Vietnamese beef cattle industry[1]

Highlights

- Vietnam is comparatively a small beef producer on a global scale.
- Production is mainly traditional crop-livestock systems predominated with Yellow and Laisind breeds. Market-oriented fattening systems are becoming increasingly popular.
- The country has a small and fragmented pasture area. Feed costs are relatively high. Imports of feed and feed ingredients have sharply increased in the past 5 years.
- The market chain involves several actors/traders before animals reach markets.
- The processing sector is at a primary stage, largely dominated by small scale abattoirs.
- The cattle number has been declining since 2008 due to an increase in the turnoff/slaughter number.
- Imports of beef and live cattle from Australia have increased notably recently due to a growing demand for higher beef quality from domestic markets.
- Semi-formal live imports of cattle from Thailand and Myanmar through Cambodia and Laos into Vietnam, and re-exports of cattle and beef from Vietnam to China have increased considerably in recent years. Cross-border price differentials played a crucial role in shaping the cattle trade patterns.

[1] Luong Pham (HELVETAS), Dominic Smith (UQ/HELVETAS), Hieu Si Phan (MARD) (2015), The Vietnamese Beef Industry in “Regional Workshop on Beef markets and trade in Southeast Asian and China”, Ben Tre, Vietnam, 30th November – 3rd December, 2015

1. National industry

1.1. Background

Vietnam has experienced rapid economic growth and achieved remarkable poverty reduction since the introduction of economic reforms in 1986. Agricultural growth, at over 4 percent per year, has contributed significantly to this outcome. Within agriculture, the expansion of smallholder livestock production has been a major contributor to increasing farm incomes and reducing rural poverty in Vietnam.

The agriculture sector currently accounts for 21 percent of GDP and about 58 percent of employment. The livestock sub-sector accounts for 27 percent of the agriculture output value (GSO 2014). Beef cattle production is an important industry in the livestock sub-sector, being the third largest industry after pigs and poultry.

Traditionally, cattle were reared by smallholders for draught purposes. Cattle were only slaughtered for consumption when they were unproductive. Today, mechanisation is gradually replacing the animal draught power, which reduces the need for smallholders to keep draught cattle.

The demand for beef as a superior product, particularly in urban areas in Vietnam, has been growing rapidly in recent years due to income increases and population growth. With constrained supply, prices for cattle and beef have thus increased sharply. This, together with regional integration, provides opportunities for smallholders in rural areas of Vietnam to become increasingly specialised in beef production to supply quality beef to urban markets.

Today the beef industry in Vietnam is still based on smallholder production of one to four head per household, and this pattern is expected to continue in the future. However, there are an increasing number of households that specialise in cattle fattening for slaughter in central and southern Vietnam. The beef industry was able to meet around 70 percent of current domestic demand in 2013 (MARD 2014).

1.2. Macro production statistics

The statistics[2] in Table 1 provide overview of the cattle and beef industry in Vietnam. The country had 5.16 million cattle head (including draught and dairy cattle) in 2013. The turnoff number[3] was 1.77 million (annual growth of 8.8% on average). This has resulted in a sharp increase in beef production with an annual growth of 8% on average. The growth rate of the turnoff number is higher than that of beef production, which may suggest average carcass weights have declined. However, as the turnoff numbers could be higher than actual slaughter numbers, there may not be enough confidence in the slaughter numbers to draw this conclusion. Nevertheless, the high turnoff levels are an indication of increased specialisation and exchange of animals. The increase in beef supply per capita (6.9%) over the period reflects the increase in the turnoff/slaughter number. The cattle prices increased at the rate of 4.6% annually on average.

2 Data is provided by the Centre for Informatics and Statistics/MARD based on the official data drawn from the annual livestock reporting system by the General Statistics Office in collaboration with MARD. Data on buffaloes and buffalo meat is not included.

3 It is important to note that the exchange of animals can happen several times before an animal is slaughtered. Thus, the turnoff figures could be higher than actual slaughter numbers.

Table 1: Key facts about the industry 2000-2013

		Compounded Annual growth (%)
Herd size (million head 2013):	5.16	1.6%
Turn off/slaughter (million head 2013)	1.77	8.8%
Turn off rate/Slaughter rate (% 2013)	34	7.1%
Cattle meat (million tonnes 2013)	0.29	8%
Cattle meat supply (kg/person 2013)	3.1	6.9%
Cattle price (US$/kg liveweight 2013)[4]	3.2	4.6%

Source: adapted from CIS/MARD (2014).

1.3. Macro drivers of the industry change

The cattle industry in Myanmar is still at initial stage. However, there are a number of drivers that influence the industry development. Vietnam's population reached 90.5 million in 2014, and is forecasted to grow to around 120 million by 2050 (UNFPA, 2014). In addition, the average annual GDP growth rate between 1995 and 2013 was 7.5%, and GDP per capita in 2013 (current USD) was $1,911 (World Bank, 2014). The purchasing power parity (PPP, current USD) was $5,294. As a superior product with positive income elasticities, beef demand is expected to increase rapidly in the next decades. Vietnam is also urbanising rapidly (currently 30% with 3.4% urban population growth per year) (UNFPA, 2014). This increases demand for high quality beef, but, on the other hand, provides opportunities for rural farmers to work off-farm or in more lucrative agricultural activities. Increasing opportunity costs of labour mean that small scale cattle production becomes less attractive economic activity for smallholders.

1.4. Cattle and beef production

Figure 1 indicates a sharp increase of the cattle number in the period 2002-2007. This was in great part due to government support policies including subsidies for crossbreeding cattle and fodder plantation, credit provision, and breeding selection program. Another reason is that in many upland areas, farmers switched from raising buffalos to raising cattle because of their higher reproduction rate (Stur & Gray, 2014). In addition, during this period, demand for beef rose, the price for cattle meat increased, and farmers were able to make profit from raising cattle. Smallholders started raising more cattle using extensive grazing systems.

However, the number of cattle dropped from 6.7 million head in 2007 to 5.2 million head in 2013. Some obvious reasons are (i) an increase in the turnoff/slaughter number due to strong demand from China and domestic markets, and (ii) increased mechanisation reduced the need for draught cattle.

4 The cattle liveweight price was calculated by the Centre for Informatics and Statistics/MARD using the data reported by 100 districts in Vietnam

Source: Adapted from CIS/MARD (2014)

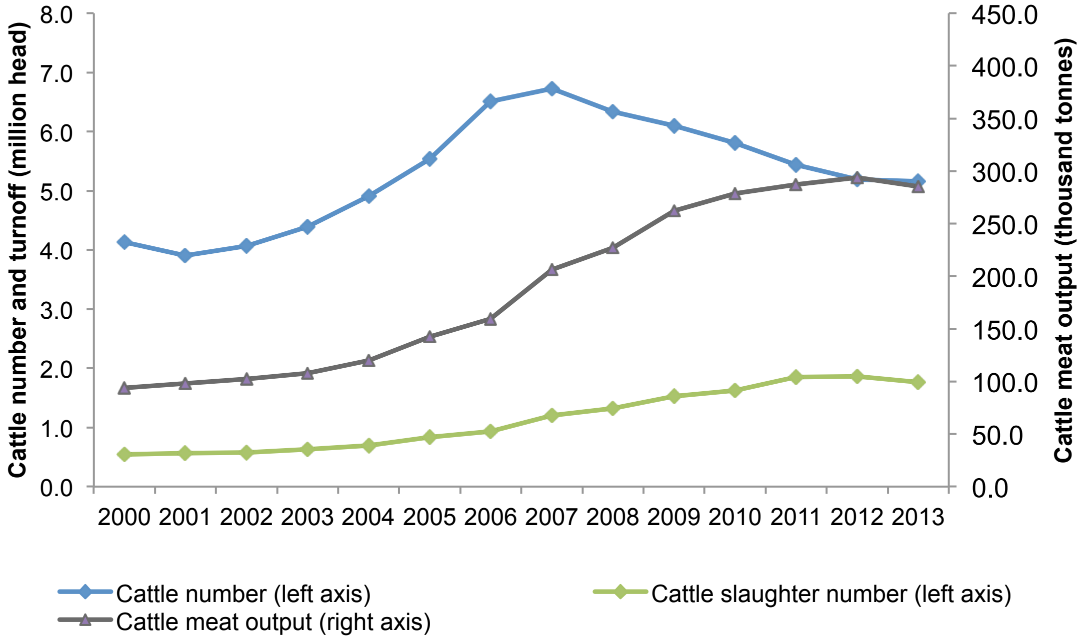

Figure 1: cattle production in Vietnam

Beef production has risen significantly. However, in 2013 domestic beef production declined slightly compared to 2012 (Figure 1).

2. Regional distribution

Vietnam is divided into six agro-ecological zones. Accordingly, the cattle industry is disaggregated into six zones by MARD. The regional distribution patterns are presented in Figure 2 and Figure 3. Cattle are distributed throughout the country, with the highest concentration in the north and south central coast provinces, and the lowest concentration in the river deltas. Cattle are also relatively common in the upland areas in the northern mountains, where they are kept for draught purposes.

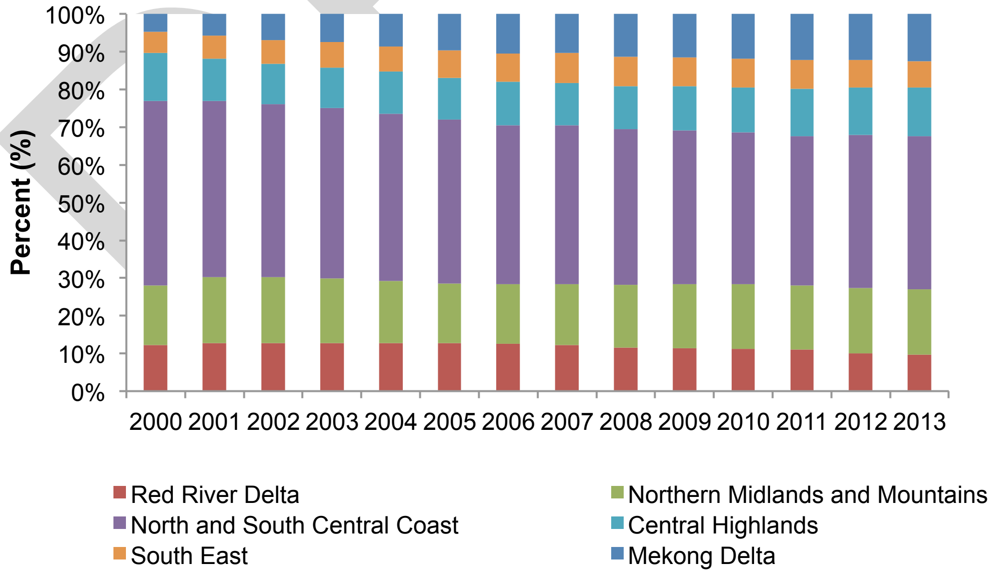

Figure 2: Cattle distribution (%) over six regions of Vietnam.

Source: CIS/MARD 2014

Though most cattle are produced in smallholder systems, there are small-scale specialised and commercial feedlots located in the south eastern provinces (MARD, 2014). These farms take advantage of feed resources and by-products from food processing plants and provide quality beef to the Ho Chi Minh City market. Around 70% of imported feeder cattle from Australia are fattened in these provinces.

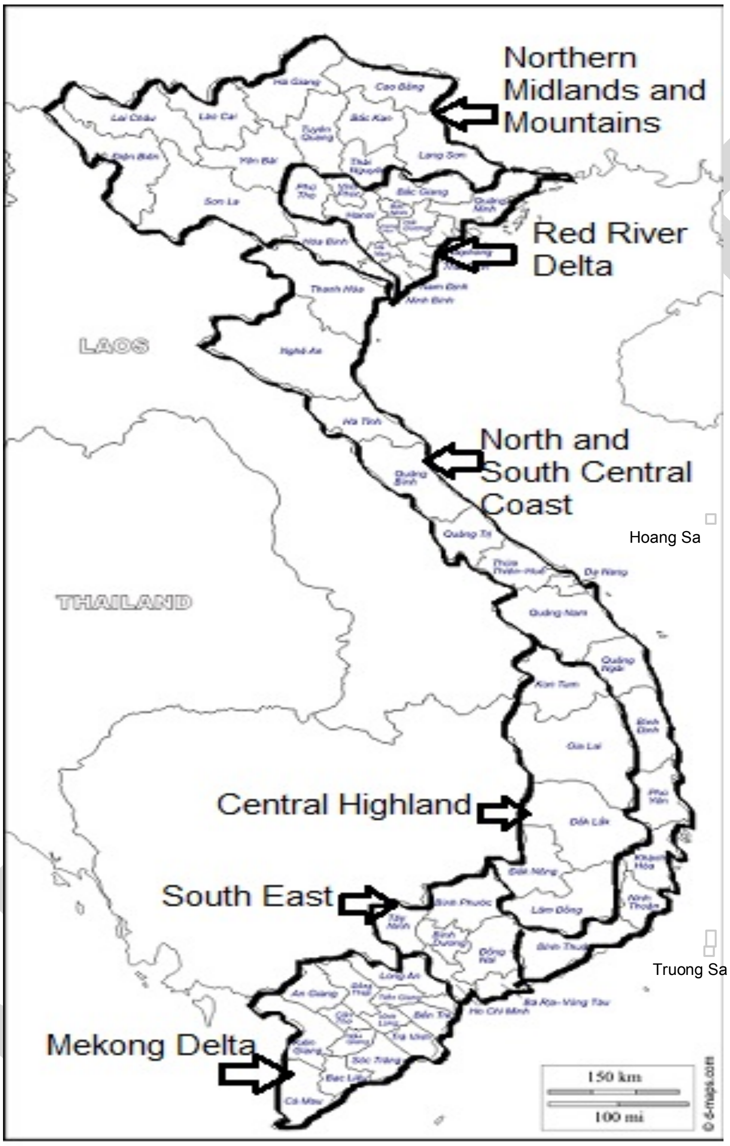

Figure 3: Cattle distribution by region in Vietnam.

Source: Map generated by authors

3. Policy

Before the reform period (1986), the state legislated that cattle were to be used only for draught purposes. The slaughter of healthy cattle was banned, and only unproductive animals were granted by local authorities for slaughter for consumption. Policy reforms in the late 1980s, notably the shift from collective management systems towards privatisation expressed in Resolution N10, provided the autonomy of farm households to own and sell cattle. Smallholders started raising their own cattle mainly for draught purposes and manure production.

Unlike other sectors, there has been no comprehensive government policy in place for the livestock sector, which received little budgetary support (Tran, 2014). Previously, any cattle policy mostly focused on production targets such as Sindhilisation Breeding Program in 1995, low-interest credit schemes in 'Hunger Alleviation and Poverty Reduction' Program in 2002. Until recently driven by diseases outbreak, the government has issued regulatory interventions concerning animal health and environment that focused on building and improvement of slaughterhouses, processing plants and commercial operations (Decision 394/DQ-TTg) and livestock feed management (Decree No 8/2010/ND-CP), which has encouraged farmers to engage in intensive fattening operations. There is a need for policies to assist smallholder farmers to transition from extensive grazing systems to more intensive fattening systems which can produce beef more efficiently, and meet the consumer demand for higher quality beef in higher value markets.

The Vietnamese government has used tariffs to regulate livestock imports. Since joining the WTO in 2007 and the ASEAN-Australia-New Zealand Free Trade Agreement in 2010, Vietnam has committed to reduce trade barriers. Import tariffs were reduced from 22% in 2006 to 5% in 2010 for live cattle and 7% for fresh and frozen beef from Australia, New Zealand and ASEAN countries. The tariffs on cattle, beef and beef offal will soon be abolished under the ASEAN-Australia-New Zealand Free Trade Agreement.

4. Cattle marketing and trade systems

The dimensions of cattle marketing and trade for low, mid and high value markets in Vietnam are presented in Figure 4.

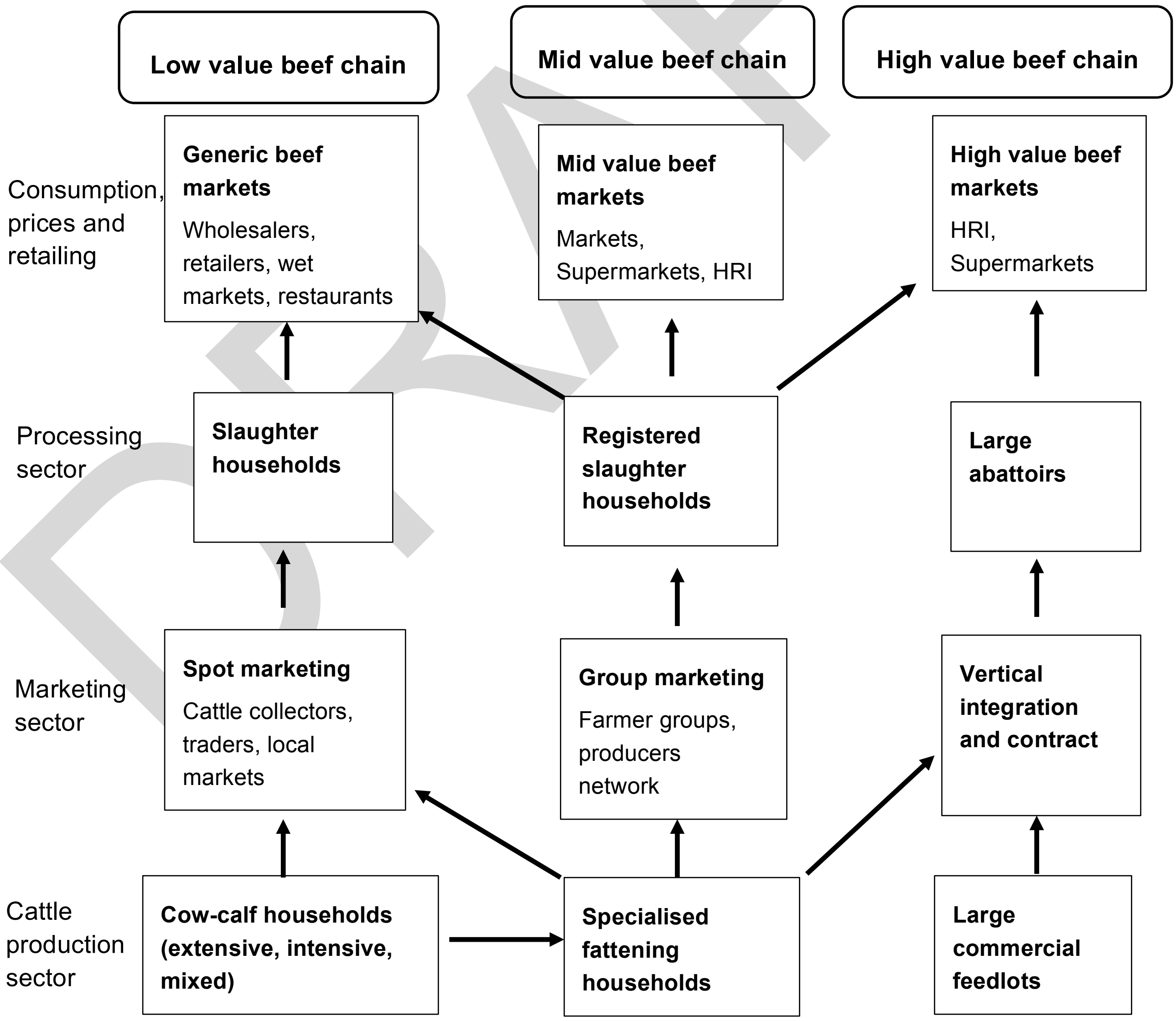

Figure 4: Dimensions of cattle and beef marketing for low, mid and high value markets in Vietnam.

Source: adapted from Waldron (2008)

Live cattle transactions for low value markets (small cities and townships) are generally efficient due to low costs and relatively short chains. Extensive cattle producers sell their products to collectors/ traders at farm gate/ local markets through spot transactions and immediate payment. The producers' price is often based on the previous sales and recent sales of other producers. Cattle assessment is made on a visual basis. The focus is on quantity attributes e.g. estimating cattle weights and dressing percentages rather than on quality attributes. The biggest proportion of cattle (80-90%) is purchased by traders/collectors (Anh et al., 2010; Tra et al., 2010). Small collectors usually buy 1-2 head and sell to larger traders. The larger traders often form a network to find and buy animals in bulk and transport by trucks to slaughterhouses.

Mid and high value cattle producers differentiate their products to be traded. Specialised fattening producers often sell their products through individual marketing or group marketing, while contracting is often done between abattoirs and large commercial feedlots. Because of the higher product demands, a number of product attributes e.g. health and food safety, and beef quality attributes are integrated into the transactions. Specialised fattening producers can be more profitable than extensive cow-calf households, but also more exposed to market risks, especially feeder and finished cattle prices, and feed prices. The registered slaughter houses and modern abattoirs are established to not only service mid and high value markets (e.g. supermarkets, HRI), but also sell mid and low value cuts into mid and low value markets (e.g. wet markets).

5. Inputs sector

5.1. Feed

Vietnam has a small grazing area of around only 329,000 hectares (MARD, 2014). Of which, 58% is located in the Northern Mountains and Midlands. Smallholders in the lowland areas usually have less than 1 ha of land, while in the upland areas have less than 2 ha. Smallholders have increasingly moved from extensive to intensive production to produce beef more efficiently.

Rice straw with an annual production of about 21 million tonnes is used as the main source of feed in cattle production systems. Increasingly forage is grown to fatten cattle in the market oriented cattle production systems (Stur & Gray, 2014).

Commercial compound feeds (mainly corn and soybean) are also used in cattle fattening systems. The feed costs in Vietnam are high compared to international standards due to limited local production, low yields and import tariffs.

5.2. Breeds and breed improvement

In traditional crop-cattle systems, the most common breeds are small yellow cattle that are well-adapted to low quality and limited feed resources, and remain productive. Larger cattle breeds with greater physiological demands including Sindhi Crossbreeds (known in Vietnam as Laisind) are now often raised in the lowlands, fertile coastal and central highland areas with abundant feed resources.

Sindhilisation has been regarded as an important program in the cattle production as Laisind cattle have the ability to adapt and remain reproductive under hot and humid climate in

Vietnam. The Laisind number has increased quickly, and accounted for 30% of the total cattle population in 2006 (Dinh, 2007).

Vietnam's cattle herd has a complex structure comprising of local yellow cattle breeds, Laisind and exotic breeds (FAO, 2003). Extensive cow-calf cattle producers often use local yellow breeds (70-90% of the total cattle herd), with the rest being Laisind. Natural mating commonly takes place in uncontrolled conditions during common grazing. However, some cattle producers select a preferred bull (e.g. Red Sindhi) and pay a fee. Bulls usually come from a household within the village. Specialised fattening operations tend to use a broader based genetic mix and AI, which can include 60% Laisind, 30% cross breeds, and 10% local breeds.

4.2 Disease and veterinary service

The veterinary system in Vietnam has re-organised and expanded in the 1990s following the new government regulations concerning veterinary services, animal quarantine and slaughterhouse inspections driven by the outbreak of major diseases.

There are two separate systems at present: one includes the Veterinary Department in MARD and six regional animal health centres, and the other includes provincial veterinary sub-department and district veterinary stations which are funded by and responsible to provincial governments. Animal health workers, also called para-professional workers, conduct preventive and curative interventions at commune and village level.

The problems of the current systems are the inability of the centres to collect, store and retrieve reliable information about disease incidence, the uneven performance of veterinary stations across provinces, and weak enforcement of hygiene regulations (MARD, 2014). It is thus important to improve capacities of the veterinary systems to control bovine diseases e.g. foot and mouth disease and tuberculosis to meet international protocols for trade formalisation between Vietnam and its neighbouring countries.

6. Cattle production systems

The beef cattle industry in Vietnam can be divided into three main farming systems:

- Extensive cow-calf grazing system (usually 1 to 2 head) is practiced by smallholder farmers in Northern Mountains and Central regions, accounted for 70%-80% of cattle in Vietnam. This system requires little labour as farmers normally do not feed their cattle with compound, concentrate or manufactured. Seasonal crop residues e.g. rice straw are often used to feed cattle at night. Farmers generally use cattle for draught purposes and keep them as a source of savings. This low input system is characterised by low output and poor reproductive performance.
- Specialised fattening system (usually 2 to 10 head) is practiced by market oriented crop-livestock producers in Central Highlands, Central Coast and Southern provinces, accounted for 20-30% of cattle in Vietnam. Fatteners buy light cattle (preferably with high growth potential) from other cattle farmers for fattening. The farmers grow their own forage (e.g. elephant grass, legumes) and usually use locally made concentrate (e.g. rice bran or cassava meal) to feed their cattle. The motivation of the farmers is commercial sale of finished cattle.
- Large-scale feedlots (usually more than 100 head)are mainly located in the south eastern provinces of Binh Duong, Binh Thuan and Ninh Thuan, accounted for 1-2% of cattle. These commercial operations often import cattle from Australia and other countries. They have more competitive advantages over the smallholder farmers, as they feed cattle with by-products from food processing units, compound and concentrate to provide high quality beef to Ho Chi Minh market. However, they are very sensitive for feed costs and access to cattle inputs.

While production systems can be described through these three categories, and specialisation in cattle enterprises is occurring, much of the Vietnamese cattle herd, especially in North and South Central Coast and Central Highlands regions, is produced in "mixed" production systems, where farmers hold breeders and offspring are fed and sold out of the system at slaughter age.

7. The processing sector

Vietnam's cattle processing sector is still at a primary stage, largely dominated by un-mechanised, small scale slaughterhouses. There are up to 6000 slaughterhouses in the country, most of which are privately owned, the rest are state owned. The owners of these private slaughterhouses buy cattle directly from farmers/traders, slaughter and sell beef to different markets. There are also some service slaughterhouses.

Animal slaughtering, meat processing and distribution at private household slaughterhouses are often characterised by unhygienic conditions due to poor practices and lack of infrastructure (MARD, 2014). According to the assessment of OIE (2007), these low cost operations are much better adapted to low value beef markets. Killings occur at night, ranging from a single unit to ten head per day. Animals are skinned and immediately cut in small pieces of meat to be sent mostly to wet markets. Transport and retail marketing is usually done with little or no attention to hygiene.

There are around 10 modern abattoirs in the country. The newer mechanised abattoirs (e.g. VISSAN Limited Company, the largest meat processer in Vietnam, a former state company) does adhere to international standards of hygiene for cattle slaughter. These abattoirs are able to slaughter 40 head of cattle/buffalo per day, and up to 80 head. According to MARD (2014), these modernised abattoirs, which cost billions of Vietnam Dong to build, often provided beef to high value markets e.g. restaurants and supermarkets (30%), wet markets (50%) and processed foods e.g. sausages and tinned beef (20%). However, it is often suggested that these modern abattoirs are working below capacity (just 10% of their capacity) as they cannot compete with traditional slaughterhouses that have lower overhead and operating costs.

Inspection at provincial and district levels can mostly be considered as cursory or non-existent. The veterinary inspectors usually just control the certificates of transport or origin. At commune and village levels, para-professional workers are not inadequately resourced, trained or equipped to do inspections.

8. Beef markets and consumption

Meat consumption in Vietnam has risen significantly in the past decade (Figure 5). Even though beef accounts for the smallest level of total meat consumption, the growth in beef consumption is the fastest, with an annual growth of 11% on average (MARD 2014). This was a result of the rapid income increase, population growth and urbanisation.

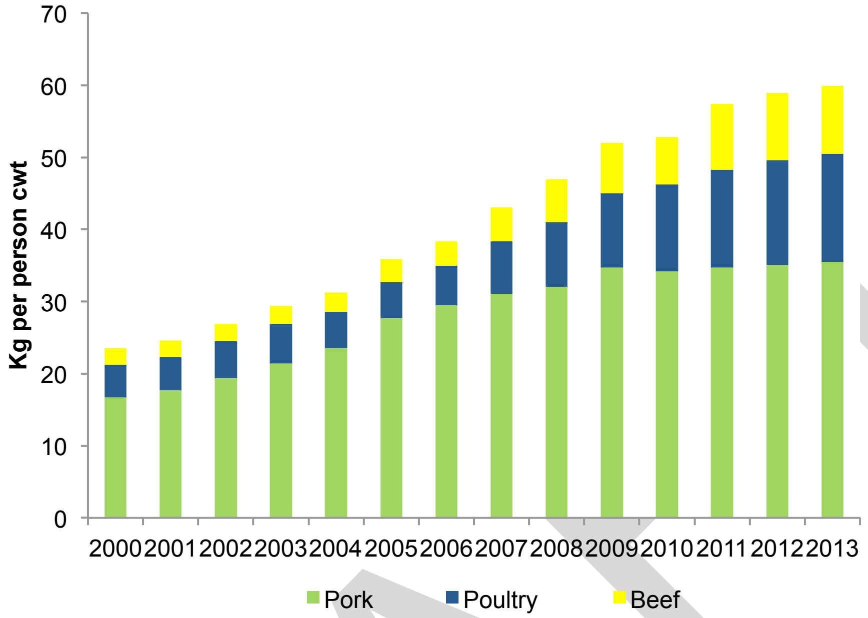

Figure 5: Meat consumption in Vietnam

Source: OECD-FAO (2014)

There are regional differences in beef consumption. According to Nguyen Le et al. (2009), South-eastern and South-central Coast show the highest per capita annual beef consumption, while Mekong Delta and North-eastern provinces exhibit the lowest average beef consumption (Figure 6).

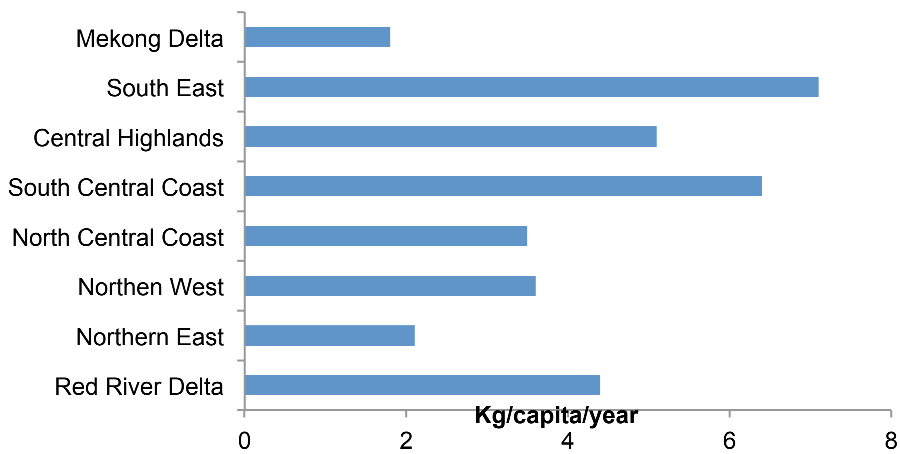

Figure 6: Regional per capita average annual beef consumption (in kg) in Vietnam in 2006

Source: Adapted from Nguyen Le et al. (2009) based on the Vietnam Household Living Standards Survey 2006

The consumers are becoming more demand, which is reflected in the segmentation of beef markets. The price and product information is used to identify three beef value markets – low, mid and high (see Figure 4 above).

In a low value market segment (e.g. wet markets), generic beef is sold for in-home consumption, which accounts for around 70-80% of total beef sold in Vietnam. Price differentials between cuts in wet markets are often not substantial. Consumers prefer to buy beef that is fresh on the day of slaughter and is not being refrigerated.

Beef sold in mid and high value markets accounts for a small percentage (around 20-30%) in supermarkets and HRI. Consumers prefer high quality beef with increased price-grade differentials. Quality characteristics mean cuts, colour, tenderness, juiciness, intramuscular fat, depending on particular types of dishes and cuisines. Health and food safety attributes are important. Generic Vietnamese beef is not suited to higher value markets, e.g. HRI as it is often too lean and unhygienic. Beef for higher value market segment is often supplied by modern abattoirs or imported.

9. Beef prices

The surge demand for live cattle for export to China as well as growing demand in urban areas of Vietnam has put a strong pressure on beef prices in Vietnam in recent years.

Figure 7 shows sharp increases in beef prices[5] compared with those of the most highly consumed meats (pork and chicken). Between 2008 and 2014, beef prices increased at an average of 7.4% per year, while pork and chicken prices declined over the same period. The beef price increases conforms to regional and international trends, which suggest an integrated cross-border beef market.

In wet markets in Hanoi, retail prices of local produced beef fillet (premium cut) averaged 270,000 VND/kg (12.6 USD[6]/kg), round averaged 260,000 VND/kg in 2014, which were slightly lower than the Australian imported beef price (averaged 300,000 VND/kg in Big C supermarkets in Hanoi).

[5] Constant prices were averaged on a yearly basis basing on the available data in the database of the Centre for Informatics and Systems (CIS/MARD). The data was collected by CIS through the market information reporting system throughout Vietnam on a daily basis.

[6] Exchange rate: 21,400 VND = 1 USD in Dec 2014 by Vietcombank in Hanoi,

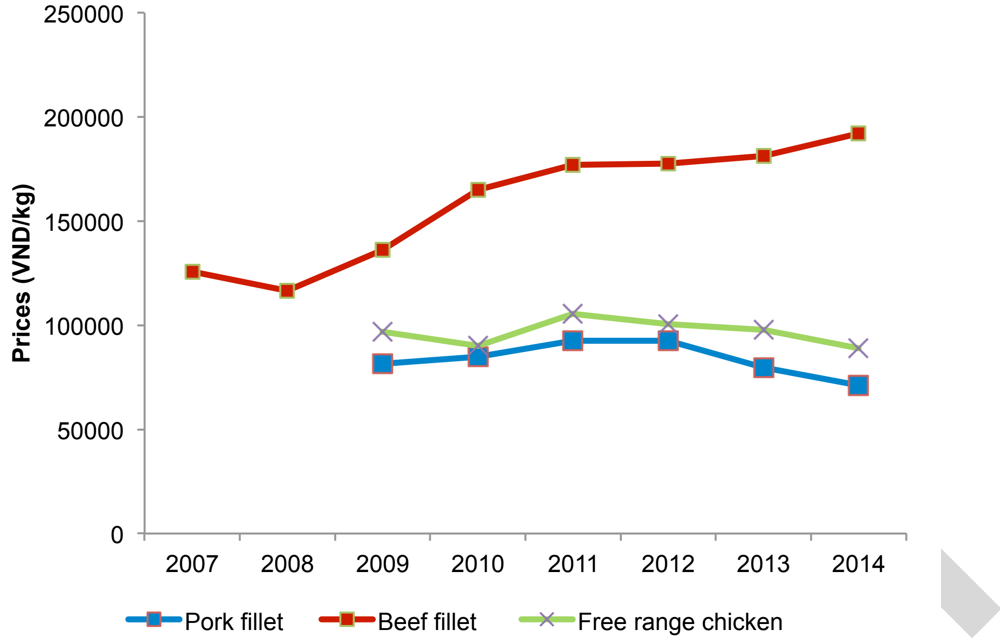

Figure 7: Meat retail prices in Mo market, Hanoi (2010 constant prices)

Source: Adapted from CIS/MARD 2014

10. International trade

10.1. Beef imports

Official beef imports have increased sharply since 2007 (Figure 8). It is reported by industry officials that 70% of imported beef is used for markets in southern provinces, especially Ho Chi Minh City, and 30% is consumed in Hanoi and Hai Phong. A number of factors explain the import surge including constrained production, increasing domestic prices and especially strong demand (incomes, population growth, urbanisation). Lower import tariffs have been partially offset by recent depreciation in the local currency. Hanoi and Ho Chi Minh city are major consumption centres for imported beef.

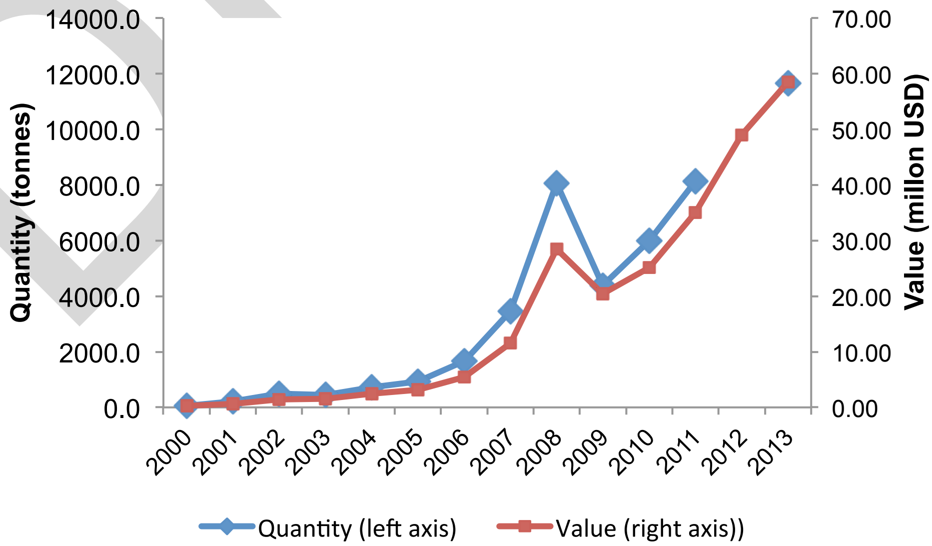

Figure 8: Bovine meat import to Vietnam

Source: UN Comtrade (2014)

The largest bovine meat supplier to Vietnam over the past six years was India, while imports from Australia and the US have also been significantly increased (Figure 9). It is reported by industry officials that a large amount of buffalo meat is temporarily imported through 'grey channels' from India to Vietnam, and then re-exported to China. The dearth of formal data on this trade precludes quantification of volumes.

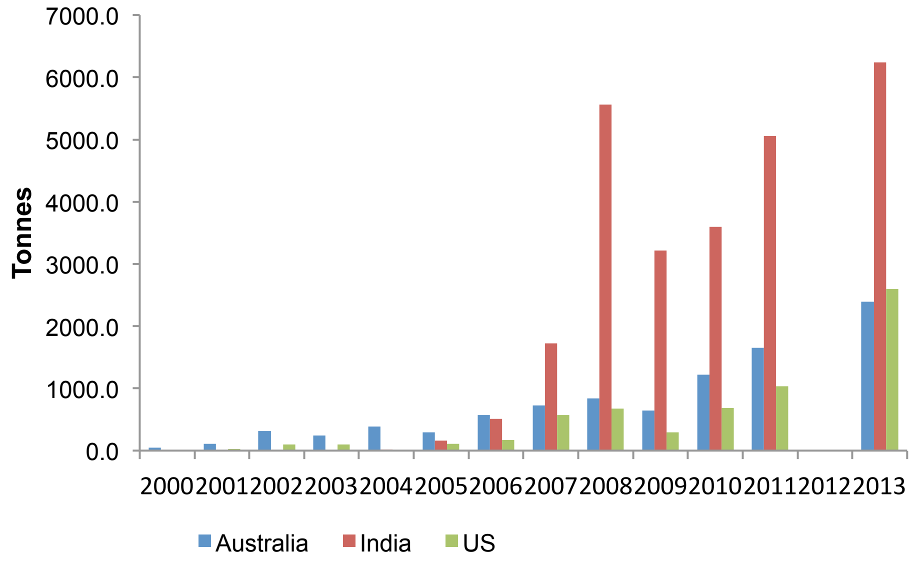

Figure 9: Bovine meat import to Vietnam by countries

Source: UN Comtrade (2014)

There are distinct markets for imported beef in Vietnam. Beef (mostly loin cuts) from the US and Australia competes at the higher end segment, including HRI. Buffalo meat from India is distributed in other lower end segment.

Offal imports have fluctuated but the quantity has also increased since 2001 (Figure 10). Data is still being collected to assess whether the imported offal has been re-exported to China.

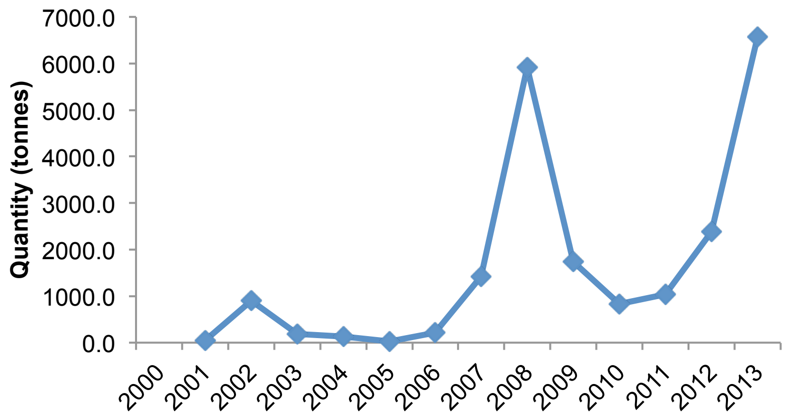

Figure 10: Offal import to Vietnam

Source: UN Comtrade (2014)

10.2. Live cattle trade

Following reduced cattle numbers in Vietnam, and growing demand from both domestic markets and China, Vietnamese importers have capitalised on opportunities to import cattle from neighbouring countries and Australia. According to Cocks et al. (2009), there were nine entry points for live cattle/buffalo traded from Laos and Cambodia to Vietnam with the two main pathways highlighted in orange (Figure 11).

Laos - Vietnam

The cross-border trade between Laos and Vietnam are mainly at Lao Bao (Quang Tri province), Cha Lo gate (Quang Binh province) and Cho U (Nghe An province). The cattle traded in these two border gates are mainly Brahman. The movement of cattle through Cha Lo gate mostly involves Brahman cattle (from Thailand and Myanmar) which transit through Laos. There were 2,800 Brahman cattle cross through the border gate in 2009 (Cocks et al., 2009), imported through a registered company in Quang Binh. The imported animals go through official procedures including health and import certificate verification, vaccination for FMD and 15-45 days in quarantine holding before border entry.

Cattle movement through Lao Bao gate was mostly informal. It is difficult to control trade at Lao Bao due to the number of pathways used to bring animals to Vietnam. It is estimated that 60-70 people walk up to 500 cattle and buffalos per day cross the border to Vietnam (Cocks et al., 2009).

The traded cattle are transported to target destinations including Hanoi and China for slaughter. Some juvenile cattle are destined for fattening in Nghe An and Central provinces.

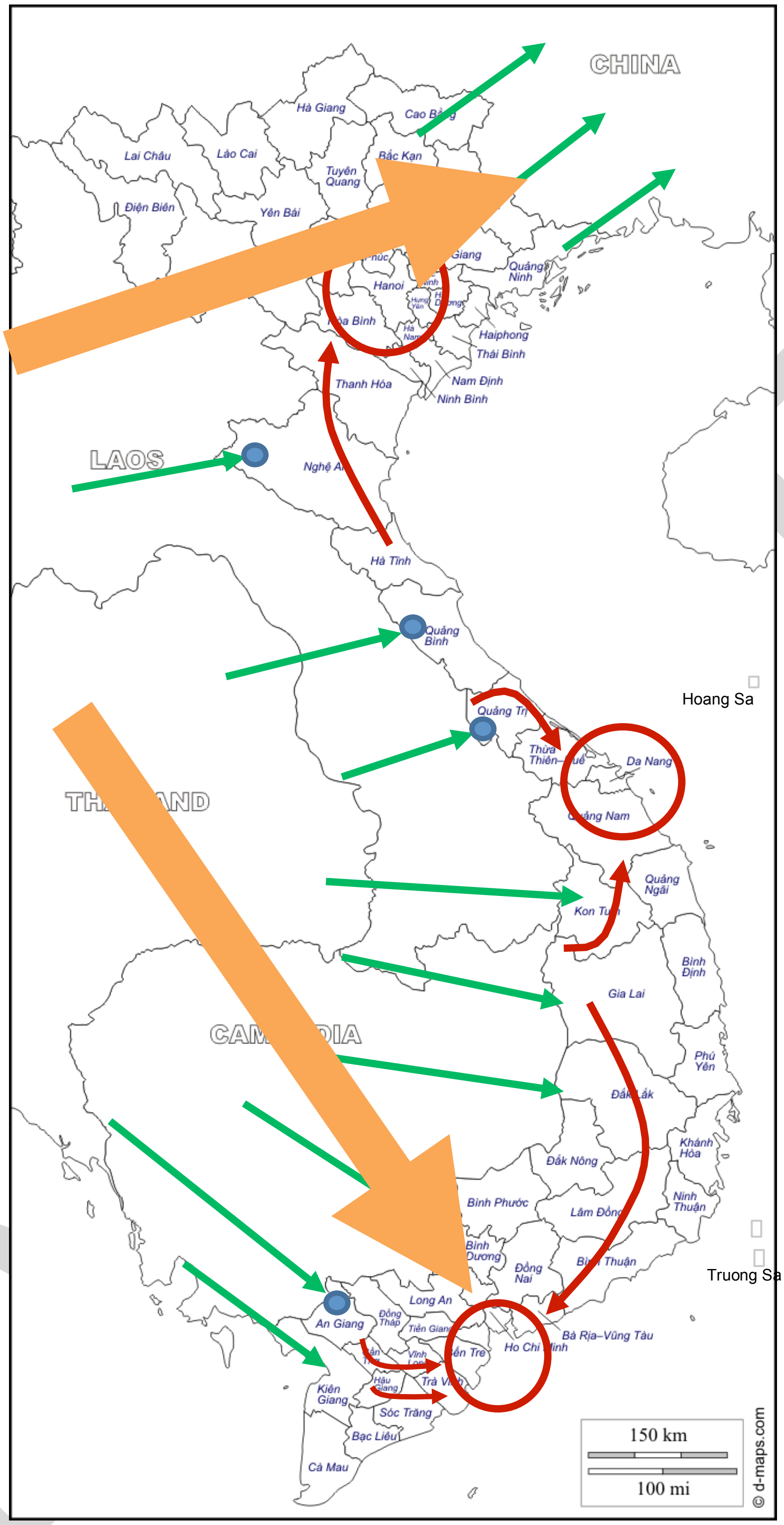

Figure 11: Pathways of live cattle movement.

Source: adapted from Cocks et al. (2009)

Cambodia - Vietnam

According to Cock et al. (2009), the major entry points for semi-formal live cattle traded from Cambodia into southern Vietnam are An Giang, Kien Giang, Tay Ninh and Long An.

A recent visit to An Giang (July 2014) found that cattle were walked by traders through paddy fields across the border. After crossing the border, animals were gathered in Ta Ngao assembly market. This market opens daily and usually counts up to 100-300 head. The animals were then transported to (i) slaughterhouses within or outside province for slaughter, and (ii) fattening farms within or outside the province (Figure 12). The number of cattle traded was large (roughly 3,000 head/month at peak time).

Fattening of young beef cattle is widely practiced in An Giang. About 90% of households in An Phu commune of Tinh Bien district and Vinh Gia commune of Tri Ton district are fattening cattle on a small scale (5-10 head). Apart from An Giang, the fattening operations are developing rapidly in Ben Tre and Long An.

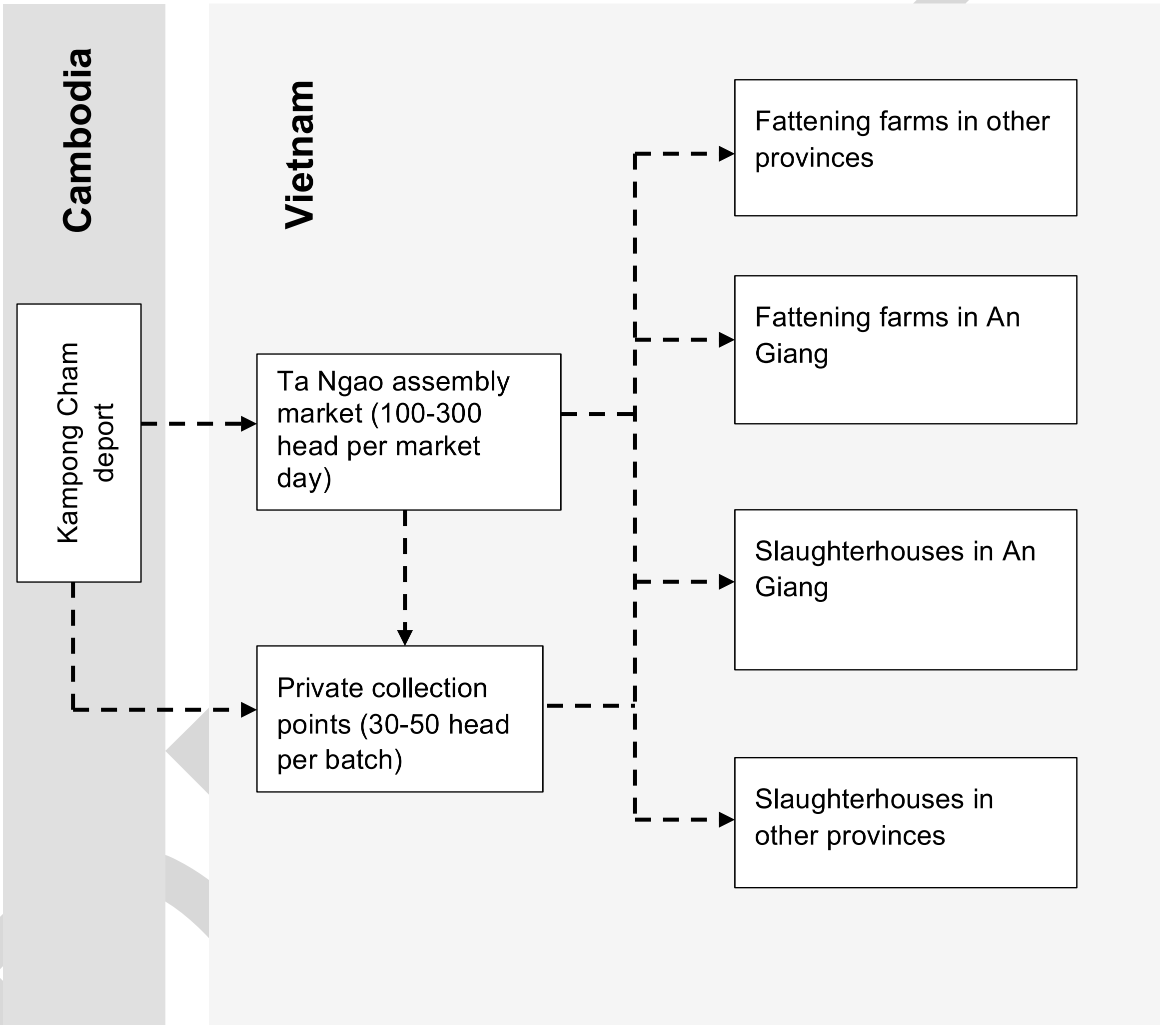

Figure 12: Pathways for cattle imported from Cambodia to An Giang.

Source: Field visit July 2014

Australia-Vietnam

As the demand for quality beef increases in Vietnam, particularly in urban areas, imports of Australian slaughter cattle and feeder cattle have increased rapidly since January 2013. The number of cattle imported from Australia reached 69,000 head in 2013, mostly for slaughter, and despite higher import prices the number increased to 169,960 head in 2014. Vietnam has become the second-largest importer of Australian cattle, behind only Indonesia. Vietnam presents an important opportunity for Australia's live cattle export to diversity its markets from the Indonesian market. It is acknowledged by industry officials that around 70% of imported cattle are destined for fattening and slaughter for consumption in Ho Chi Minh City, and 30% for consumption in Hanoi. A number of feedlots and slaughterhouses have been constructed or are currently under construction in the southern provinces, which meet the Exporter Supply Chain Assurance System (ESCAS) to qualify for cattle imports from Australia for slaughter and fattening.

Vietnam - China

Before 2008, cattle were imported to Vietnam from China for slaughterhouses in Ha Noi and other cities. The direction of cattle movement reversed after 2008. . Traders buy cattle and buffaloes from other provinces in Vietnam such as Nghe An, Thanh Hoa and transport by trucks to Tra Linh market, Cao Bang province. Many of these cattle are imported through Laos and Cambodia.

Live cattle movement across Vietnam-China border is semi-formal. Traders from China come to Tra Linh market to buy cattle from Vietnamese traders. Even in Tra Linh where official border gate exists, traders often hire local Vietnamese people to walk cattle and buffaloes through border crossings (500-1,000 cattle per market day, 8 market days per month).

The high incidence of semi-formal trade to China and Vietnam reflects high demand, price differentials, and trade policy settings in China. China's beef import policy has been driven by domestic health and food safety issues, banning imports from those countries that do not have disease free cattle/beef industries (Waldron & Brown, 2014).

With regard to trade in general / trade through all channels, Trade patterns are strongly influenced by price differences and border restrictions. There is a need to accurately predict the impact of policy changes and other changes of basic conditions on industry development and also on livelihoods of smallholders and other stakeholders involved in the cattle and beef sector. These changes could be further analysed include: impact of a liberalisation of live cattle export policies in Myanmar; impact of opening up of direct cattle exports from Australia to China; impact of clampdown on semi-formal cattle trade between Vietnam and China; impact of rise in cattle feed prices; and impact of consumption increases in Vietnam.

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