layer: >100 million pa
- Markets: 13,000 markets daily, Abattoir processing: <20%

# Price of Chicken, Egg and DOC Jan 2007 – Jan 2008 (Rp/kg)



Source: Indonesian Poultry Business Association, 2008

# Feed Price, Jan 2007 – Jan 2008 (Rp/kg)



Source: Indonesian Poultry Business Association, 2008

# Production and Consumption of Meat 2004-2006

No	Commodity	Production (000 ton)			Consumption (kg/capita)		
		2004	2005	2006	2004	2005	2006
	<b>Meat</b>						
1	Beef meat	358.06	286.96	311.44	1.23	1.06	1.15
2	Buffalo meat	32.19	30.44	31.60	0.10	0.10	0.10
3	Goat meat	45.71	40.48	42.62	0.14	0.14	0.14
4	Mutton meat	52.85	37.86	41.52	0.16	0.12	0.13
5	Pork meat	176.98	157.88	163.13	0.51	0.55	0.56
6	Horse meat	1.31	1.33	1.40	n/a	n/a	n/a
7	Native chicken meat	269.47	274.02	293.44	0.69	0.69	0.73
8	Broiler meat	813.16	749.35	918.25	2.08	1.90	2.30
9	Duck meat	20.19	19.41	20.27	0.05	0.05	0.05
10	All Edible Offal	250.44	219.27	246.58	1.33	1.16	1.27

Source: Directorate General of Livestock Production of Ministry of Agriculture, 2007



# Production and Consumption of Egg and Milk, 2004-2006

No	Commodity	Production (000 ton)			Consumption (kg/capita)		
		2004	2005	2006	2004	2005	2006
	<b>Egg</b>						
1	Native chicken	143.15	175.43	181.10	0.57	0.57	0.58
2	Layer chicken	762.04	681.15	751.04	3.45	3.04	3.31
3	Duck	173.22	194.90	201.70	0.66	0.73	0.75
	<b>Milk</b>						
1	Fresh milk domestic	549.95	535.96	577.63	2.14	2.06	2.19
2	Fresh milk imported	0.00	0.00	0.00	7.33	7.26	7.16

Source: Directorate General of Livestock Production of Ministry of Agriculture, 2007

# Export and Import of Major Poultry Products, 2004-2006

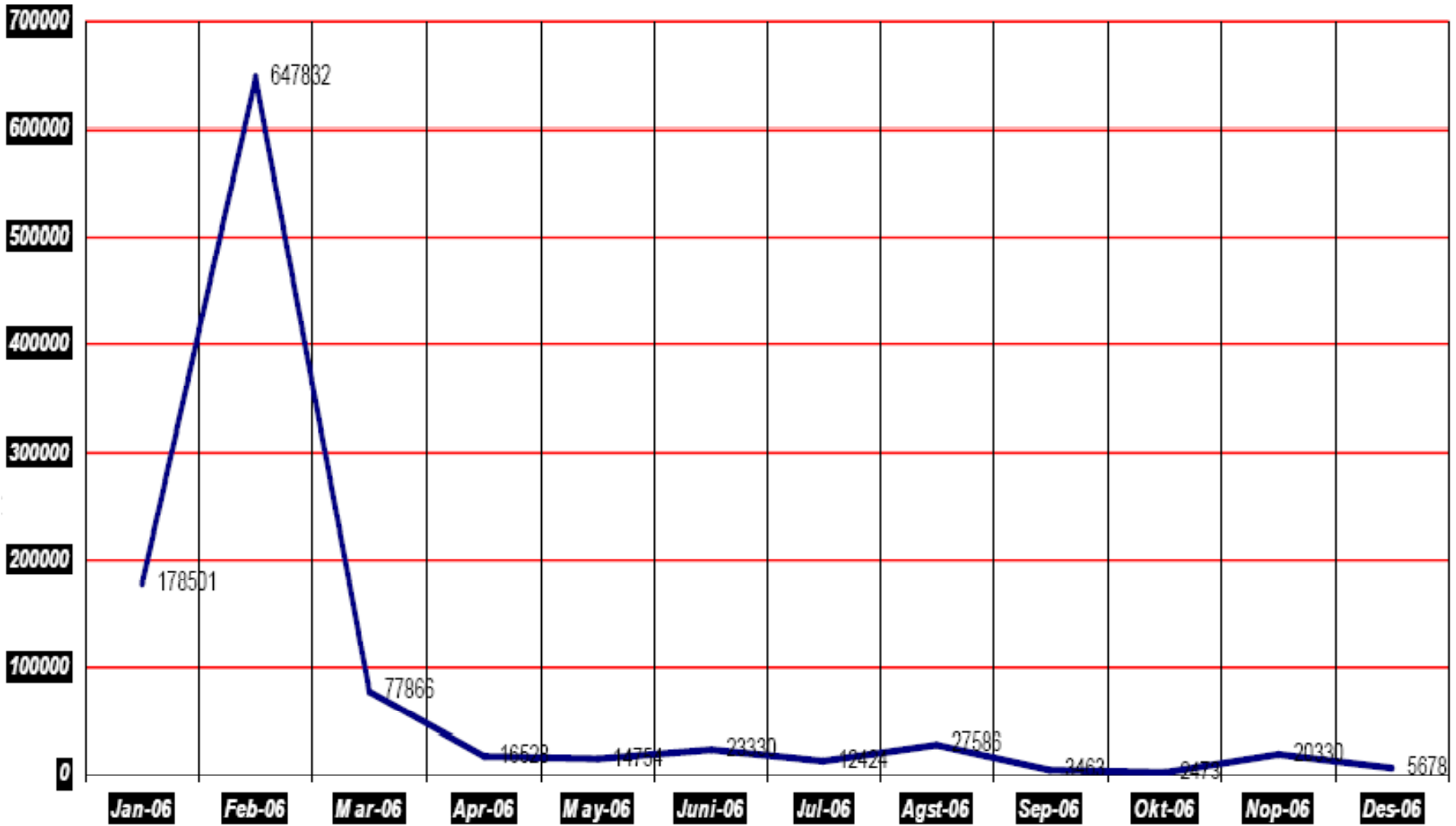
No	Commodity	Volume		Value (US\$ million)	
		2004	2005	2004	2005
	<b>Export</b>				
1	Leather (1000 sheet)	45,222.8	75,663.2	73.03	97.73
2	Milk (ton)	40,935.1	45,018.5	61.61	90.15
3	Pork meat (ton)	2,770.0	6,217.7	1.36	3.06
4	Chicken meat (ton)	100.9	20.1	0.16	0.09
5	Poultry (head)	1,000.0	100.0	0.00	0.01
6	Pig (head)	402,405.0	402,405.0	20.42	25.90
7	Egg for breeding (ton)	19.8	10.1	0.08	0.01
	<b>Import</b>				
1	Leather (1000 sheet)	59,408.0	51,818.6	91.17	66.53
2	Milk (ton)	165,411.5	173,084.4	329.38	399.17
3	Pork meat (ton)	179.6	39.0	0.24	3.29
4	Chicken meat (ton)	1,313.9	3,978.4	1.03	3.80
5	Egg for food (ton)	245.1	707.0	0.13	1.97
6	Cow (head)	11,772.0	21,484.5	27.11	43.65
7	Egg for breeding (ton)	40.40	19.50	0.24	0.35

# Avian Influenza

- First outbreak in 2003
- 31/33 provinces have confirmed cases (286/444 districts)
- Incidence varies across the country
- Endemic in Java, Bali, Sumatra and South Sulawesi
- Lower incidence in eastern provinces
- Based on limited surveillance
- Both commercial and village poultry
- Chickens, quails and ducks affected
- Human cases since July 2005

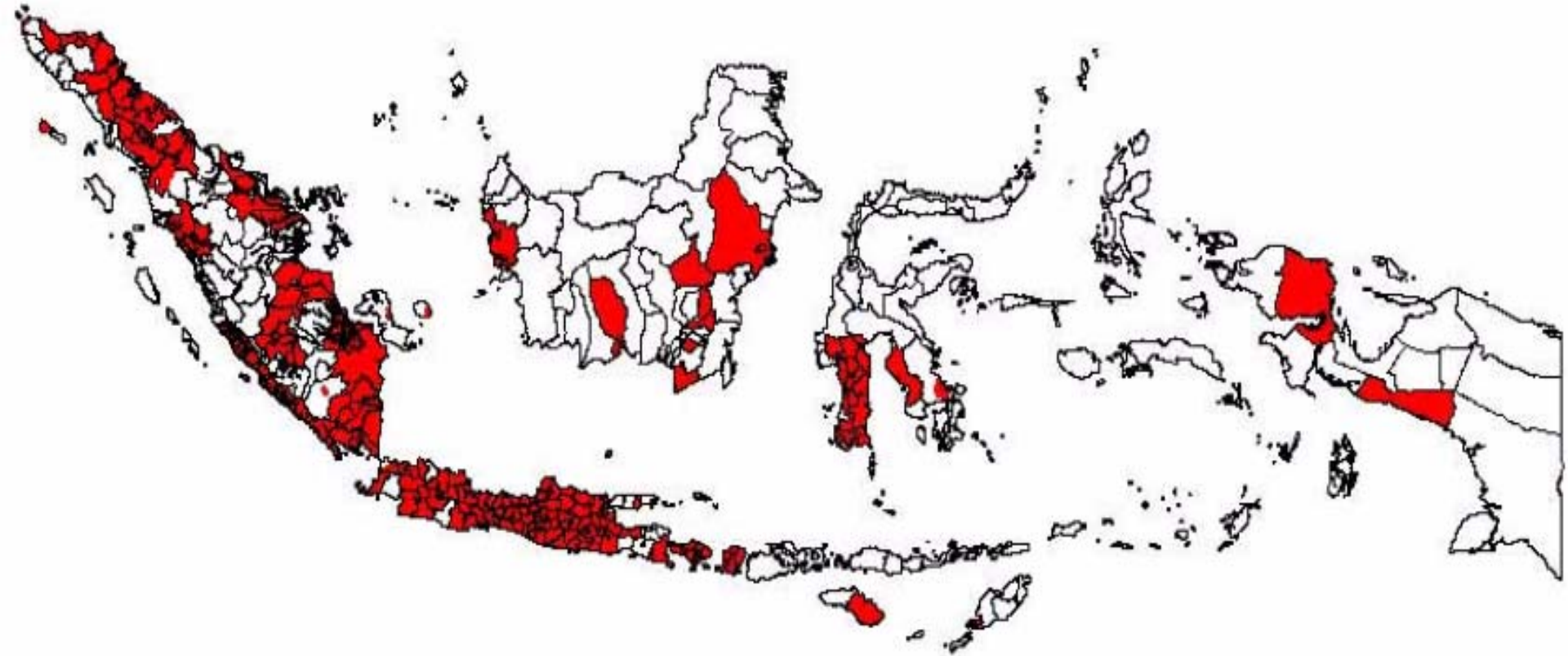


# Death of Poultry due to Avian Influenza



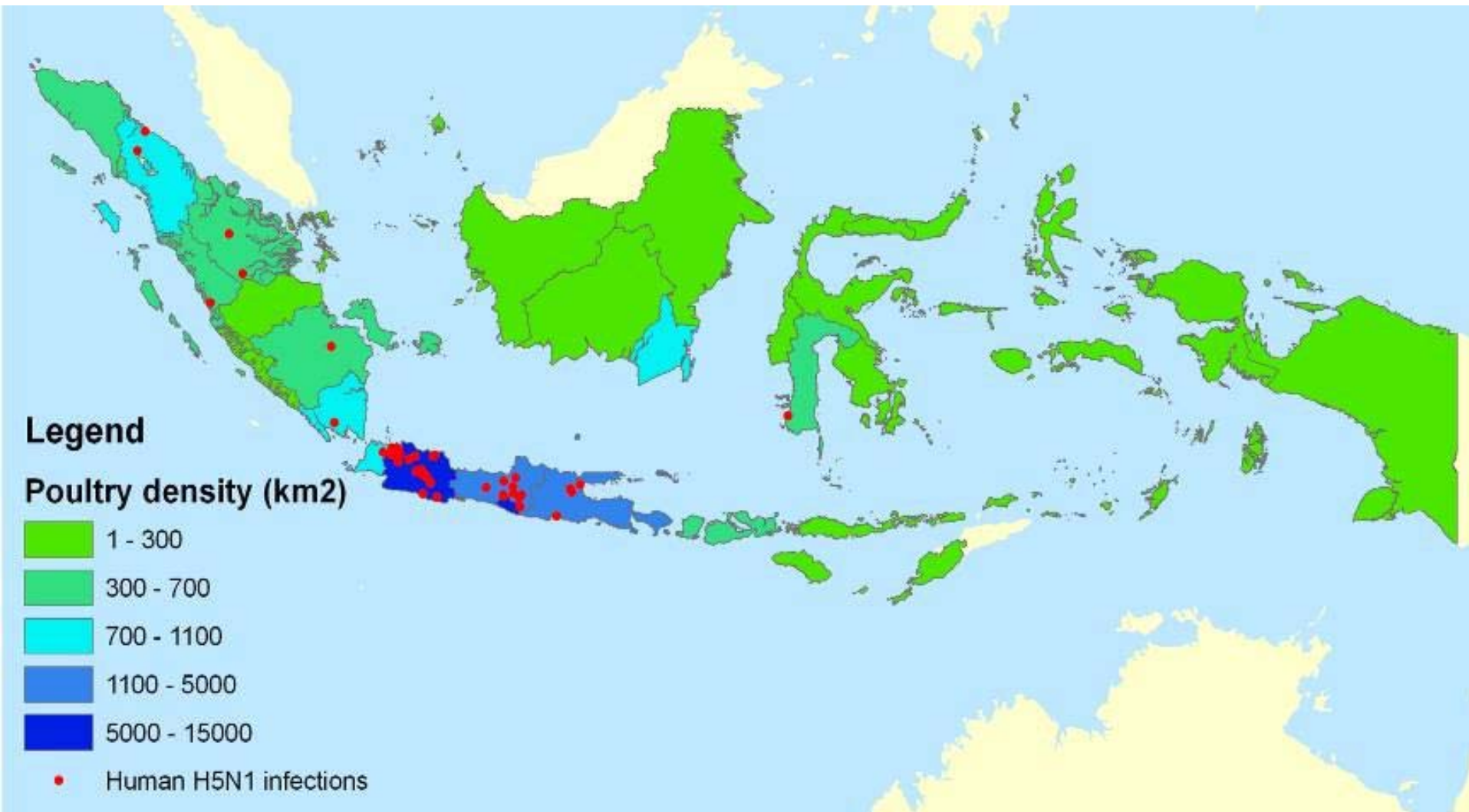
Source: Directorate General of Livestock Production, 2007

# Region Affected by Avian Influenza



Source: Directorate General of Livestock Production, 2007

# Poultry Density and Human Cases



Source: Directorate General of Livestock Production, 2007

# Bio-security: Depopulation, Vaccination



# National Strategic Plan for the Progressive Control of HPAI in Animals 2006-2008

1. Campaign Management Unit
2. Enhancement of HPAI Control (including vaccination)
3. Surveillance and epidemiology
4. Diagnostic laboratory services
5. Animal quarantine services
6. Regulation
7. Communication
8. Research and development
9. Poultry Industry Restructuring



# Participatory Disease Surveillance (PDS) (Regions interviewed by CMU, as of 2007)



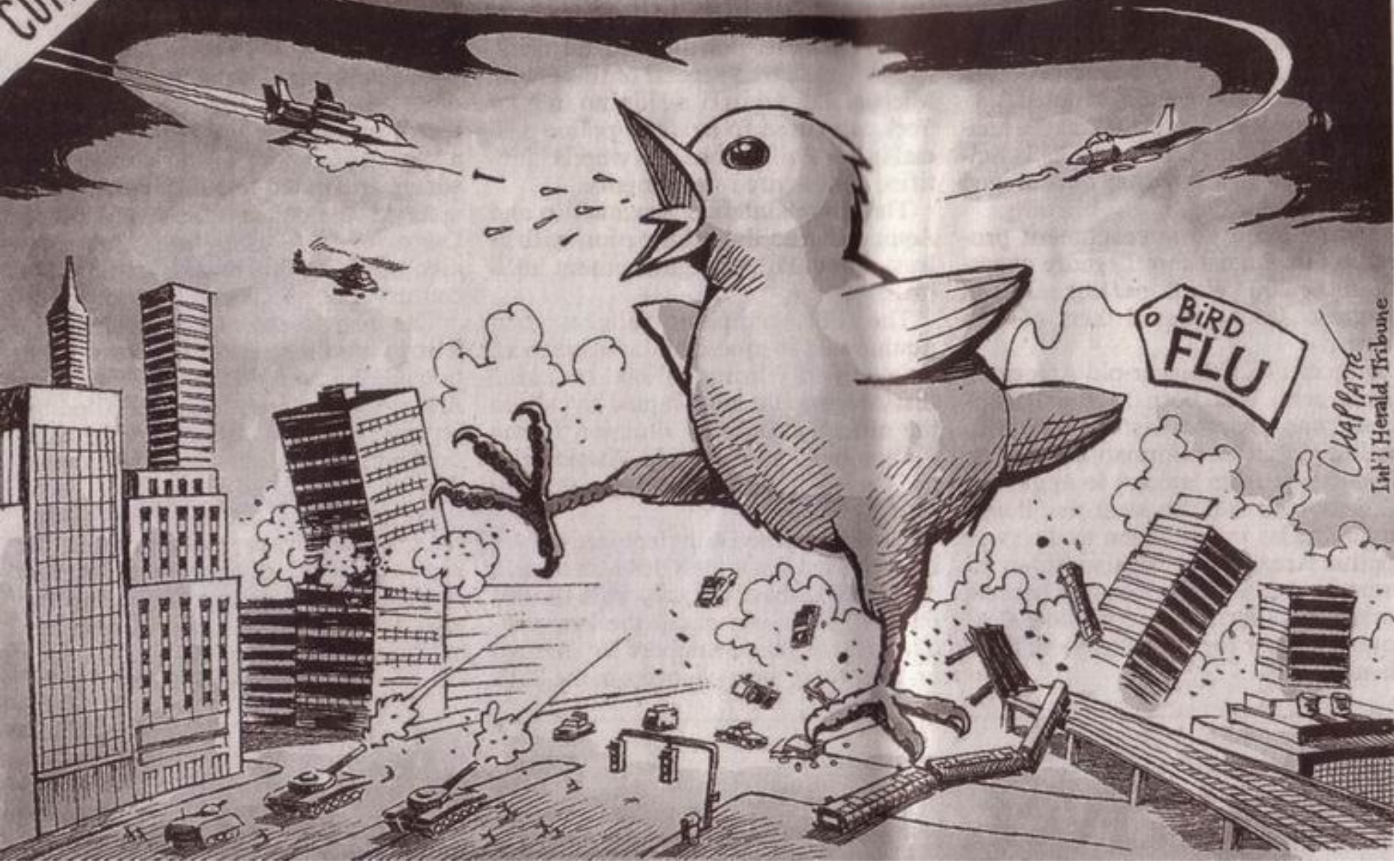
# Participatory Disease Surveillance (PDS)

Regions detected by CMU, as of 2007



COMING SOON

# BIRDZILLA



Chaplate  
In: Herald Tribune

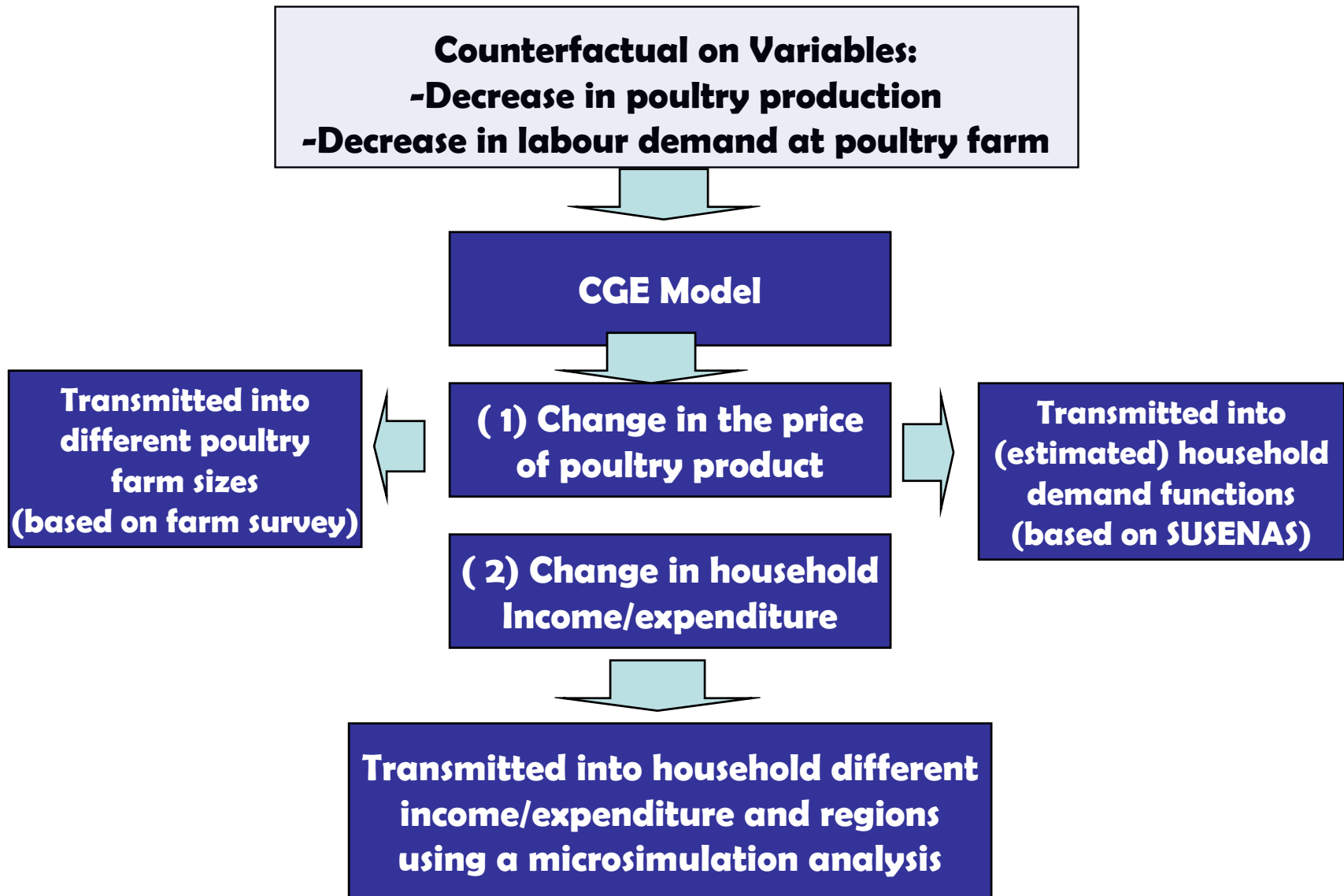
# Economic Impacts of HPAI: Previous Studies

- Outbreak 2003: Total death of 11.3 million of chicken
- But, small nationally: 0.67% on broiler, 2.5% on layer, and 0.1% on village chicken and/or duck.
- Decline of US\$ 4.25 million of export value from poultry sector (due to a 97 percent decline in export volume).
- Export of DOC was stopped in 2004 and 2005
- Reduce consumption of chicken meat, 2 months after exposed by media, particularly among the low to middle income group.
- Demand on high quality chicken meat increased significantly after the outbreak, as the awareness of mid and high income consumers also increases during the outbreak period.

# Economic Impacts of HPAI (continued)

- Does not have significant impact on the national GDP and agricultural GDP, which grows at 3.4 and 5.3%
- Has some effects on the GDP growth rate of the livestock sub-sector or decreasing rate.
- Has negative impact on the profitability of small poultry farmers. Profits were Rp 1,665 per head (individual) and Rp 817 per head (partnership). After the AI outbreak, economic loss of Rp 1,075 and Rp 730 per head respectively.
- AI impacts have even worse as the industries have experienced a decline in production, while the taste and consumer demand for poultry products also decline.

# Impact of AI on Farm Profitability and Household Welfare (A Micro-simulation Analysis)



# Data requirements, at least:

- Recent Input Output Table (expect 2005)
- Recent Social Accounting Matrix (expect 2005)
- National Social Economic Survey (SUSENAS)
- Farm survey to estimate cost structure (sampling)

Thank you very much



Expect for revenge?