



POLICY PAPER

# Improving the Competitiveness of Pig Producers in an Adjusting Vietnam Market

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## **1. INTRODUCTION**

Pig production plays a significant role in generating rural income in Vietnam and is based mainly on about 7 million small-scale household producers of which the majority has few 1-10 pigs. Small household pig producers as dominant suppliers of pork in Vietnam currently account for about 90% of pork supply and about the same share of its pig stock (Tisdell, 2009). The growing demand for pork presents thus opportunities for poor people who rear, process, or trade livestock products to enhance their livelihoods.

The traditional individual household-based livestock production has been criticized for lack of economic efficiency, having high risks of spreading animal diseases, being unhealthy for both animals and humans, and not being able to meet the increased market demand as well as the consumer requirements for food safety. Some policymakers believe that these small household pig producers are inefficient and an obstacle to expanding in Vietnam's pork supply. These policymakers argue that the government should favour larger commercial pig producers on various efficiency grounds and that these producers can fill the shortfall in the domestic supply of pork (Tisdell, 2010a). As a result, Vietnam's policy in recent times has gone forward to support pig production at the industrial commercial scale. Policy tendency as such is detailed in the National Strategy of Livestock Development issued in 2008, Decision 394/BNN-QD dated on 2006 and Circular 42/BNN-TTg in 2006, which placed smallholder pig producer in great challenges.

In this context, this paper argues that the government policies should focus on technological change of both the small- and large-scale pig production. In addition, institutional rearrangement of pig supply chain and support of market facilities will play important role for food safety, rather than blaming all diseases on small-scale pig production.

The next section will review the background information of supply and demand of pork and major constraints of pig supply chain in Vietnam. Section 3 will review current policy perspectives to improve the competitiveness and quality control of the pig sector. Section 4 will focus on assessing the relevance of the existing policies to release constraints for pig supply chain development mentioned above. Basing on those assessments, Section 5 will point out the orientations and policy recommendations for pig sector development in Vietnam.

## **2. BACKGROUND INFORMATION OF PIG SECTOR IN VIETNAM**

### **2.1. Supply**

Livestock is the key element of the agricultural economy and an important activity from which a large majority of rural households derive part of their livelihood. Livestock accounts for 27% of agriculture's contribution to the GDP (about 6% of the total GDP) with pig production the most significant contributor (about 71% of the total livestock production - MARD-MOH, 2010).

Vietnam's pig production has shown a steady upward trend over a decade with the doubled pork production in 2006 compared to which of 1996 (Tisdell, 2009). During the 2001-2006 period, Vietnam's pig population continued to growth strongly at annual growth rate of 5.9%

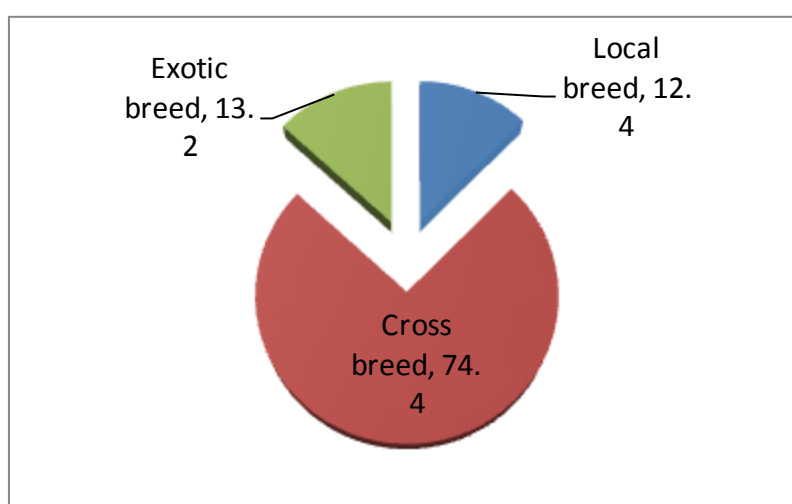
and 7.7% with regards to the number of pigs and sows respectively. The increased pigs stocks has led to an increase of marketed live weight of 10.9% per annum during the same period, which implied the significant role of improvement in pork yield. From 2006 onwards, the pig population as well as pork production record lower growth rate due to the facing with consecutive disease outbreaks.

**Table 1. Growth of Pig Production 2001-2009**

Year		2001	2005	2009	Average increment in 2001-2005 (%/year)	Average increment in 2001-2009 (%/year)
Pigs	Quantity (million)	21.8	27.4	27.6		
	Increment/previous year (%)	7.9	5.0	0.5	5.9	3.0
Sows	Quantity (million)	2.9	3.88	4.17		
	Increment/previous year (%)	5.6	5.7	5.6	7.7	4.4
Marketed live weight productivity	Quantity (million)	1.51	2.29	2.93		
	Increment/previous year (%)	7.4	13.7	4.5	10.9	8.7

Source: GSO (2009)

**Figure 1. Supply of pig breeders (unit: % in total number of sow herd)**

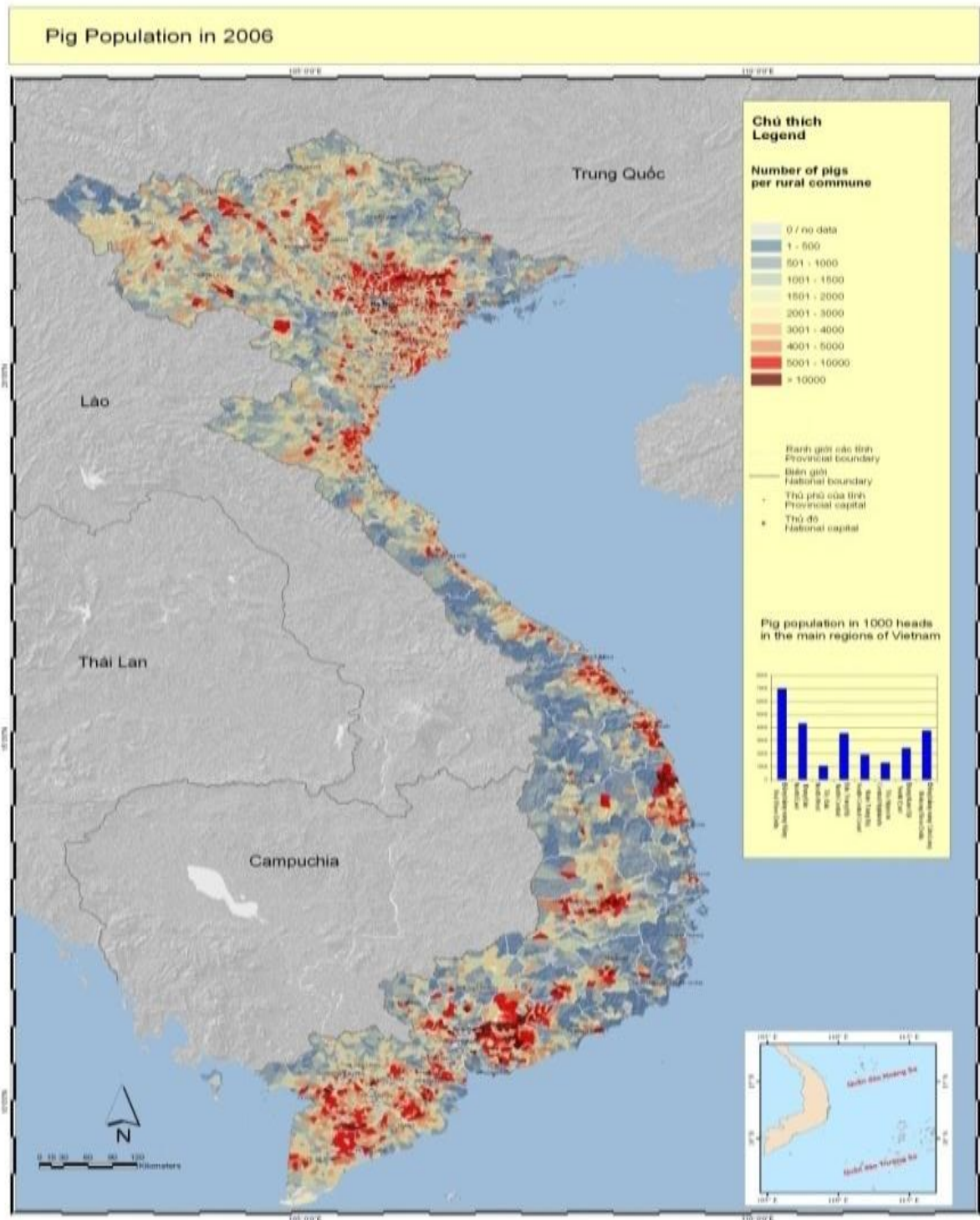


Source: MARD-DLP (2010)

The crossbred between Mong Cai local and exotic boars is most common breed in Vietnam (Figure 1). Major advantages of cross-bred compared are their adaptability to local conditions and better disease resistance. Exotic breeds are mostly used in large commercial farm with industrial farming practices. The important benefits of exotic breed are higher productivity

and higher weight growth rate. However, smallholders are aware of the disadvantages and risks of keeping exotic breeds such as a low adaptability to local husbandry conditions and high input costs (Tjällden, 1999). In 2009, exotic breeds account for only 13.2% in the total number of sow herd.

**Map 1: Distribution of Pig Production in 2006**



Source: CAP (2010)

Although pigs are raised in almost regions throughout the country, pig production in Vietnam is unequally distributed geographically. The Red River Delta and the Mekong River Delta are highlighted by the number of pig producers of large scale and are main suppliers of pork given the high pig population in these areas (Map 1).

## 2.2. Demand

Pork is consumed by 98% of Vietnamese consumers and constitutes the most important meat source in Vietnam. As shown in **Error! Reference source not found.**, consumption of pork per capita in Vietnam has increased by 6.3% annually since 1999, reaching an average of 27kg in 2009. The rapid increase in demand for pig meat was induced by rising income and dietary changes toward more animal protein. Further, urbanization is increasing, which is also recognized as another key factor influencing the consumption of animal products per capita. (IFPRI, 2008). Urban consumers constitute 25% of the total population but they consume almost 50% of total pork produced in the country (PPLPI, 2005).

**Table 2. Monthly per Capita Meat Consumption in Vietnam**

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Beef and Veal							1.4	1.7	1.9	1.9	1.9	2.0
<b>Pork</b>	<b>10.1</b>	<b>11.8</b>	<b>12.4</b>	<b>12.9</b>	<b>14.7</b>	<b>15.2</b>	<b>16.8</b>	<b>19.0</b>	<b>20.5</b>	<b>21.8</b>	<b>21.9</b>	<b>21.4</b>
Broiler	3.1	3.4	3.8	3.9	4.3	4.6	4.3	3.9	3.9	3.8	3.8	3.7
Total	13.2	15.1	16.1	16.7	19.0	19.8	22.5	24.6	26.3	27.5	27.7	27.1

*Source: FAPRI (2010)*

**Table 3. Vietnam Producer's Price Index for Meat from Domestic Livestock (excluding poultry), 1995 Prices**

Year	Index value	% Growth from 1995
1995	100	-
2000	110.5	10.5
2004	141.2	41.2
2005	145.6	45.2
2006	140.6	40.6
2007	161.1	61.1
2008	274.5	174.5

*Source: Tisdell (2010b)*

According to CAP-ILRI (2007) survey urban consumers in Hanoi and Ho Chi Minh city and a sample of rural households, pork meat accounts for around 40% of household's expenditure for meat, followed by fish, poultry and beef. The proportion of pork consumed was fairly invariant across expenditure quintiles in urban areas. In rural areas, the share of household expenditure on pork is slightly higher among higher income than low-income consumers.

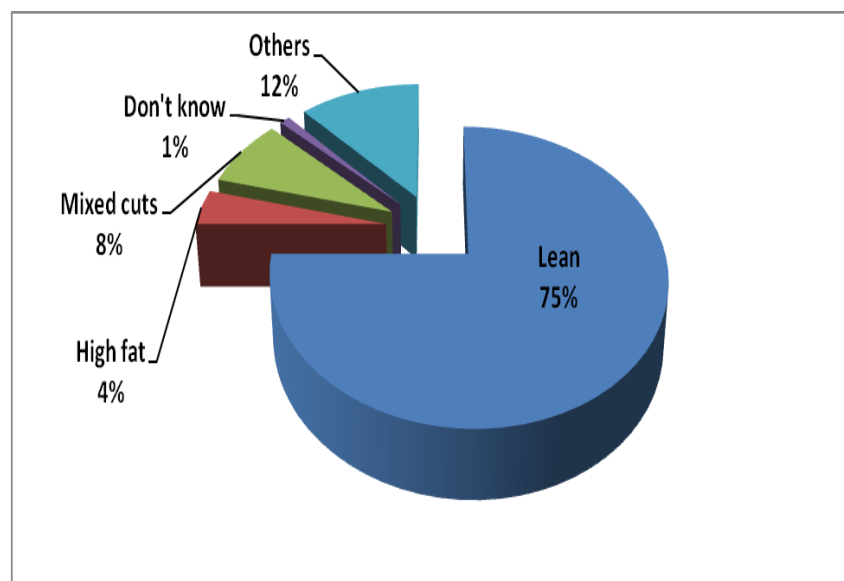
Although pork supplies have more than double since Vietnam began its market reforms, this growing supply has been outpaced by the rising demand for pork in Vietnam, resulting in escalating meat prices in recent years. The **Error! Reference source not found.** shows the value of Vietnam’s producer’s index of domestic animal meat, excluding poultry. Given the rising value of this index, it can be concluded that the demand for meat in Vietnam has risen at a faster rate than its supply (Tisdell, 2010b).

### 2.3. Consumer Preference

Vietnamese consumers consider high lean meat ratio, light color, good smell and consistency and freshness as important attributes when purchasing pork. They strongly like pork having high lean ratio (75% of consumers preferring pork of different fat content) and pork of black indigenous originated pigs that are often perceived to be of better taste and quality. Nevertheless, consumers generally cannot visually distinguish pork between pork of different breeds.

Vietnamese consumers have a strong preference for fresh pork and aversion to chilled, frozen and processed pork (Figure 2).

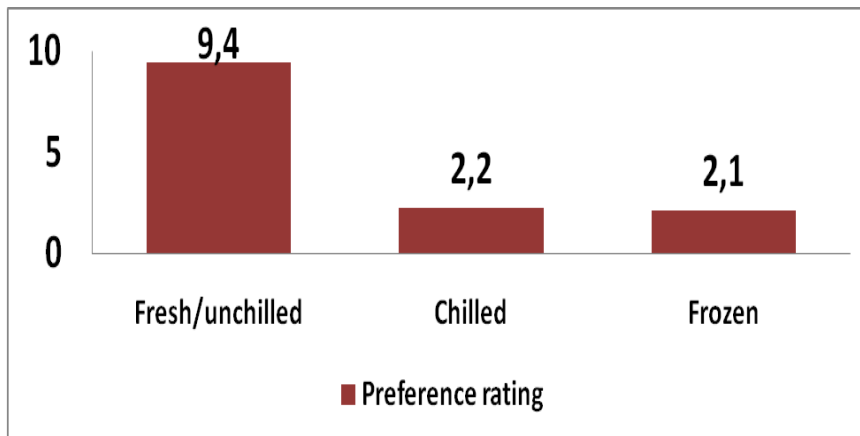
**Figure 2. Consumer Preference for Pork Meat Pattern**



*Source: Lapar (2010)*

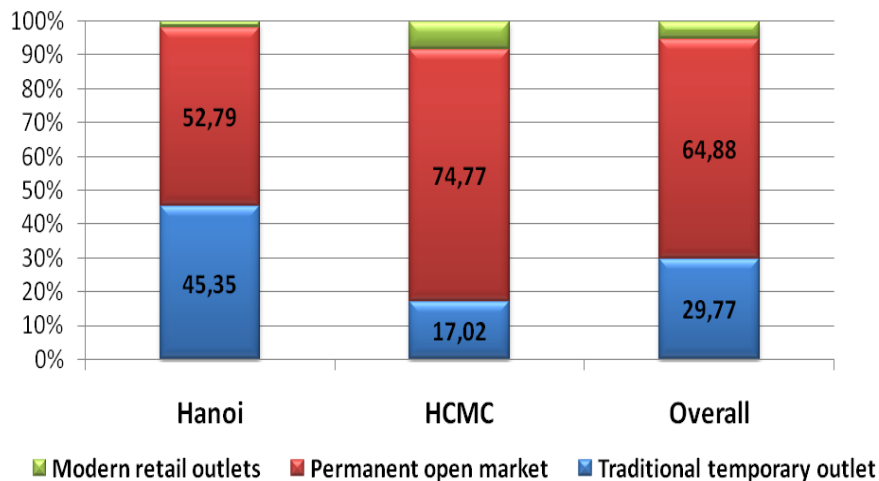
Since freshness is the most important attribute of pork, Vietnamese consumers commonly buy pork for a day and do not store it for long time. As a result, traditional outlets ranging from temporary stalls to permanent open market remain the preferred shopping channel for fresh pork for most consumers in despite of the expansion of modern outlets in recent time. The trend toward purchase of pork meat in supermarket or branded shop appears mostly among young people who live in big cities and who are too busy for food shopping every day (Figure 3 and 4).

**Figure 3. Preference Rating for Pork (10 point as highest score)**



Source: Lapar (2010)

**Figure 4. Preferred Market Outlets for Fresh Pork (%)**

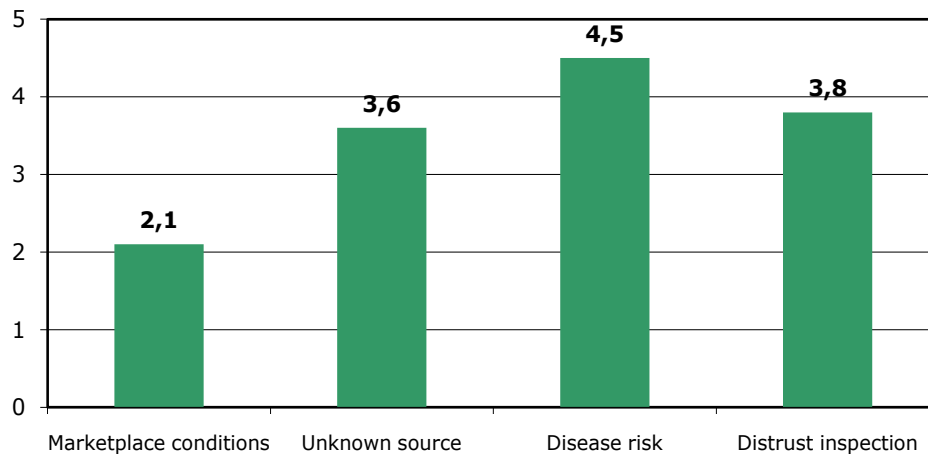


Source: Lapar (2010)

In recent years, strongly increasing numbers of food poisoning cases due to the chemical residues, the hormone and antibiotic residues in meat and aquatic products, the use of forbidden additives, accompanied with food borne pathogens and unhygienic conditions at the point of sale... have resulted in growing food safety concern for both the Vietnamese government and consumers (Figure 5).



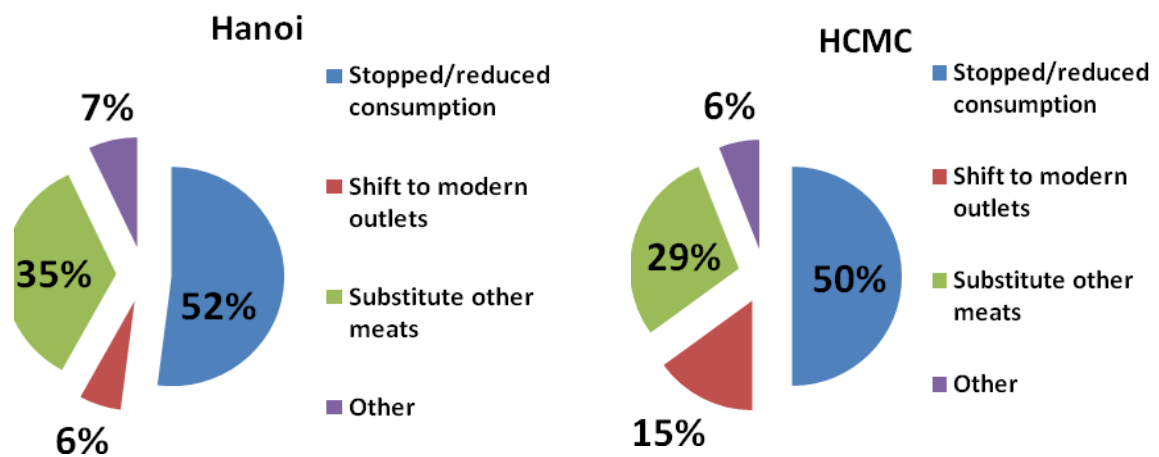
**Figure 5. Ranking of Safety Concerns (5 point as highest score)**



*Source: Otte (2010)*

Since the incursion of pig disease in Vietnam, consumers are more hesitant to consume pig product during the disease outbreaks. About half of consumers either stop or reduce pork consumption while about one-third substitute other meats. More consumers in HCMC than in Hanoi shift to modern outlets for pork (Figure 6).

**Figure 6. Consumer Response under Pig Disease Outbreaks**

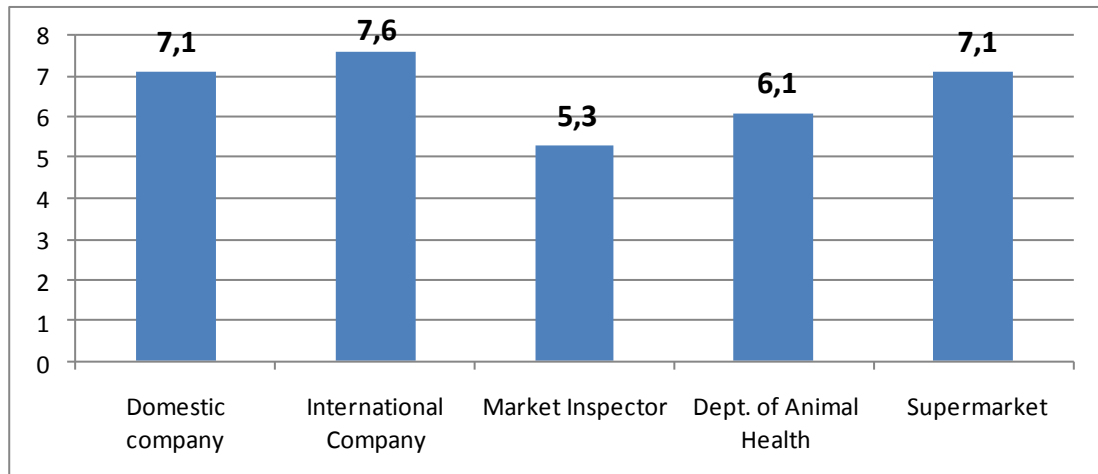


*Source: Lapar (2010)*

The number of consumers shifting to purchase pork in supermarkets, branded stores etc. in the case of pig diseases remains moderate, implying the ill-developed of modern outlets as supplier of safe and certified products. According to a survey conducted by Jenifer Ifft (2009) on poultry certification, lack of trust in government certification, convenience and lack of interest are key reasons for what household don't purchase safety-branded chicken. In term of trust ranking (10 points scale of trust level), market inspectors who stamp chicken have the lowest level of trust (5.3 point), while international companies (7.6 point) and

regular market sellers (7.1 point) have the highest level of trust (Figure 7). This result can be inferred that this is so for pork meat, which may prove the low effectiveness of market management and inspection from veterinary, quarantine and hygiene inspector staffs.

**Figure 7. Level of Trust Related to Chicken Safety (10 point as highest score)**

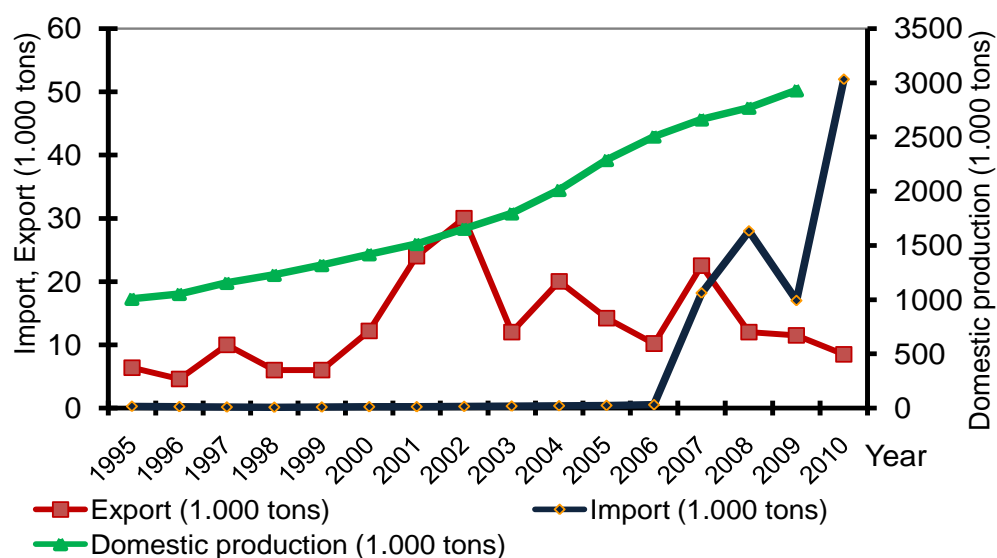


*Source: Jenifer Ifft et al. (2009)*

## 2.4. Trade

During 1996-2006, Vietnam had virtually no imports of pork. The balance trade for pork meat is always positive resulting from the government policy on prioritizing export of pork. Beside, as mentioned above, Vietnamese people's habit of consuming warm meat is likely to be natural barrier discouraging imported meat products. However, the situation has changed and is expected to change further. From 2006 onwards, Vietnam began importation of chilled and frozen pork from Canada and the USA. Given the strong growing demand for pork of Vietnamese consumers and the high ability of imported meat in supplying some types of pork suitable for processing and for supply to supermarkets, Vietnam is forecasted to be net importer of pork meat in the coming times. The Food and Agricultural Policy Research Institute (FAPRI, 2010) even expects that Vietnam's importation of pork in 2019 will reach to 231 thousand tons (Figure 8).

**Figure 8. Volume of Import/Export and Domestic Production of Pork**



Source: Ton (2010)

## 2.5. Pig Supply Chain

Pig production in Vietnam can be classified into 3 main systems: (i) small production with low bio-security level; (ii) small commercial production with minimal bio-security level and with fish-bond; (iii) large commercial production, integration with high bio-security level. There is only very little number of producers operating under cooperative or group form. Bio-security is weakly managed in almost pig production system, except large commercial farms.

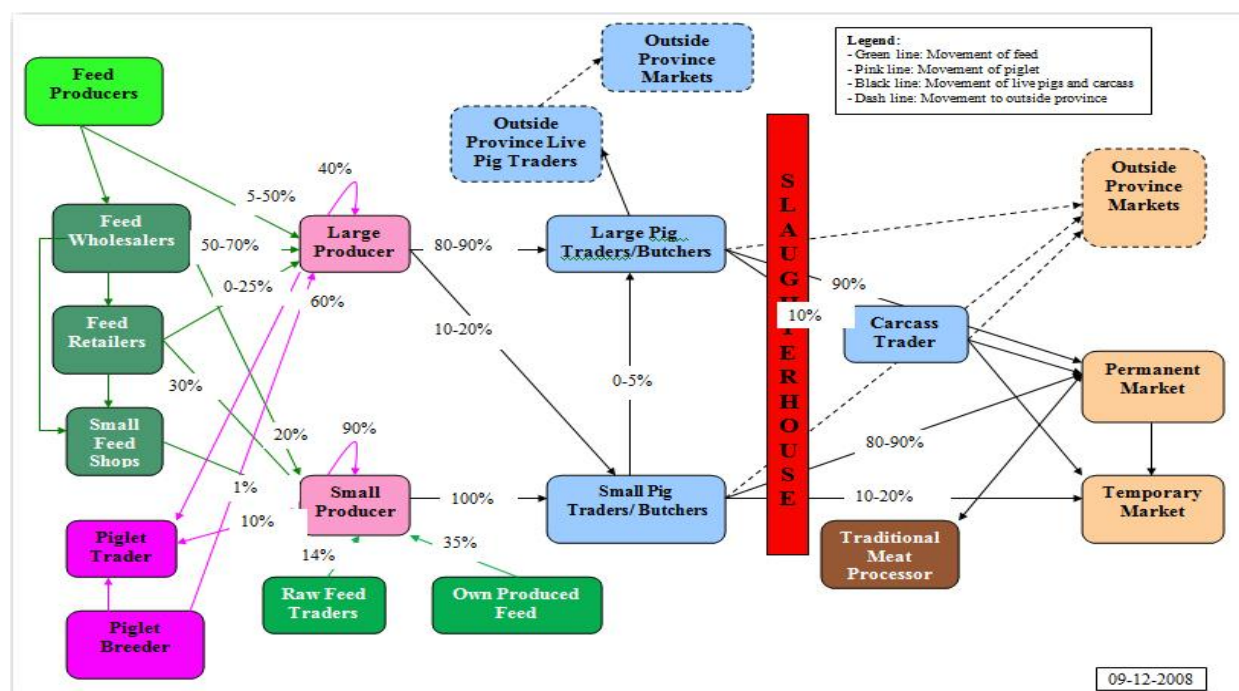
**Table 4. Pig Production Systems in Vietnam**

Production System	Characteristics	Farming Scale	Production (%)
Small production with low bio-security level	+ Local breed, cross-bred + few investment (pigsty, agricultural by-products) + very limited epidemic prevention	1-2 sows or < 20 fat pigs	70
Small commercial production with minimal bio-security level with fish-pond	+ cross-bred, imported pigs, + moderate investment + interested in epidemic prevention at minimal level	5-20 sows or < 100 fat pigs	15

Production System	Characteristics	Farming Scale	Production (%)
Large commercial production, integration with high bio-security level	+ imported breeds, industrial feed + good pigsty (close, open) + good epidemic prevention, veterinary	600-2400 sows or 500-10000 fat pigs	13
Cooperative or group of pig production with from average to moderate bio-security	+ cross-bred, imported pigs + share their experiences, feed or sale of pigs + not yet develop new experiments	20-50 sows or 100-200 fat pigs	2

Source: Ton (2010)

Figure 9. Pig Supply Chain in Low-Land Vietnam



Source: Lapar, Toan, and Staal (2010)

As shown in Figure 9, the supply chain of pork in Vietnam is based on a large numbers of small-scale farms, which, combined with poor infrastructure, leads to high transactions costs. It is mostly common that pig farmers sell their pig to assemblers rather than slaughterhouse. Assemblers are individuals specialized in collecting fattened pigs from farmers then sale onward to larger assemblers or to slaughterhouses. Pig slaughterhouses in Vietnam belong to one of three categories: (i) slaughterhouse selling both wholesale and retail (70%); (ii) slaughterhouses selling only to wholesale (24%), and (iii) slaughterhouse only selling to end consumers (6%) (PPLPI, 2005). Generally, there are plenty of slaughtering facilities throughout the country but they are mostly considered as handy operational ones. Most slaughterhouses are small scale, privately owned and simply equipped. In fact, there are 935

handy facilities out of 970 slaughtering facilities across the country, accounting 96.4%. Among these handy facilities, 47.8% are located in South East and 30% in Mekong River Delta. About the left 3.6% of industrial slaughtering facilities, the distribution is scattered and un-integrated to large pig production regions. Out of 35 industrial slaughtering facilities nationwide, 22 ones are in Red River Delta, accounting for 62.8% while there are only 1-3 such facilities locating in each remaining regions.

With increasing demand, especially in urban areas, pig supply has evolved from being intra-village or intra-province chains to longer and more complex linkages involving multiple actors such as modern pig producers, modern retailing outlets. Recent estimates of modern retailers indicate there are about 115 supermarkets, hypermarkets and wholesale centers, 100 minimarts and 25 shopping centers in Vietnam (Lapar, Toan, & Staal, 2010).

Generally, pig products pass through many intermediaries prior to reaching the end consumer. Due to the high marketing cost, farmers don't get a remunerative price for their pigs while consumers have to pay a high price for pork. In brief, the multistage based market supply chain as currently seems to be low effective and presents many obstacles: progressive additive margin for traders without the widespread transmission of information on product requirements, unclassified on product quality, low level of product safety etc.

## **2.6. Major Constraints of Pig Sector Development in Vietnam**

### ***2.6.1. Constraints in Production***

Pig production in Vietnam is characterized by the participation of almost household-based smallholders, which results in disperse and small scale of operation. Pig production relies mainly in local and cross breed while exotic breed accounts for only 13.2% of the total number of sow herd.

Industrial animal feed makes up about 45% of total feed used for livestock production. The amount of imported raw materials for processing industrial feed make up 40-45%, in which rich energy materials account for 25-30%, rich protein materials 70-75% and imported mineral and vitamin make up 95%. At present, there are 224 factories in which 46% are located in the Red River Delta and 28.6% in South East. The remaining are scattered in other regions. The price of animal feed in Vietnam is always 8-12% higher than other countries in the regions, resulting from dependence on international market, small port, slow clearance at port, big cost of advertising and service, uncommon livestock farming production scale (Giao, 2009). Given the increasing price of industrial animal feed, smallholder producers often feed their pigs by unprocessed raw materials or own-produced feed, locally available crops etc.

Besides, it is largely recognized that the weak delivery of veterinary service and the poor hygiene inspection are big concerns of the current pig industry. The concurrent existence of all these factors has led to the low productivity and competitiveness of pig sector in Vietnam.

### ***2.6.2. Constraints in Distribution and Processing***

There are too many small traders participating in the pig supply chain, leading to the weak management along chain. Also, there are plenty of slaughtering facilities throughout the

country of which 96.4% are handy operational ones. As a result, the food safety is poorly managed with only 45% of facilities receiving veterinary certificate.

The complicated market system of multiple layers of Vietnamese pig sector is likely to induce a set of problems in market participation, i.e. the high transaction cost, weak accessibility to market information ... resulting in emerging market failures named moral hazard and adverse selection that was arisen from information asymmetry.

### ***2.6.3. Constraints in Consumption***

Vietnamese consumers mostly prefer warm meat that was newly slaughtered and they used to buy pork meat at nearby market. The prevalence of a great number of wet markets (permanent or temporary) would be a reason leading to the poor market inspection even while consumers are more and more concerned about food safety.

## **3. REVIEW OF DEVELOPMENT STRATEGY OF PIG SECTOR IN VIETNAM**

Given the concurrent present constraints, a “National Strategy for the Livestock development toward 2020” has been promulgated by Prime Minister in 2008 and is seen as primordial master plan document for the livestock sector in general and pig sector in particular.

The orientation of Government in the National Strategy consists in four points. Firstly, livestock sector should be developed toward a commercial production, step-by-step meet domestic demand and have surplus to export. Smallholder pig producers have been criticized due to economic inefficiency, high risks of diseases and not being able to meet the increased market demand as well as the consumer requirements for food safety. For these reasons, it was an argument of if small scale producer is an obstacle of livestock and particular pig production development in Vietnam.

Secondly, livestock production will be reorganized toward a sustainable and market oriented production, which ensure of epidemic disease security, veterinary hygiene, environment protection and improving social security to enhance productivity, quality and food safety. Thirdly, development of animal sector will be focused on promoting the products having high competitive advantages such as pork, poultry and beef; together with putting attention on local and regional animal specialty products. Finally, government encourages the investment from organization and individuals to develop livestock sector toward farm and industrial model; concurrently supports and facilitates for household to move from conventional mode to farm and industrial model. The detail of Government’s orientation is summarized as below:

Toward 2020, Vietnam focuses on large scale and intensive farms, which expected to supply 70% of the total meat production in the country. Exotic pig number at farming and industrial scale is expected to account for 37%. The share of industrial feed in total feed used in livestock production is projected to increase to 70% in 2020. In the line with these strategies, the Government plans to boost and improve the capacity of disease control of veterinary system.

Given the currently fast-growing demand for livestock-origin products, the country would increase the ratio of livestock production to 38% of the total agricultural output by 2015 and 42% by 2020 from the current 30%. By 2020, the livestock industry targets produce 5.5 million tones of meat, which translates into 56kg of meat per capita per year. By then, the population of pigs is expected to increase to 35 million pigs. Apart from meeting domestic demand, the livestock industry would also target overseas markets in the future (58 thousand tons for export).

The share of meat being slaughtered and processed in industrial way is targeted to increase to 35-37% in 2020. The planning and building of slaughtering and processing houses need to be implemented with suitable scale, modern technology, advanced facilities to meet higher requirement of consumers. By this way, the Government plan to zone slaughtering and processing enterprises in the intensive farming areas with strict inspection. The Government encourages integration in supply chain and promotes the participation of large traders so as to conform to the industrial scale of production, slaughtering and processing.

The Government plan trends to limit temporary markets and mobile markets while encouraging investment in building wholesaler markets, auction centers. It is expected that this plan would lead to the change of consumer habit toward the consumption of safer product, frozen and processed product.

By the promulgation of this National Strategy, Vietnamese policymakers expect to regulate its livestock sector in the way of improving producer's competitiveness and welfare to meet domestic demand and even for export, introducing vertical integration of modern large-scale supply chain, reinforcing food quality and safety, animal disease, quality control and ensuring environment protection.

The National Strategy took part as important enactment in the current legal framework for livestock sector comprising a wide range of documents. With the addition of this document, the policy environment seems to be less favorable to smallholders pig producers still being heavily difficult even without such strict regulations.

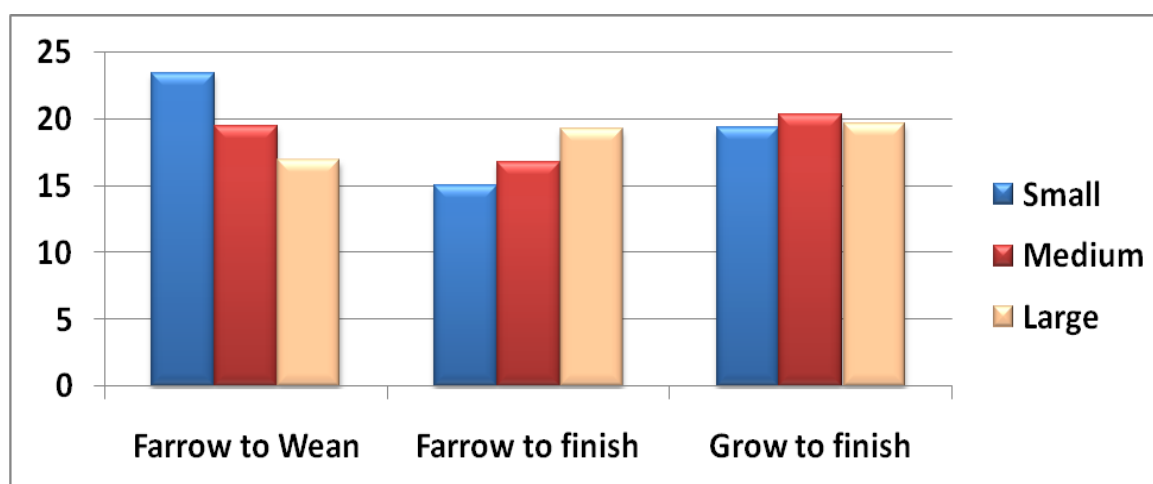
## **4. POLICY ISSUES**

To achieve the development targets, the country would fundamentally transform its animal husbandry from backward, self-sufficient to industrialized and commercialized livestock industry. Under the context of predominant small scale production, some issues may need to be taken into consideration, which would support government policies more feasible.

### **4.1. Un-identified Key Players of Pig Production**

According to the National Strategy, share of meat supply from farm and industrial scale production is expected of being 60% and 70% in total meat supply by 2015 and 2020 respectively. Meanwhile, results of a partial equilibrium model concludes that large scale production is likely to remain small share over the next decade and beyond, even at the worst case of traditional small scale pig production, the large scale production would only take highest share of 12% of total supply (Minot, 2010).

**Figure 10. Cost per Unit of Output in Household-Based Pig Production ('000 VND/kg)**



*Note: Small: 1 sow or less than 15 fattened pig heads; Medium: 2-3 sows or 16-40 fattened pig heads; Large: >4 sows or > 40 fattened pig heads*

*Source: Lapar (2010)*

CAP-ILRI (2010) has shown that smallholder pig producers have certain advantages and they can even compete with large producers under similar market condition (Figure 10). Smallholder producers can produce at lower per unit cost than large producers because they are more efficient users of farm resources such as own produced feed and household labor. Since pig feed is the major cost incurred in raising pigs, smallholders profiting a combination of purchased feed and own produced feed are more advantageous than large producers using mostly purchased industrial feed.

**Table 5. Access to Services by Household-Based Pig Production**

	Farrow to Wean				Farrow to Finish				Grow to Finish			
	Small	Medium	Large	Overall	Small	Medium	Large	Overall	Small	Medium	Large	Overall
Not receive vet service (%)	34.4	37.5	33.3	<b>36.6</b>	27.8	34.6	50	<b>33.3</b>	38.6	32.9	42.9	<b>37.6</b>
Not receive extension service (%)	86.7	67.3	80.0	80.9	76.8	58.8	57.9	69.1	82.1	81.3	76.5	81.3
Not receive credit service (%)	84.2	88.7	60.0	85.1	74.6	82.9	77.8	77.6	88.1	85.5	64.7	84.9

*Note: Small: 1 sow or less than 15 fattened pig heads; Medium: 2-3 sows or 16-40 fattened pig heads; Large: >4 sows or > 40 fattened pig heads*

*Source: CAP-ILRI (2010)*



However, in comparison with large producers, smallholders have face constraints arising from their limited resources and capacities and also from prevailing policies and institutions that unduly favor the development of large industrial farm. Smallholders are disadvantaged by lack of access to timely and reliable market information, the supporting services in extension, credit and veterinary as well as marketing constraints.

Concentrated, large scale livestock production often creates concentrated, large scale environmental pollution problems. Large industrial farms produce far more waste than can be recycled naturally. When intensive livestock operations are placed together, pollution can threaten the quality of the soil, water, air, biodiversity and ultimately public health. Pollution damage will more severe in case large numbers of livestock farms are concentrated in suburb or close to water resources (FAO, 2005).

#### 4.2. Limited Attention to Local Breed and Cross-Breeding

The new strategy prioritized in exotic breed (37% of total breeding stock). Though the exotic piglet produces higher productivity, but it is highly depend on industrial feed, which is appropriate only to large scale and intensive farming system. Small scale producers are favor with local and cross breed as of its better adaptation to small-scale production and local condition (Rodriguez & Preston). Statistical analysis revealed that producers using local and cross breed have certain advantages in term of gross margin (Table 6).

**Table 6. Gross Margin per Kilogram of Output by Breeding System ('000 VN/kg)**

	Farrow to Wean			Farrow to Finish			Grow to Finish		
	Local	Cross & Exotic	Overall	Local	Cross & Exotic	Overall	Local	Cross & Exotic	Overall
1. Average output unit price	32.3	29.4	30.1	26.3	24.1	24.4	25.9	24.0	24.4
2. Average output unit cost	21.8	21.9	21.9	14.4	16.0	15.7	20.2	19.8	19.9
<b>3. Gross margin (3=1-2)</b>	<b>10.4</b>	<b>7.5</b>	<b>8.2</b>	<b>11.9</b>	<b>8.1</b>	<b>8.7</b>	<b>5.7</b>	<b>4.2</b>	<b>4.6</b>
4. Price/Cost ratio	1.8	1.7	1.7	2.3	1.8	1.9	1.4	1.3	1.3
5. GM/Cost	0.8	0.7	0.7	1.3	0.8	0.9	0.4	0.3	0.3

*Source: CAP-ILRI (2010)*

#### 4.3. Industrial Feed Distribution System

There are clear evidences of lower cost of self-produce feed, which meet the requirement of small scale producers. However, demand of industrial feed is increasing significantly when farmers produce pig commercially.

Recent policy dialogue within the framework of an ACIAR funded project “Improving competitiveness of pig producers in an adjusting Vietnam market” has revealed that quality of livestock feed and distribution system are key concerns of pig producers. Actually, small

sized producers have to buy feed from nearby retailer with higher cost since reaching to feed agents often costs significant transportation freight.

It is a limited number of feed mills provides delivery service or credit/delayed payment in favor of livestock producers, those these are most concerns of smallholder producers. Veterinary and nutrition advice are the most common services that feed mills provide to producers (Table 7).

**Table 7. Percentage of Feed Mills Providing Different Services to Livestock Producers**

Service type	Domestic	Foreign	North	South	Small	Medium	Large	Overall
Delivery/ transport	16.3	0.0	11.5	11.8	23.5	0.0	28.6	11.7
Extension material	23.3	29.4	15.4	32.4	17.7	5.3	42.9	25.0
Credit/delayed payment	11.6	23.5	7.7	20.6	5.9	15.8	14.3	15.0
Animals – provision & purchasing stock	14.0	17.7	3.9	23.5	0.0	10.5	42.9	15.0
Veterinary advice	37.2	58.8	23.1	58.8	29.4	31.6	57.1	43.3
Nutrition advice	38.1	52.9	28.0	52.9	43.8	31.6	57.1	42.4
Other	2.4	5.9	0.0	6.1	6.3	5.6	0.0	3.5

*Source: CAP (2010)*

There is few feed mills in Vietnam apply advanced international standards for quality control. In the survey of 62 feed mills in 2008, only 7% of foreign/joint-venture mills (and none of domestic mill) applied HACCP certification; 50% of foreign/joint-venture and 23% of domestic mills had ISO certification (CAP, 2008).

**Table 8. Percentage of Animal Feed Mills Having Formal Certification Status (%)**

	Domestic	Foreign	Overall	
Percentage of firms having formal certification		70.5	82.4	73.8
Of which:				
HACCP		0.0	7.1	2.2
ISO		22.6	50.0	31.1
Vietnamese standards		71.0	21.4	55.6
Other* (2 cases GMP)		6.5	21.4	11.1

*Source: CAP (2010)*

#### 4.4. Rural Employment Creation

During 2011-2015, an estimated of 959 thousand new labors will integrate into the labor force each year (MOLISA, 2010). Half of this number is more likely to be rural labors, who

would hardly find a non-farm job. In addition to this number, a current 5.8%<sup>1</sup> of rural labors being in underemployment situation put significant pressure on employment generation.

In that context, livestock production system contribute significantly to create rural employment and poverty reduction by creating about 4 million full time jobs to the rural people in Vietnam (Delgado et al., 2008).

#### **4.5. Rising Concern on Food Safety and Quality**

It is recognized that safety concerns are growing in recent years, which are considered as being percolated from developed society where demand for “quality attributes” has escalated with media attention and public awareness raised by various incidences of food-borne illness (IFPRI, 2008). Most consumers stopped or reduced their consumption of pork, substituted pork with other alternatives, or shifted to safer pork outlets in response to outbreaks of pig diseases.

Vietnamese government has paid considerable attention to reduce food safety risks in response to the shifting demand of safe products. A number of policies have been promulgated in the aim of requiring food producers and providers to take full responsibility for their products quality and information of safety. However, impact and effective of those policies are unclear when producers and processors pay less attention to the hygiene and safe products, which would be the results of inconsistent and inadequate surveillance and enforcement of inspectors as well as lack of market incentives of producers and processors to invest to product labeling and certification (IFPRI, 2008)

Recent study carried out by Delia Grace (2010) has revealed that most of safety food risks come from slaughterhouse. Without a strictly control system, slaughter houses place close to the retail markets and people residents. Small scale abattoirs, informal butchers and handy operational slaughter house that locate dispersedly throughout the country are currently holding 96% in the total supplied carcasses meat. This implies disperse and uncontrollable characters of slaughtering operation. Given the very poor hygienic practices at slaughter, they are most risky place for bacterial contamination of pork.

According to the National strategy, the share of meat supplied through industrial slaughter houses is expected to be 35% by 2020, equivalent to an increase of about 30% from its current 4% only. The upscaling and concentration of slaughtering operation thus seems to be difficult considering the strong preference of Vietnamese consumers of buying warm pork meat from convenient slaughter house.

Another issue that policy makers now concern is if smallholder can compete in the context of changing structure of consumer demand to food safety and quality pork.

#### **4.6. Preference for Lean Meat and Local Breeding.**

Despite increase demand for pork from indigenous pigs, there is still a shortfall in the supply of appropriate breeding pigs such as crosses from indigenous and Western gilts and boar semen, especially at small and medium farms. Consumer’s preference for local breeding thus provides a niche market for smallholders who can supply indigenous breeding pigs.

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<sup>1</sup> GSO (2007), Survey on Labor and Employment

## **5. DEVELOPMENT ORIENTATION AND POLICY RECOMMENDATIONS**

### **5.1. Development Orientation**

The above findings lead to the following orientation for the development of pig sector in Vietnam:

- In the short-term, small scale producers still play key role in the development of pig sector in Vietnam. This idea is reinforced by Nick Minot et al. on the basis of a policy simulation model. In fact, small scale pig sector may grow more slowly than large scale but will not decline. The modern large scale sector is too small to threaten traditional small scale sector for at least 10 years. Thus, instead of locate all the resources only on large scale producer development, the Government should focus on technological change, on environmental and food safety issues for both small and large scale producers.
- In the context of food safety concern, slaughtering and market facilities are key issues that should be strongly improved so as to meet food safety and hygiene standards. In the short time, the upgrading of small and medium sized slaughtering house with clean equipments and implementation of sanitary procedure to ensure food safety seems to be more appropriate and realistic rather than addressing the upscaling of the slaughter house to an industrial establishment.
- Government authorities have to play the key role in control rigorously the operation of slaughter house and market outlets in the aim of ensuring hygiene and safety. Food safety, animal disease and product quality regulation and enforcement need to be strictly strengthened.
- Given the blooming demand for pork and also the increasing importation of pork products, thus the strategy for pig sector development should pay more attention on domestic market to meet local consumer's demand both in quality and quantity of products.
- More attention should be paid to improve market access ability of small-scale farmers via developing rural institutions. These may include policies to develop effective livestock services delivery and to encourage linkages along the value chain.

Basing on such development orientation, the paper will conclude with policy recommendations on the production, distribution and processing and market outlet for pig sector development in Vietnam

### **5.2. Policy Recommendations on Production**

In the near future, consumer preference for fresh pork and traditional meat market outlets will facilitate and likely sustain smallholder inclusion in pork supply chains. Thus, Government should introduce neutral support in term of infrastructure, credit and tax concession in favor of both smallholder producers and large farms, for example: investment in building well-equipped centralized production zone to encourage pig producers, regardless the scale, to move livestock production out of residential areas; provision of credit and tax support for smallholder producers under similar condition as good as large farms profited etc.

A niche market for indigenous pigs is appropriate activity for smallholder pig raisers. Thus, the development strategy should pay attention on activities of preservation of indigenous genotypes and supply indigenous breeding pigs commercially. Besides, the breeding system

needs to be reorganized to efficiently provide appropriate local, crossbred or exotic breeds of livestock to both smallholders and commercial producers. This may require the reorganization of state breeding centers, Government support to the maintenance of high level genetics, the involvement of private sector in breeding system, establishment of a system of certification and inspection etc. To move breeding system towards market orientation, it is imperative that a consultative approach be taken in developing appropriate breeds to meet the needs and expectations of end user, including both smallholders and export-oriented farms.

As medium scale feed enterprises remain competitive compared to the large scale ones, supportive policies for the development of medium scale feed mills is necessary to lower the cost of pig production. Using local materials, strengthening more research and study investment in feed technology development and increasing quality of feed by applying international certifications is highly recommended.

Improvements in animal breeds and feeding systems will not result in a substantial improvement in producer incomes unless the animal health situation is improved. Policies that improve veterinary services, particularly by developing capacity of veterinary officers will be necessary. A system of disease monitoring and forecasting system would be very useful in limiting disease impacts.

As pig disease and food safety are becoming increasingly important to consumers, Government policy should focus on strengthening food safety surveillance system. It is necessary to grade certification for livestock farmers in general and pig raising farmers in particular so as to control food safety and to promote producers to apply better production and disease management practices.

### **5.3. Policy Recommendations on Distribution and Processing**

The Government should promulgate regulations requiring the sanitary conditions of slaughter houses and meat processing facilities. The issuance of certificate for slaughter house and meat processing facilities applying strictly hygiene and safety standards would be the best incentive for these ones and be the good traceability that assure consumers.

Improvement of slaughtering operation does not necessarily require the eradication of small sized slaughter house. It would be better to upgrade slaughter houses facilities, regardless of scale, by supporting hygiene standard equipments. In addition, Government support to upgrade transportation facilities such as the use of well-equipped transport vehicles and the establishment of an effective cold chain for the storage and distribution of meat can help reduce spoilage and maintain hygienic conditions of meat along transportation.

Effective provision of services (credit, veterinary, extension, breeding, feeding, equipment etc.) to improve capacity to deal with production and market risks will further enhance the ability of smallholder pig producers to remain competitive. It is recommended to have policies that support to develop cluster of auction center and production services next to production zone.

#### **5.4. Policy Recommendations on Market Outlets**

Vietnam's pig industry is internationally uncompetitive in view of its comparatively high cost of production. Policy to enforce strict application of SPS control over the import will provides a significant level of protection of local pig industry.

One recommendation need to be taken into account is the issuance of certificate for pork retailers and the investment to upgrade meat handling and wet markets to enhance hygiene and safety standards.

The distribution system that link producers and consumers seems to be low efficient given the large distance between farm-gate price and retail meat price. Market price volatility for pigs and pork remains a critical constraint to smallholder competitiveness. Improvement of access to market prices by establishing a market price information system that can be locally managed and sustainably maintained by local users could be solution for this situation.

Institutional solutions such as development of farmer group/ cooperative to produce certified pig/pork under contract farming may be a solution for smallholder pig producers to keep them competitive in a rapidly growing and changing market.

## APPENDIX: PIG SECTOR RELATED POLICIES

Current effective policies with regard to the livestock sector in general and pig sector in particular are presented in the following table.

Issues	Policy Documents	Summary
PRODUCTION	Decision 10/2008/QD-TTg issued on January 16, 2008 by the Prime Minister approving National Strategy for Livestock Development toward 2020.	<p>According to the Strategy, the share of livestock production in the total agriculture production is expected of 32%, 38% and more than 42% in 2010, 2015 and 2020 respectively. Livestock sector will basically shift to large industrial production farming. All facilities operating production, slaughtering, processing of livestock animal are required to equip waste treatment system and to respect environment protection.</p> <p>Organizations or individuals investing in the construction of large industrial production farm or slaughter house or processing facilities can benefit the favorable conditions at maximum level in term of land, credit, tariff policy etc.</p>
	Decision 394/QD-TTg issued on March 13, 2006 by the Prime Minister on promoting investments in building and expanding facilities involved in slaughtering, preserving, processing of domestic cattle and poultry and facilities for industrial concentrated production farm.	This decision promotes investment in the construction and expansion of slaughtering, preserving and processing of animals and poultry by organizations/individuals, by giving special treatment in terms of tax, interest, techniques, etc.
	Circular 42/2006/TT-BNN dated 1 June 2006, guiding implementation of some articles specified in the Decision 394/QD-TTg dated 13 March 2006 by the Prime Minister	Detailed instruction from Ministry of Agriculture and Rural Development (MARD) with regard to the regulation on scale and capacity of livestock animal production farm and slaughtering and processing facilities operating in centralized and industrial way.
BREEDING	Decision 43/2006/QD-BNN dated 1 June 2006 on issuance of the Regulations on international exchange of scarce animal genes	This Decision regulates the exchange at international level of scarce animal gens serving for the aim of scientific research study under the principle of conservation of genetic resources. The exchange of this type does not include the import of animal breeds as goods.

Issues	Policy Documents	Summary
	Decision 17/2006/QD-TTg dated January 20, 2006 by the Prime Minister regarding program of plant varieties and livestock breeds for the period 2001-2010	<p>Under this Decision, the percentage of plant varieties, livestock breeds and forest tree varieties created by technical advances for use in production will be raised to over 70%.</p> <p>Organizations and individuals that invest in the creation of original varieties and breeds would be entitled to borrow the States development investment credit capital and enjoy the highest tax incentives. They must formulate investment projects and have them approved by competent authorities.</p> <p>National and local assistance funds for scientific and technological development shall finance experimental projects on variety or breed production and processing, with priority given to the application of scientific and technological advances in varieties and breeds.</p>
	Decision 2194/QD-TTg dated December 29, 2009 by the Prime Minister regarding livestock breeding program	Organizations or individuals investing in production of original breed, Grand-parent breeds, Parent breeds... applying new high technology can get loan with favorable conditions from Government capital fund for investment and development.
VETERINARY	Ordinance No 18/2004/PL-UBTVQH issued on April 29, 2004 by the National Assembly on Veterinary Medicine	The Ordinance prescribes animal diseases prevention and treatment, surveillance, animal and animal products quarantine, slaughtering control, veterinary hygiene inspection, management of veterinary drugs, veterinary use of bio-products, micro-organisms and chemicals, veterinary practices
SLAUGHTER OPERATION	Directive No.30/2005/CT-TTg on enhancing the management of animal and poultry slaughtering to ensure food hygiene	This Directive deals with small, unplanned and scattered slaughtering activities by establishing planned slaughters; promulgating regulations on the management and technical procedures of slaughtering, enhancing control of slaughters and communication of slaughtering hygiene and safety



Issues	Policy Documents	Summary
FOOD SAFETY	Decision 43/2006/QD-TTg by the Prime Minister approving the National Action Plan for Food Safety and Hygiene until 2010	<p>The purpose of this Decision is to approve the National Action Plan for Food Safety and Hygiene, which shall have the following objectives:</p> <ul style="list-style-type: none"> <li>(i) raising the awareness and responsibility of food producers, dealers and consumers towards food safety and hygiene;</li> <li>ii) trying to comply to world food standards; achieving the target that 100% of high-risk food production enterprises will apply the Hazard analysis and critical control point (HACCP);</li> <li>iii) preventing the spread through food of food poisoning and diseases; etc.</li> </ul>

## REFERENCES

- ACI, (Agrifood Consulting International). (2002). *Livestock policy briefs for Vietnam. Project briefs series*. Hanoi.
- Delgado et al. (2008). *Determinants and Implications of the Growing Scale of Livestock Farms in Four Fast-Growing Developing Countries*. IFPRI.
- FAO. (2005). *Pollution from industrialized livestock production. Livestock Policy Brief 02*.
- FAPRI. (2010). Retrieved 12 31, 2010, from US and World Agriculture Outlook: <http://www.fapri.iastate.edu/outlook/2010/>
- FAPRI. (2010). Retrieved December 31, 2010, from US and World Agriculture Outlook: <http://www.fapri.iastate.edu/outlook/2010/>
- Giao, H. K. (2009). Vietnam Livestock Situation and Development Orientation to 2020. *Paper in the workshop on Vietnam Agriculture Outlook, organised by IPSARD*.
- Grace, D. (2010). *Participatory Risk Assessment of Pork in Hanoi and Hatay, Vietnam. Project brief. Project on "Improving Competitiveness of Pig Producers in an Adjusting Vietnam Market"*.
- IFPRI. (2008). *Contract farming of swine in Southeast Asia as a response to changing market demand for quality and safety in pork*.
- J. Otte, A. C.-H. (2010). *Outlook for Viet Nam's Livestock Sector. Paper at Workshop on Vietnam Agriculture Outlook*.
- Jenifer Ifft et al. (2009). *Poultry certification for Pro-poor HPAI risk reduction - working paper No. 6*.
- Lapar, M. (2010). *Paper at Final workshop of ACIAR funded project on "Improving competitiveness of pig producers in an adjusting Vietnam market", October 2010, Melia Hotel, Hanoi*.
- Lapar, M., Toan, N., & Staal, S. (2010). *The pork value chain in Vietnam: emerging trends and implications for smallholder competitiveness and chain efficiency. Project brief: Project on Improving the Competitiveness of Pig Producers in an adjusting Vietnam market*.
- Lapar, M.L.A and Toan, N.N. (2010). *Demand for pork by Vietnamese consumer: Implications for pro-poor livestock policy and development agenda in Vietnam. Project brief: Project on Improving the Competitiveness of Pig producers in Vietnam, ILRI, Hanoi, Vietnam*.
- MARD-DLP. (2010). *Vietnam Current Status of Swine Production and Development Plan in Coming Years. Presentation at Workshop on Swine Production in Hai Phong 23-25 June 2010*.
- MARD-MOH. (2010). *Avian Pandemic Influenza - Vietnam Experiences*. Hanoi.

Minot, N. (2010). *Future scenarios for pig sector development in Vietnam: Results from a policy simulation model. Project Brief: Project on Improving the Competitiveness of Pig Producers in Vietnam, ILRI, Hanoi, Vietnam.*

PPLPI. (2005). *Current status and prospects for the pig sector in Vietnam: a desk study .*

PPLPI. (2008). *The Livestock Sector in the World Development Report 2008: Re-assessing the Policy Priorities.*

Preston, L. R. (2008). *Local Feed Resources and Indigenous Breeds: Fundamental Issues in Integrated Farming Systems.*

Tisdell, C. (2009). *Trends in Vietnam's pork supply and structural features of its Pig Sector. The Open Area Studies Journal, 2, 52-71.*

Tisdell, C. (2010a). *The Growing Shortfall in Vietnam's Domestic Supply of Pork: Significance and policy implications. Project briefs: Project on Improving the Competitiveness of Pig Producers in an Vietnam adjusting market, ILRI, Hanoi, Vietnam.*

Tisdell, C. (2010b). *The Competitiveness of Small Household Pig Producers in Vietnam: Significant Research and Policy Findings from an ACIAR-sponsored Study and their Limitations. Economic Theory, Applications and Issues, Working paper No. 63 . Schools of Economics, The University of Queensland, Brisbane, 4072, Australia.*

Ton, V. D. (2010). *A General Review of the Pig chains in Vietnam and Challenges in term of Sustainable Development. Paper in the Consultative workshop on "Prioritization of policy options in the pork production chain in Vietnam with emphasis on diseases and trade". Do Son - Hai Phong, Vietnam. 23-25/06/2010.*

World Bank. (2008). *World Development Report on Agriculture for Development.*