

# LIVESTOCK SECTOR BRIEF

## VIETNAM

Food and Agriculture Organization  
of the United Nations • **FAO**

Livestock Information, Sector Analysis  
and Policy Branch • **AGAL**



July 2005

## TABLE OF CONTENTS

Preface .....	ii
<b>1. General Information.....</b>	<b>1</b>
Human population, land and socio-economics .....	1
Human population trends .....	2
Trends in agricultural land .....	2
<b>2. Livestock Resources.....</b>	<b>2</b>
Livestock populations .....	2
Contribution of different species to total livestock units .....	3
Selected indicators of livestock resources .....	3
Agro-ecological zones and densities of livestock species (2000) .....	4
<b>3. Livestock Production .....</b>	<b>6</b>
Trends in annual production of meat, milk and eggs .....	6
Composition of total meat production .....	6
Carcass weights and percentage slaughtered by species.....	7
Milk yields and proportion of dairy animals.....	7
Egg yields and proportion of laying birds.....	7
Estimated feed used for livestock production.....	8
Trends in annual per capita production of meat, milk and eggs.....	8
<b>4. Consumption of Meat, Milk and Eggs .....</b>	<b>10</b>
Trends in annual consumption of meat, milk and eggs .....	10
Trends in annual per capita consumption of meat, milk and eggs.....	10
Production versus consumption for meat, milk and eggs (2002) .....	11
<b>5. Trade in Livestock and Livestock Products.....</b>	<b>12</b>
Trade in agricultural and livestock products.....	12
Export/import 'dependency' for livestock products .....	12
Trade in live animals .....	14
Trade in livestock products .....	15
<b>6. Livestock Health .....</b>	<b>16</b>
Total number of cases/outbreaks of selected diseases reported in all susceptible species .....	16
<b>7. References and Further Reading.....</b>	<b>18</b>

Data contained in this Livestock Sector Brief are taken from official sources. Official sources are no guarantee for data accuracy and the figures reported in this brief should be taken as indicative and not be used for official purposes. The Food and Agriculture Organization of the United Nations assumes no responsibility for its accuracy, completeness and coherence.

## PREFACE

The Livestock Sector Briefs (LSB) are intended to provide a quick overview and an approximate outlook for the livestock sector of the respective country using figures and quantitative indicators originating from official sources. The LSBs are complemented by a synthesis of policy documents available in the public domain.

The majority of the data in the LSBs refer to the country as a whole and come from FAOSTAT, which is available on the internet (<http://faostat.external.fao.org/default.jsp>). FAO, as part of its mandate, compiles information and data on various aspects of food and agriculture from all countries. The data are analysed and interpreted to support FAO's programmes and activities and, in accordance with the basic functions of the Organization, they are disseminated to the public through publications, CD-ROM, diskettes and the Internet. The country level data are officially submitted to the Division for Statistics of FAO (ESS) by various ministries of the respective countries. For details of data collection procedures see <http://faostat.fao.org/abcdq/about.htm>. The figures submitted often display inconsistencies across ministries, for example reported meat production does not always match reported meat consumption when taking into account imports and exports. FAO tries to reconcile the figures, to the effect that FAO statistics may differ from those originally submitted.

The LSBs utilise FAOSTAT data from the following domains: human population, land use, agriculture production, food supply and agricultural and food trade. These are used to derive a standard set of indicators that can quickly be compared across the countries.

Data on the economy are from the World Bank's World Development Indicators CD-Rom, which is also available online <http://www.worldbank.org/data/> and is updated every year. Animal health data are taken from the Office International des Epizooties (OIE) HANDISTATUS II <http://www.oie.int/hs2/>. These are official data supplied by member nations.

For any feedback and comment, please contact:

Pius Chilonda - Livestock Information Analyst  
Livestock Information, Sector Analysis and Policy Branch  
Animal Production and Health Division  
Food and Agricultural Organisation  
Viale delle Terme di Caracalla  
00100 Rome, Italy

Tel: 00 39 06 57056691  
Fax: 00 39 06 57055749  
Email: [Pius.Chilonda@fao.org](mailto:Pius.Chilonda@fao.org)

## 1. GENERAL INFORMATION

### Human population, land and socio-economics

Human population	80.3 million
Population density on total land	246.6 persons/sqkm
Annual growth rate (1990-2000)	1.5 %
Population in agriculture	53.4 million
As proportion of total population	66.5 %
Total land area	325,490 sqkm
Agricultural land	95,370 sqkm
As proportion of total land	29.3 %
Land under pasture	6,420 sqkm
As proportion of total land	6.7 %
Irrigated area	30,000 ha
Agricultural land per 100 people	11.9 ha
Agricultural land per 100 people in agriculture	17.9 ha
Agricultural population density on agricultural land	559.9 persons/sqkm
GDP <sup>1</sup>	33,202 million US\$
GDP annual growth rate (1990-2000)	7.5 %
GDP per capita/year <sup>1</sup>	413 US\$
GDP per capita annual growth rate (1990-2000)	5.9 %
Agriculture, GDP	7,500 million US\$
As proportion of total GDP	22.6 %
Livestock, GDP <sup>1</sup>	1,396 million US\$
As proportion of agricultural GDP	18.6 %
Human development Rank	112 Ranking <sup>2</sup>
Human development index	0.691
Poverty incidence <sup>3</sup>	
Total	50.9 %
Urban	25.9 %
Rural	57.2 %

<sup>1</sup>Constant 1995 US\$ <sup>2</sup> The HDI rank is determined using HDI values to the fifth decimal point – from 177 countries, as compiled by the UNDP; <sup>3</sup> National poverty line; na: not available

Source: World Bank (2002); UNDP (2004); FAO (2005a)

- Vietnam is a poor rural economy with livestock accounting around 5.9 percent of GDP. The country has been in transition from a centrally-planned to a market-based economy since 1986. The transition has involved: (i) increased decentralisation of powers to state-owned enterprises; (ii) easier entry conditions for domestic private enterprises; (iii) the strengthening of land tenure rights in rural areas; (iv) elimination of all barriers to internal trade; (v) an increasingly deregulated, and less protectionist, trade regime for imports; (vi) entry of foreign-invested enterprises in the country.

## Human population trends

Values expressed in 1,000

Population segment	Year				Annual growth rate (%)	
	1980	1990	2000	2002	1980-1990	1990-2000
Total	53,005	66,074	78,137	80,278	2.2	1.7
Rural	42,705	52,691	59,131	60,003	2.1	1.2
Urban	10,299	13,383	19,006	20,276	2.7	3.6

Source: FAO (2005a)

## Trends in agricultural<sup>1</sup> land

Values expressed in sqkm

Land type	Year				Annual growth rate (%)	
	1980	1990	2000	2002	1980-1990	1990-2000
Total	68,580	67,260	87,800	95,370	-0.2	2.7
Cropped <sup>2</sup>	65,700	63,840	81,380	88,950	-0.3	2.5
Pastures	2,880	3,420	6,420	6,420	1.7	6.5

<sup>1</sup>The sum of area under arable land, permanent crops and permanent pastures

<sup>2</sup>Arable and permanent crops

Source: FAO (2005a)

- Vietnam agriculture has shifted from collectivized production to a system based on individual land use rights that promotes households' initiative. The 1998 Land Law conferred five main rights to farmers: land-use right change, transfer, lease, heritage and collateral rights.

## 2. LIVESTOCK RESOURCES

### Livestock populations

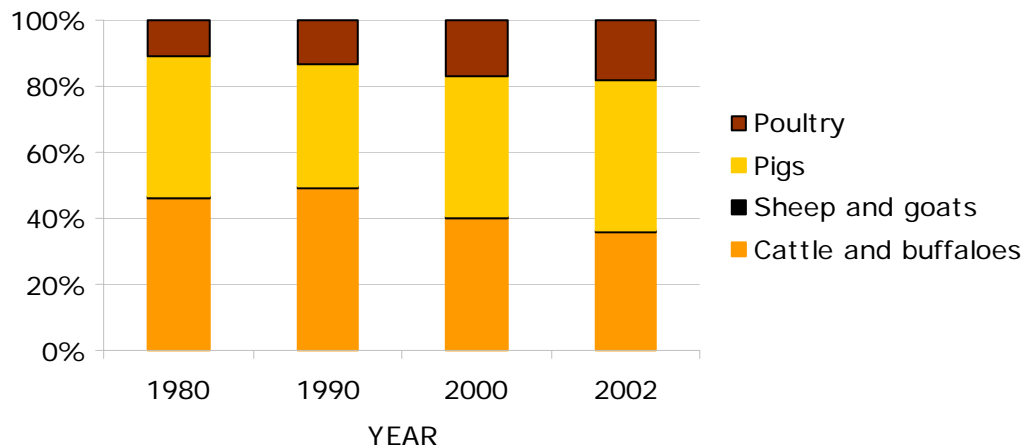
Values expressed in 1,000

Species	Year				Annual growth rate (%)	
	1980	1990	2000	2002	1980-1990	1990-2000
Cattle and buffaloes	3,977	5,971	7,025	6,877	4.1	1.6
Sheep and goats	173	372	544	622	7.9	3.9
Pigs	10,001	12,260	20,194	23,170	2.1	5.1
Poultry	64,500	107,400	196,100	233,000	5.2	6.2
Total LUs	5,863	8,200	11,775	12,796	3.4	3.7

**LU:** Livestock unit; **conversion factors:** cattle (0.65), buffalo (0.70), sheep and goats (0.10), pigs (0.25) and poultry (0.01)

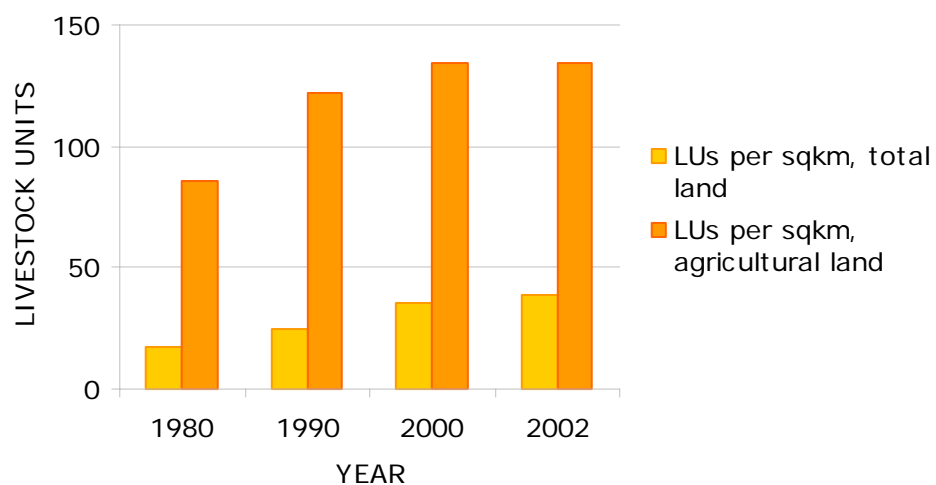
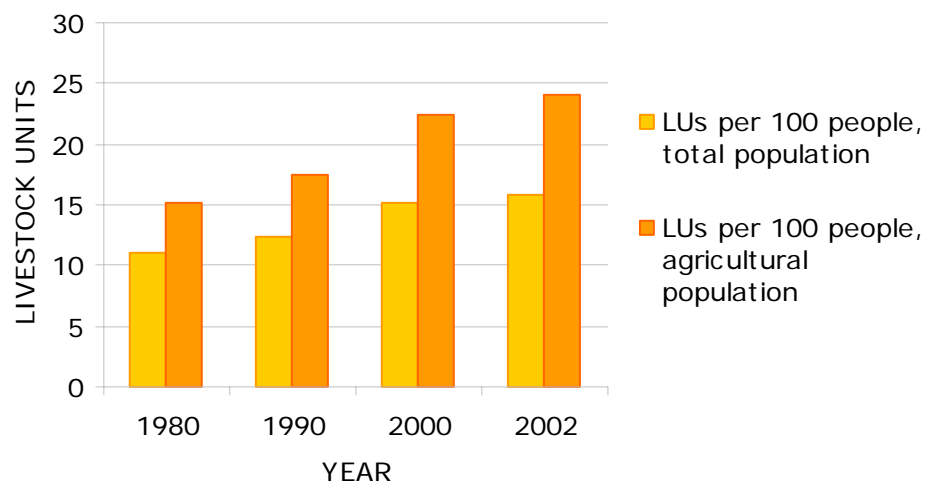
Source: FAO (2005a)

### Contribution of different species to total livestock units



Source: FAO (2005a)

### Selected indicators of livestock resources



Source: FAO (2005a)

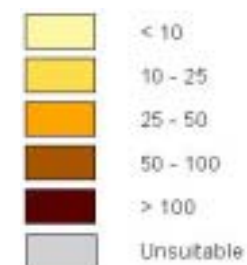
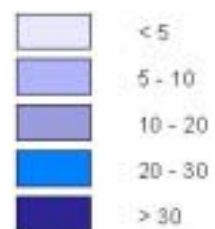
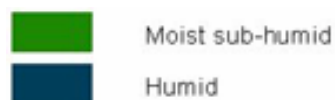
## Agro-ecological zones and densities of livestock species (2000)

Density calculated on total land area<sup>1</sup>

Agro-ecological zones

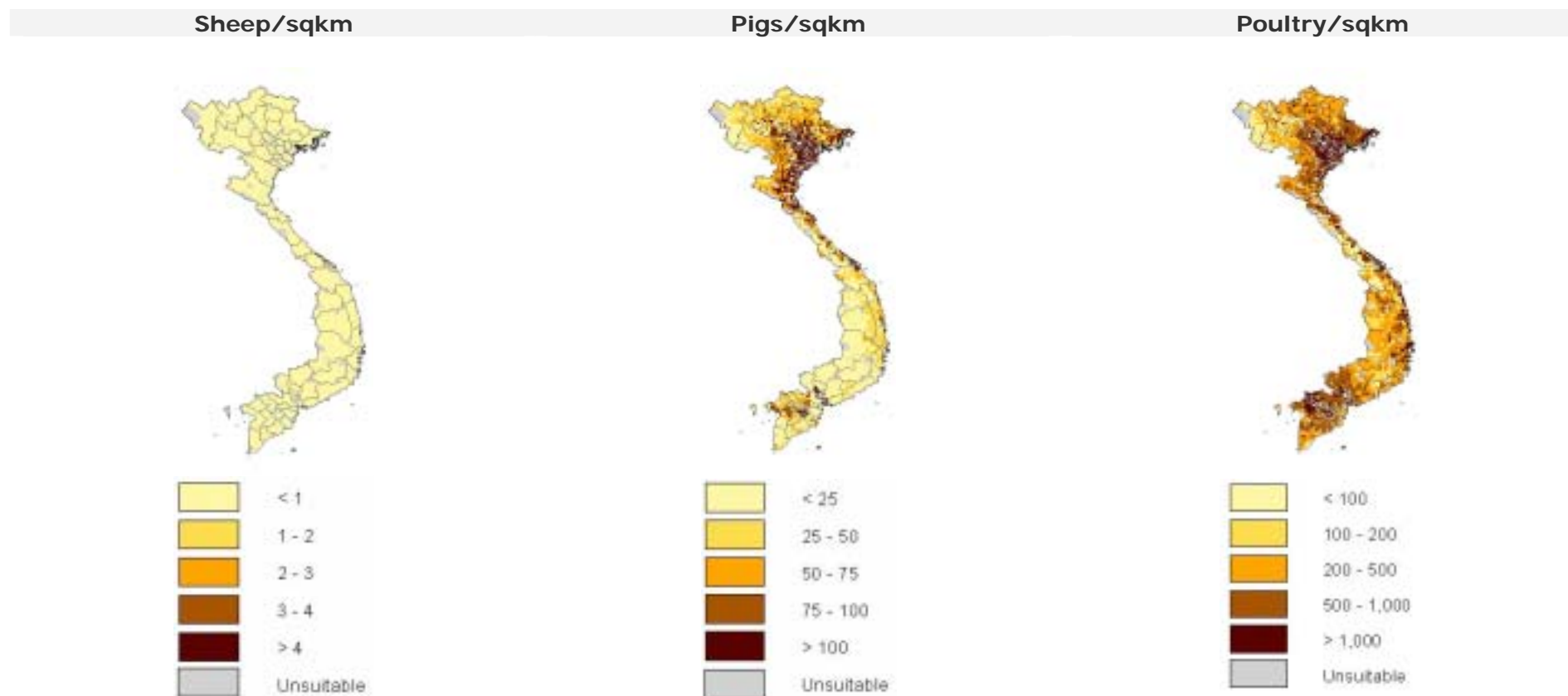
People/sqkm

Cattle/sqkm



<sup>1</sup>Densities for livestock populations and production is based on total land suitable for livestock production

Source: FAO (2001); LandScan (2002); FAO (2005b)



Source: FAO (2005b)

- Vietnam's traditional farming base mostly consists of mixed-irrigated and mixed/rainfed livestock production systems. Livestock production is almost all in the hands of small farmers, which own around 40 percent of the cattle stock, 75 percent of the poultry population and 80 percent of pigs. Semi-intensive to intensive swine and dairying farms are growing fast.



### 3. LIVESTOCK PRODUCTION

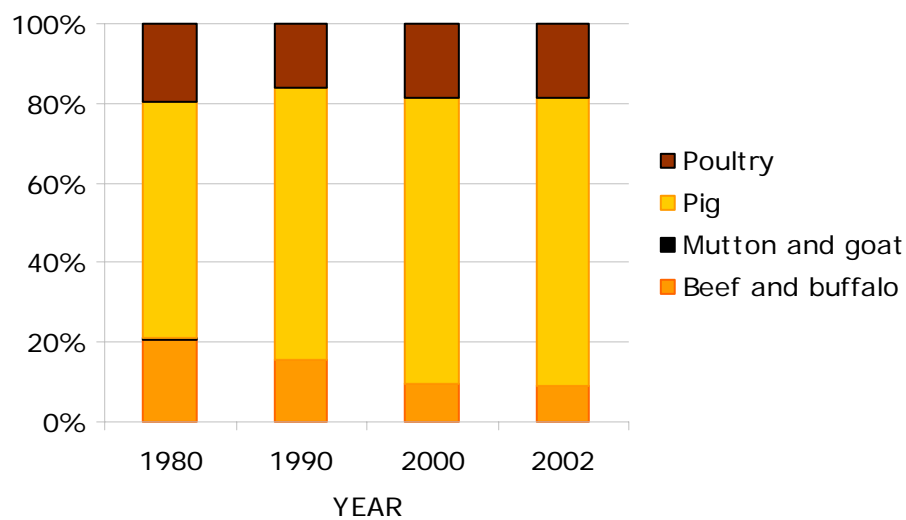
#### Trends in annual production of meat, milk and eggs

1,000 metric tonnes

Product	Year				Annual growth rate (%)	
	1980	1990	2000	2002	1980-1990	1990-2000
Meat, total	495	1,079	1,982	2,298	8.1	6.3
Beef and buffalo	101	164	185	201	5.0	1.2
Mutton and goat	1	3	5	5	7.9	5.6
Pig	292	729	1,409	1,654	9.6	6.8
Poultry	96	170	365	420	5.9	8.0
Milk, total	41	60	85	110	3.8	3.5
Eggs, total	55	97	185	227	5.8	6.7

Source: FAO (2005a)

#### Composition of total meat production



Source: FAO (2005a)

### Carcass weights and percentage slaughtered by species

Species/year	Carcass weight (kg/animal)				Percentage slaughtered/year			
	1980	1990	2000	2002	1980	1990	2000	2002
Cattle	122.9	160.3	170.6	176.6	18.0	15.0	13.1	14.3
Buffaloes	215.0	215.0	215.0	215.0	13.0	14.5	14.8	16.3
Sheep								
Goat	15.0	15.0	15.0	15.0	50.2	50.0	58.8	58.0
Pigs	39.5	61.7	81.7	81.0	74.0	96.2	85.5	88.1
Poultry	1.0	0.9	1.4	1.4	142.6	177.8	129.6	129.3

Blanks represent no data

Source: FAO (2005a)

### Milk yields and proportion of dairy animals

Species/year	Milk yield (kg/year)				Percentage milked			
	1980	1990	2000	2002	1980	1990	2000	2002
Cattle	800	800	800	1,405	2.0	1.4	1.6	1.4
Buffaloes	1,000	1,000	1,000	1,000	0.6	0.8	1.0	1.1

Source: FAO (2005a)

### Egg yields and proportion of laying birds

Species/year	Eggs (kg/year)				Percentage laying			
	1980	1990	2000	2002	1980	1990	2000	2002
Chicken	4.2	4.4	5.2	5.0	28.8	29.3	26.2	27.9

Source: FAO (2005a)

## Estimated feed used for livestock production

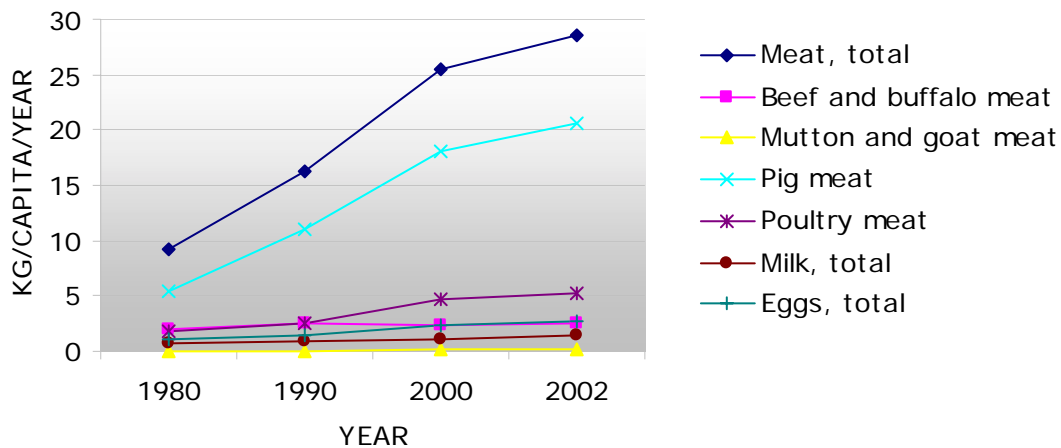
1,000 metric tonnes

Product	Year				Annual growth rate (%)	
	1980	1990	2000	2002	1980-1990	1990-2000
Maize	35	140	1,525	2,000	14.9	27.0
Barley						
Sorghum						
Millet						
Wheat						
Brans	949	1,420	2,535	2,757	4.1	6.0
Rice Paddy, equivalent	158	273	497	580	5.6	6.2
Roots and Tuber, dry equivalent	934	623	684	1,168	-4.0	0.9
Pulses						
Oil crops	35	140	1,525	2,000	14.9	27.0

Blanks represent no data

Source: FAO (2005a)

## Trends in annual per capita production of meat, milk and eggs



Source: FAO (2005a)

- Domestic meat demand is all met by local supply as the last two decades recorded positive meat and milk production both in aggregate and per-capita terms. The above tables and figures display growth rates in meat output, giving an indication to which increased number of animals and productivity (carcass weight, offtake rate) contributed to output growth. Growth in cattle and buffaloes has been modest, both in terms of number of animals and carcass weight/animal. Both increased number of animals and productivity made up a significant proportion of growth output for pork and poultry.

- The Government is prioritising swine and dairy cow sectors with the objective of boosting pig meat exports as well as reducing reliance on imported milk products. For this reason, the poultry sector has not developed many large commercial operations or processing plants. The swine/pork sector receives the most attention (and funds) in MARD's plans.
  
- Rural credit in Vietnam is organised around three financial institutions: the Vietnam Bank for Agriculture and Rural Development (VBARD), the People's Credit Funds (PCF), and the Vietnam Bank for the Poor (VBP), established in 1989, 1993 and 1995 respectively. The government supports interest rate differentials to enable banks to charge rates below the commercial ones. The subsidised rate is 0.81 percent per month for agribusiness enterprises and 0.6 percent per month for low income agricultural producers.

## 4. CONSUMPTION OF MEAT, MILK AND EGGS

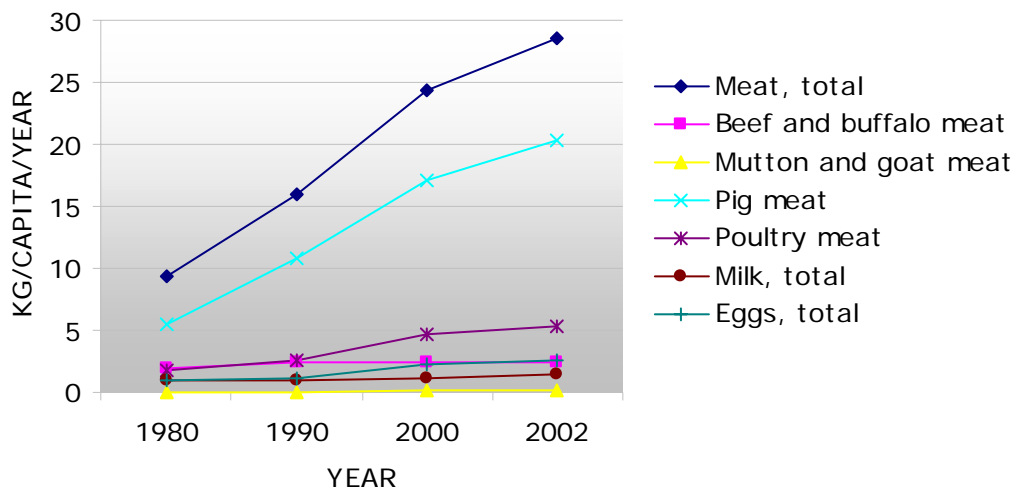
### Trends in annual consumption of meat, milk and eggs

1,000 metric tonnes

Product	Year				Annual growth rate (%)	
	1980	1990	2000	2002	1980-1990	1990-2000
Meat, total	496	1,060	1,908	2,294	7.9	6.0
Beef and buffalo	103	164	185	201	4.8	1.2
Sheep and goat	1	3	5	6	7.9	5.6
Pig	292	712	1,335	1,639	9.3	6.5
Poultry	96	170	365	430	5.9	8.0
Milk, total	45	58	88	111	2.6	4.1
Eggs, total	48	81	169	208	5.4	7.6

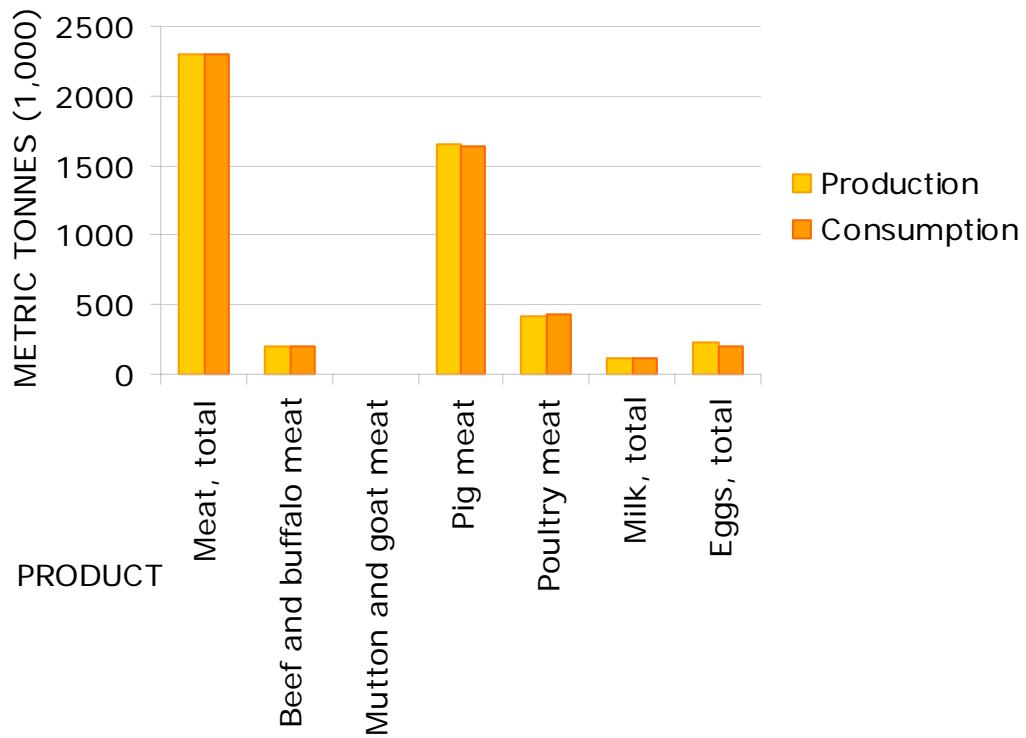
Source: FAO (2005a)

### Trends in annual per capita consumption of meat, milk and eggs



Source: FAO (2005a)

## Production versus consumption for meat, milk and eggs (2002)



Source: FAO (2005a)

## 5. TRADE IN LIVESTOCK AND LIVESTOCK PRODUCTS

### Trade in agricultural and livestock<sup>1</sup> products

Values in million US\$

Product	Exports				Imports			
	1980	1990	2000	2002	1980	1990	2000	2002
Total		2,332	17,155	19,474		2,930	17,923	20,879
Agricultural	99	737	2,298	2,116	327	237	1,422	1,378
% agricultural		31.6	13.4	10.9		8.1	7.9	6.6
Livestock	0	46	129	31	11	8	145	124
% livestock		2.0	0.8	0.2		0.3	0.8	0.6

Blanks represent no data

<sup>1</sup>Total trade in goods and services expressed in current US\$. Source: World Bank (2002)  
Agricultural trade refers to all agricultural products, while livestock trade refers to trade in livestock products and live animals. Source: FAO (2005b)

### Export/import 'dependency' for livestock products

Product	Exports as percentage of production				Imports as percentage of consumption			
	1980	1990	2000	2002	1980	1990	2000	2002
Meat, total	0.08	1.56	3.75	0.63	0.31	0.01	0.01	0.45
Beef and buffalo	0.02	0.02	0.00	0.00	1.44	0.08	0.03	0.01
Sheep and goat	0.00	0.00	0.00	0.00	0.00	0.00	0.52	1.60
Pig	0.12	2.22	5.27	0.88	0.00	0.00	0.00	0.00
Poultry	0.00	0.02	0.00	0.00	0.00	0.00	0.01	2.38
Milk, equivalent	0.00	1.01	3.52	5.28	92.40	58.38	637.80	464.15
Eggs, total	0.00	4.17	1.35	1.13	0.00	0.00	0.07	0.02

Source: FAO (2005a)

Product	Net exports as percentage of production				Net imports as percentage of consumption			
	1980	1990	2000	2002	1980	1990	2000	2002
Meat, total	0.00	1.55	3.74	0.84	0.23	0.00	0.00	0.00
Beef and buffalo	0.00	0.00	0.00	0.00	1.42	0.06	0.03	0.00
Sheep and goat	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pig	0.12	2.22	5.27	4.96	0.00	0.00	0.00	0.00
Poultry	0.00	0.02	0.00	0.00	0.00	0.00	0.01	2.38
Milk, equivalent	0.00	0.00	0.00	0.00	92.40	57.33	634.40	458.91
Eggs, total	0.00	4.17	1.29	4.55	0.00	0.00	0.00	0.00

Source: FAO (2005a)

- Vietnam is member of the ASEAN Free Trade Area and is an observer Government at the World Trade Organization (WTO). The WTO Working Party negotiating terms for Vietnam's membership has met on several occasions since 1998. These

negotiations are making slow but steady progress, reflecting the pace at which Vietnam is able to make the necessary policy and administrative changes to its trade regime. Vietnam is expected to join WTO in 2005.

- Vietnam's "amber-box" measures (which are to be reduced) support rice, sugar, pork, cotton, cattle and poultry through the Price Stabilization Fund. Price stabilization surcharges of about 5-10% ad valorem are levied on imports of petroleum, iron and steel, and fertilizers. Price stabilization surcharges are only used when there exists significant price differentiation between domestic and international prices. The surcharges must in no case exceed 70 per cent of the price differentiation margin. Agribusiness enterprises have obtained favourable loans from this fund to purchase some agricultural products. Total AMS of Vietnam for the period 1996-1998 have been estimated at around 1,35 Billion US\$.
- Vietnam's tariff system on exports and imports is flexible and aims at supporting domestic production, generating Government revenues and promoting exports simultaneously. However, the system suffers from a lack of transparency: there is no publishing tariff schedule and it is often difficult to determine when and how tariffs have changed.



## Trade in live animals

Species	1980			1990			2000			2002		
	Export	Import	Net trade	Export	Import	Net trade	Export	Import	Net trade	Export	Import	Net trade
<b>Quantities (count)</b>												
Cattle and buffaloes	0		0	0		0	0		0	0		0
Sheep and goats												
Pigs	0	0	0	0	0	0	0	0	0	0	388	-388
Poultry (1,000)		0	0		0	0		800	-800		1,530	-1,530
<b>Value (1,000 US\$)</b>												
Cattle and buffaloes	0		0	0		0	0		0	0		0
Sheep and goats												
Pigs	0	0	0	0	0	0	0	0	0	0	274	-274
Poultry (1,000)		0	0		0	0		1,500	-1,500		3,148	-3,148
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,500</b>	<b>-1,500</b>	<b>0</b>	<b>3,422</b>	<b>-3,422</b>

**Net trade:** Exports less Imports

Blanks represent no data

Source: FAO (2005a)

## Trade in livestock products

Product	1980			1990			2000			2002		
	Export	Import	Net trade	Export	Import	Net trade	Export	Import	Net trade	Export	Import	Net trade
<b>Quantities (metric tonnes)</b>												
Meat, total	417	1,539	-1,122	16,836	135	16,701	74,271	138	74,133	14,511	10,362	4,149
Beef and buffalo	25	1,482	-1,457	39	130	-91	1	48	-47	1	10	-9
Mutton and goat		0	0		0	0		25	-25		88	-88
Pig	342	0	342	16,156	0	16,156	74,210	13	74,197	14,496	22	14,474
Poultry	0	0	0	40	0	40	0	50	-50	0	10,241	-10,241
Other	51	57	-108	602	5	-607	60	2	-62	13	0	-13
Milk, equivalent	0	41,700	-41,700	608	34,104	-33,496	2,977	558,501	-555,524	5,784	513,139	-507,354
Eggs, total	0	0	0	4,032	0	4,032	2,500	110	2,390	2,552	42	2,510
Hides and skins	0	0	0	16,400	0	16,400	10,010	310	9,700	8,697	618	8,079
<b>Value (1,000 US\$)</b>												
Meat, total	380	906	-526	28,542	230	28,312	119,525	390	119,135	18,733	9,123	9,610
Beef and buffalo	27	906	-879	30	230	-200	10	170	-160	10	49	-39
Mutton and goat		0	0		0	0		170	-170		336	-336
Pig	303	0	303	27,832	0	27,832	119,275	25	119,250	18,667	81	18,586
Poultry	0	0	0	30	0	30	0	25	-25	0	8,657	-8,657
Other	50	0	-50	650	0	-650	240	0	-240	56	0	-56
Milk, equivalent	0	10,135	-10,135	102	7,990	-7,888	1,497	142,265	-140,768	1,315	108,780	-107,465
Eggs, total	0	0	0	3,889	0	3,889	2,600	120	2,480	3,836	198	3,638
Hides and skins	0	0	0	13,200	0	13,200	5,440	410	5,030	6,691	2,197	4,494
<b>Total</b>	<b>380</b>	<b>11,041</b>	<b>-10,661</b>	<b>45,733</b>	<b>8,220</b>	<b>37,513</b>	<b>129,062</b>	<b>143,185</b>	<b>-14,123</b>	<b>30,575</b>	<b>120,298</b>	<b>-89,723</b>

**Net trade:** Exports less Imports

Blanks represent no data

Source: FAO (2005a)

## 6. LIVESTOCK HEALTH

### Total number of cases/outbreaks of selected diseases reported in all susceptible species

Disease	1997	1998	1999	2000	2001	2002	2003
African swine fever	000	000	000	000	000	000	000
Avian Influenza <sup>1</sup>	000	000	000	000	000	000	7,000/3
Bluetongue	000	000	000	000	000	000	000
BSE <sup>2</sup>	000	000	000	000	000	000	...
CBPP <sup>3</sup>	000	000	000	000	000	000	000
Classical swine fever	.../...	.../...	40,326/...	18,106/...	17,805/...	19,891/...	16,662/58
Foot and mouth disease	3,134/...	2,085/14	9,876/...	9,616/...	648/...	1,665/21	364/13
Lumpy skin disease	000	000	000	000	000	000	000
Newcastle disease	.../...	.../...	47,842/...	.../134	68,968/...	88,556/...	68,607/47
Peste des petits ruminants	000	000	000	000	000	000	000
Rift Valley fever	000	000	000	000	000	000	000
Rinderpest	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)
Sheep and goat pox	000	000	000	000	000	000	000
Swine vesicular disease	000	000	000	000	000	000	000
Vesicular stomatitis	000	000	000	000	000	000	000

<sup>1</sup> Highly pathogenic avian influenza

<sup>2</sup> Bovine spongiform encephalopathy

<sup>3</sup> Contagious bovine pleuropneumonia

no/ no number of cases/outbreaks, ... no information available, - disease not reported, 000 disease never reported; (month/year) date of the last reported occurrence of the disease in previous years

Source: OIE (2004)

- The system of veterinary services and sanitary and phytosanitary protection includes the Veterinary Department at the central level, and veterinary sub-departments in 61 cities and provinces all over the country. Detailed data on sanitary standards of the Vietnamese livestock sector are difficult to obtain and this situation makes it challenging to plan any national intervention aimed at preventing and eliminating animal diseases. Scattered data suggest that veterinary services are in general weak. The Government sees the need to strengthen the veterinary system, and has already reviewed its sanitary legislation and regulations so as that they may conform to provisions of international agreements.

## 7. REFERENCES AND FURTHER READING

**Communist Party of Viet Nam's Central Committee (2001)** Strategy for Socio-Economic Development 2001-2010, Hanoi.

**Deininger, K. and S. Jin (2003)** Land sales and rental markets in transition: evidence from rural Vietnam, World Bank Policy Research Working Paper 3013, Washington D.C.

**Dollar, D. (2002)** Reform, Growth, and Poverty in Vietnam, mimeo, World Bank, Washington D.C.

**FAO (2001)** Agro-ecological Distributions for Africa, Asia and North and Central America, Consultants' Report. Food and Agriculture Organisation, Rome.

**FAO (2002)** World agriculture towards 2015/2030. FAO, Rome, Italy.

**FAO (2003)** Identifying Barriers to Entry to Livestock Input and Output Markets in Southeast Asia, Livestock Sector Report: Vietnam, Food and Agriculture Organisation of the United Nations, Rome.

**FAO (2005a)** FAOSTAT data. Food and Agriculture Organisation, Rome.  
<http://faostat.external.fao.org/default.jsp> (accessed July, 2005).

**FAO (2005b)** Global Livestock Production and Health Atlas. Food and Agriculture Organisation, Rome. <http://www.fao.org/ag/aga/glipha/index.jsp> (accessed July, 2005).

**Government of Vietnam (2002)** The Comprehensive Poverty Reduction Growth Strategy, Hanoi.

**LandScan (2002)** Global Population Database. Oak Ridge National Laboratory, Oakridge. <http://www.ornl.gov/gist/>

**Ministry of Agriculture and Rural Development (2000)** Agriculture and Rural Development 5-Year Plan, Hanoi.

**Nguyen Dang Vang and Le Viet Ly (2000)** A Review on Poultry Production in Vietnam, mimeo, The National Institute of Animal Husbandry, Hanoi.

**OIE (2004)** HANDISTATUS II. Office International des Epizooties, Paris.  
<http://www.oie.int/hs2/> (accessed July, 2005).

**PRISE (2002)** Les productions animales au Vietnam. Perspective 2010, PRISE, Hanoi, Vietnam.

**UNDP (2004)**. The Human development Reports, United Nations Development Programme, New York. <http://hdr.undp.org/statistics/>

**World Bank (2002)** The 2002 World Bank development indicators CD-Rom. The World Bank, Washington DC.