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Recent Developments in the Trade of Cattle Between Myanmar and China

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Recent Developments in the Trade of Cattle Between Myanmar and China

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Summary

Cattle movements, slaughtering and exports have been tightly regulated within Myanmar for many decades, in order to preserve a sufficiently large herd to provide draught power for small and medium scale farmers. This system of regulation, combined with increased demand for cattle in China and Vietnam and low levels of demand for beef in Myanmar has led to a situation where the price of cattle in the Central Dry Zone of Myanmar is significantly lower than the price in Southern China or Thailand. This has resulted in large number of cattle being exported illegally from Myanmar – with some estimates as high as 500,000 head per year.

In October 2017, the new government announced a 1 year trial of permitting live cattle exports directly to China under a regulated system overseen by LBVD. There was an initial enthusiastic response to the trial, with almost 30,000 head of cattle and buffalo exported through the Muse border gate by early April 2018.

A number of constraints exist that will need to be overcome if the new “semi-formal” export trade is to replace the large scale informal/illegal trade and deliver sustainable benefits to smallholder cattle farmers. First, the trade needs to be formalized on the Chinese side as well as the Myanmar side and harmonized quarantine arrangements will need to be in place. Second, the regulations around movement of cattle inside Myanmar will need to be liberalized. Currently it is very challenging to move cattle from various sourcing areas to collection points in the Central Dry Zone for obtaining an export permit. Finally, the process of obtaining an export permit should be streamlined. Currently it takes 1-2 months to obtain an export permit and during that time cattle must be kept in collection farmers in the Central Dry Zone – this adds significant expense to the export of cattle as feeding and holding costs are relatively high. In addition, the requirement to obtain a new export permit for every export lot of 100 cattle should be reconsidered. If those constraints could be overcome, the potential for formalized cattle exports to deliver sustainable benefits to smallholder farmers in the Central Dry Zone of Myanmar is significant.

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Acronyms

| | | |
|--------|---|--|
| AI | - | Artificial Insemination |
| AnGR | - | Animal Genetic Resources |
| APHCA | - | Animal Production and Health Commission for Asia and The Pacific |
| CIDA | - | Canadian International Development Agency |
| FAO | - | Food and Agriculture Organisation |
| LBVD | - | Livestock Breeding and Veterinary Department |
| LPEAR | - | Livestock Production, Extension and Applied Research |
| MDEP | - | Myanmar Dairy Excellence Project |
| MOALI | - | Ministry of Agriculture Livestock and Irrigation |
| MOC | - | Ministry of Commerce |
| NRAGR | - | National Report on Animal Genetic Resources |
| UMFCCI | - | The Union Myanmar Federation of Chamber of Commerce and Industries |

1. The cattle sector in Myanmar

Myanmar is a predominately agrarian country with more than 70 percent of the population living in rural areas. Cattle continue to play a key role in farming. Farmers raise cattle and buffalo mainly for draught power or for dairy, but rarely for meat production. Myanmar has the highest number of both cattle and buffalo in Southeast Asia with around 15.5 million cattle and 3.4 million buffalo in 2014 (Table 1 and Table 2). According to LBVD, by 2017, the total population of cattle reached more than 17 million, including 9.37 million draught cattle, 3.24 million dairy cattle and 4.43 million other cattle (Thein, 2017).

Livestock contributes around 20 percent of the agricultural GDP in Myanmar and provides income and employment of farmers and people involving in the chain of input and service providing, trading, slaughtering, processing and consumption (Luong Pham, 2015; LPEAR, 2016). In rural and remote areas, small-scale backyard raising of draft cattle, buffalo, sheep/goat, local pigs, chickens and ducks predominates. Medium-scale raising is only found in peri-urban areas (Thein, 2017).

Where open forage resources are abundant, smallholder cattle raising is based on grazing on common land areas. However, the most common feeding method is cut-and-carry supplemented by crop by-products mixed with rice bran and groundnut cake. Paddy production, is major source of crop by-products for feeding to cattle (Luong Pham, 2015).

Table 1: Population of Cattle ('000 Heads) in South-Eastern Asia ('000 Heads)

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--------------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Brunei | 0.94 | 0.95 | 0.85 | 0.85 | 0.90 | 0.81 | 0.80 | 0.80 |
| Cambodia | 3368.45 | 3457.79 | 3579.88 | 3484.60 | 3406.97 | 2914.97 | 2900.00 | 2875.00 |
| Indonesia | 11514.90 | 12256.60 | 12759.84 | 13582.00 | 14824.00 | 15981.00 | 13127.80 | 15186.30 |
| Lao PDR | 1353.00 | 1397.00 | 1430.00 | 1474.00 | 1538.00 | 1692.00 | 1714.00 | 1766.00 |
| Malaysia | 873.33 | 882.67 | 893.53 | 836.91 | 768.40 | 744.38 | 751.50 | 761.00 |
| Myanmar | 12633.92 | 12929.24 | 13185.52 | 13608.91 | 14088.04 | 14559.00 | 15046.00 | 15543.00 |
| Philippines | 2565.90 | 2566.49 | 2586.00 | 2570.90 | 2518.40 | 2493.16 | 2497.91 | 2504.64 |
| Singapore | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| Timor-Leste | 142.42 | 145.34 | 148.40 | 161.65 | 170.22 | 173.12 | 176.06 | 180.00 |
| Thailand | 6480.88 | 6700.00 | 6647.33 | 6498.00 | 5890.70 | 5392.58 | 5147.52 | 4898.58 |
| Vietnam | 6724.70 | 6337.70 | 6103.30 | 5808.30 | 5436.60 | 5194.18 | 5156.73 | 5234.30 |
| South-Eastern Asia | 45658.63 | 46673.98 | 47334.85 | 48026.32 | 48642.44 | 49145.39 | 46518.51 | 48949.81 |
| World | 1428015.73 | 1441521.16 | 1449846.13 | 1453408.65 | 1451876.16 | 1464840.78 | 1467839.86 | 1482144.42 |

Source: Myanmar Livestock Statistics (2017)

Table 2: Population of Buffalo in South-Eastern Asia ('000 Heads)

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Brunei | 4.67 | 4.89 | 4.12 | 4.12 | 2.55 | 2.44 | 2.35 | 2.40 |
| Cambodia | 772.78 | 746.21 | 739.65 | 702.07 | 689.83 | 680.00 | 676.00 | 680.00 |
| Indonesia | 2085.78 | 1930.72 | 1933.00 | 1999.50 | 1305.00 | 1438.00 | 1109.50 | 1320.60 |
| Lao PDR | 1123.00 | 1154.00 | 1178.00 | 1189.00 | 1197.00 | 1188.00 | 1190.00 | 1153.00 |
| Malaysia | 130.78 | 131.23 | 127.15 | 125.90 | 123.31 | 124.99 | 123.65 | 122.94 |
| Myanmar | 2841.73 | 2923.57 | 2874.86 | 2977.15 | 3096.89 | 3211.00 | 3321.00 | 3426.00 |
| Philippines | 3383.62 | 3338.57 | 3321.00 | 3270.40 | 3075.30 | 2963.80 | 2912.84 | 2844.15 |
| Singapore | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Timor-Leste | 100.90 | 102.22 | 103.54 | 96.48 | 98.12 | 103.33 | 108.80 | 110.00 |
| Thailand | 1743.55 | 1699.47 | 1670.51 | 1622.65 | 1587.73 | 1542.17 | 1288.81 | 1020.09 |
| Vietnam | 2996.40 | 2897.70 | 2886.60 | 2877.00 | 2712.00 | 2627.81 | 2559.54 | 2511.90 |
| South-Eastern Asia | 15183.20 | 14928.56 | 14838.42 | 14864.28 | 13887.73 | 13881.53 | 13292.49 | 13191.08 |
| World | 183959.08 | 185839.57 | 187346.21 | 188186.23 | 190398.33 | 192319.41 | 193282.49 | 195098.32 |

Source: Myanmar Livestock Statistics (2017)

1.1 Distribution of cattle

Myanmar has a diverse range of agro-ecological zones, including Hilly and mountainous, Central Dry, Delta and Coastal Zones. High mountain ranges, plateaux and forests are the prominent features of the Hilly and Mountainous Zone and agriculture mostly consists of upland cultivation. This region includes Kachin, Kayah, Shan and Chin States. The Central Dry Zone is characterized by a flat topography and semi-arid conditions. Sagaing, Mandalay and Magwe Regions are located in the Central Dry Zone. Ayeyarwady, Bago and Yangon Regions are located in the Delta Zone and Rakhine, Mon State and Tanintharyi Regions are in the Coastal Zone.

Differences in agro-ecological conditions, farming systems and proximity to markets mean that the distribution of cattle and buffalo throughout the country is uneven. The buffalo population is concentrated in delta, coastal and some upland areas, while the cattle population is spread more widely across the regions, with the highest number being in the Central Dry Zone (LPEAR, 2016).

1.1.1 Numbers of cattle and buffalo in States and Regions

Cattle are more concentrated in the Central Dry Zone, which has favorable agro ecological conditions for cattle raising and have a larger market potential and availability of veterinary services (Luong Pham, 2015). In 2016-2017 there were an estimated around 8 million cattle in the Central Dry Zone (2.6 million in Sagaing, 2.98 million in Magwe and 2.4 million in Mandalay Region). This accounts for almost 50 percent of the total cattle population of the country. (Figure 1).

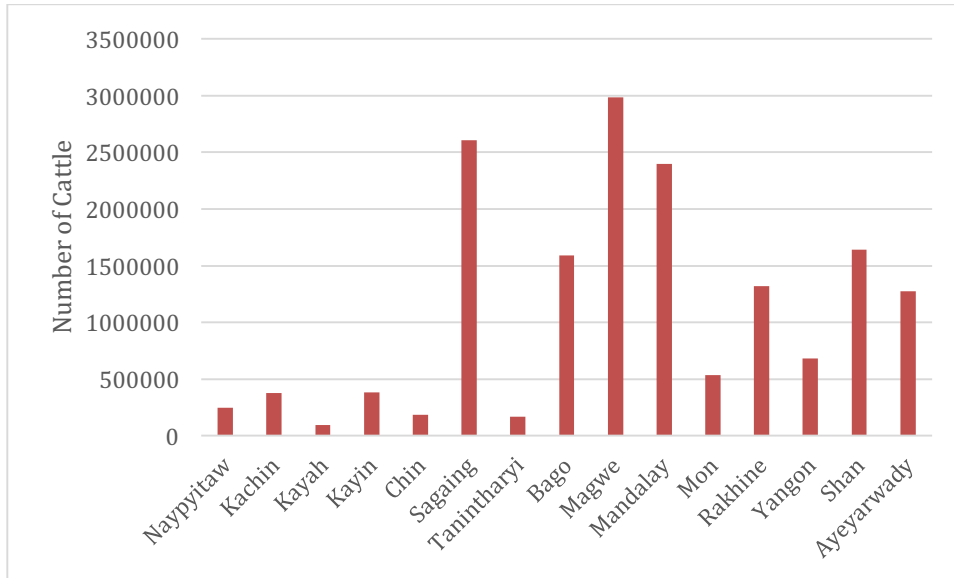


Figure 1: Population of Cattle by State/Region in 2016-17
 Source: Breeding and Veterinary Department (LBVD), 2018

Compared to other States and Regions, the buffalo populations in Shan state, Sagaing Region and Rakhine State are comparatively high, together accounting for around 1.8 million of the total buffalo population of 3.6 million (Figure 2). While a large number of farmers use buffalo for draft purposes, the total buffalo population is smaller than the cattle population as farmers generally use only one buffalo in ploughing, rather than two cattle (NRAGR, 2001).

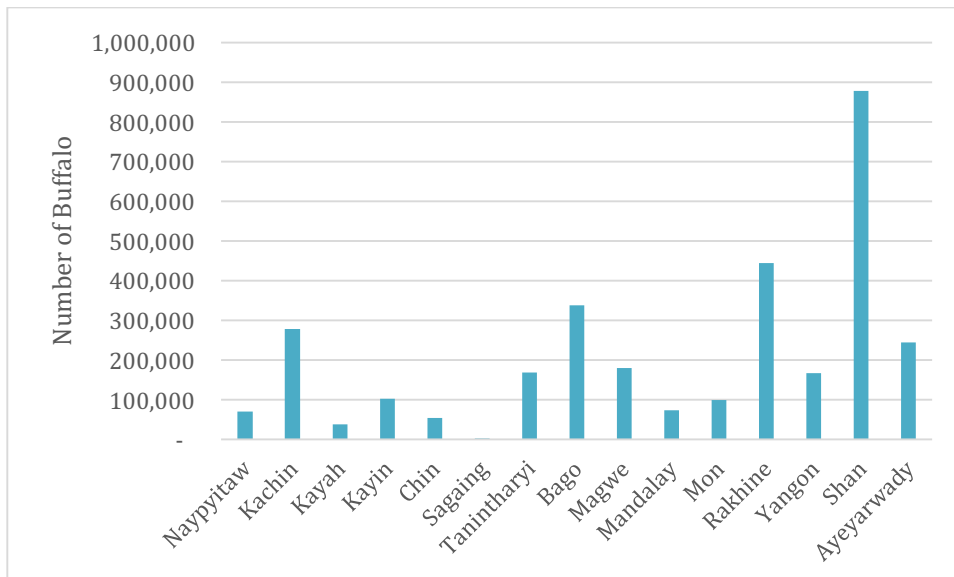


Figure 2 : Population of Buffalo by State/Region in 2016-17
 Source: Livestock Breeding and Veterinary Department (LBVD), 2018

1.1.2 Cattle breeds

Shwe Ni and Pyar Sein are the most common cattle breeds in Myanmar. Shwe Ni is an indigenous breed and Pyar Sein is a cross between local and Indian breeds. Shwe Ni cattle have a golden red colour and Pyar Sein cattle are white in colour. The former is abundant in Magway and Mandalay Regions while the latter is most common in the Central Dry Zone and the upper regions.

The government has introduced exotic breeds since 1958 with the aim of increasing the proportion of crossbred cattle from 50% to 70%. The government has received support for these efforts from projects with funding from FAO, World Bank, UNDCP, Thailand and the New Zealand Government (Table 3, Table 4 and Table 5).

Table 3 List of Imported Exotic Breed, Projects and International Aid for breed improvement

| List of Imported Exotic Breed (Cattle) | | | |
|--|---------------|---------------------------------|----------------|
| Name of Breed | Imported year | Country | Project |
| Red Sindhi | 1958 | Pakistan | |
| Thari | 1958 | Pakistan | |
| Friesian 67, Jersey 62, Pregnant Heifer 129 heads | 1978, June | New Zealand | Work Bank Loan |
| Friesian (79 Pregnant Heifer, 2 young Bulls, 81 heads) | 1978 | Australia | UNDCP |
| Donkey | 1980 | Northern India, Rajasthan State | |

Source: (NRAGR, 2001) (Thein, 2017) (Wynn, 2018)

Table 4 List of key projects for cattle development

| Projects | | | |
|--|---|---|---|
| Project Title | Project Duration | Project Budget and Funding Agency | Project Area |
| AI development project | 1972-76 | FAO | |
| Livestock development project | 1976 | World Bank | |
| Myanmar-New Zealand Dairy Excellence Project | 2014-2019 | NZ\$ 5.6 million and New Zealand Government | Naypyitaw, Yangon, Mandalay, Shan, Sagaing and Magwe Region |
| Upgrading Artificial Insemination Program | 5 years (2019-20 to 2023-24 financial year) | USD 15.83 million | Nay Pyi Taw, Sagaing, Magway, Mandalay and Yangon |

Source: (NRAGR, 2001) (Thein, 2017) (Wynn, 2018)

Table 5 Supply of semen straws supported by international aid

| International Aid | | |
|---|------------------------|-------------------|
| Supply of Semen Straw | Country | Fund |
| Frozen semen straw of beef cattle (100000) straws | Thailand | International Aid |
| Frozen semen straw of dairy cattle (20000) straws | Thailand | International Aid |
| Frozen semen straw of dairy cattle (5000) straws | New Zealand Government | International Aid |

Source: (NRAGR, 2001) (Thein, 2017) (Wynn, 2018)

LBVD have implemented a five year project of artificial insemination with World Bank and this project supported the establishment of an artificial insemination center and supplied equipment for an AI center and field studies (Pham et al., 2015). Crossbreed dairy and draught cattle are produced through Artificial Insemination services (AI) with semen from bulls kept at an AI centre near Yangon. Farmers pay an AI service fee but not for the semen (LPEAR, 2016). In addition, the Government has set up a 5 year plan (2019 to 2024) of upgrading the artificial insemination program as a priority project with a total budget of USD15.83 million. (Table 3).

1.1.3 Production systems of cattle

It is important to note that despite having the largest cattle herd in South East Asia, there are virtually no specialised beef production systems existing in the country, at either a small, medium or large scale. Until very recently, cattle production systems in Myanmar were either oriented towards draught power provision or dairy production.

Cattle production systems in Myanmar can be grouped around three main typologies: small scale mixed crop-livestock farming systems, small-scale dairy cattle farming and medium to large-scale dairy production.

Small-scale mixed crop-livestock farming system - This is the predominant farming system involving cattle/buffalo in Myanmar. Farmers practice cropping and use pairs of working bullocks or pairs of buffalo for draft purposes. Local breed bulls are raised primarily for draught while females are used for breeding and calves are kept with cows until weaning. Cattle are normally grazed on pasture, roadsides and communal land and the system can be characterized as being a low input system with poor reproductive performance.

Small-scale dairy cattle farming- This farming system is mainly practiced by small farmers for the purpose of milk production (usually > 3 heads). In the past small scale dairy production used Pyar Sein cattle in a mixed dairy/draught power system. More recently, small-scale dairy production has used crossbred cattle, either between local and Indian breeds of cattle or exotic breeds introduced through various development projects. These projects have introduced

frozen straws of semen of exotic breeds such as Holstein Friesian, Jersey, Guernsey, and Norwegian Red.

Large-scale dairy cattle farming- This farming system is operated by commercial farmers raising cross breed cattle (up to several hundred cattle) for milk production in high input-output systems. Cattle are completely stall feed using concentrates. Legumes are grown to feed the animals. Dairy cattle farming and small milk processing plants are more concentrated in peri-urban areas of large cities and towns including Mandalay, Kyayk Se and Meikhtilar to meet the rising demand for milk, dairy products and confectionary among urban consumers.

1.1.4 Meat Consumption

Per-capita consumption of beef in Myanmar is at an extremely low level. Cultural factors, including the belief that cattle are the benefactors for rice production, are deeply ingrained in Myanmar, and this is not likely to significantly change in the future. There is some demand for beef in larger cities, including Yangon, Mandalay, Bago, Taunggyi (Southern Shan State) and Mawlamyaing (Mon State). This demand is mostly associated with the presence of foreigners, either working in these areas or visiting as tourists.

In comparison, annual per-capita consumption of fish in Myanmar is around 22kg. Poultry and pork consumption levels are relatively low at around 3kg per capita per year. Most fish, pork and poultry consumption is supplied from domestic sources, with very little of these products imported. (Thein, 2017).

1.2 Existing formal and informal cattle trade patterns

1.2.1 Domestic Trade Patterns

Farmers sell their cattle to neighboring farmers or in local markets for several reasons. Farmers may sell the cattle (i) when cattle are needed to be replaced; (ii) when cattle are no longer useful; (iii) when draught power of the cattle is being replaced by machines or; (iv) when they need money in an emergency.

Major domestic flows of cattle trading in Myanmar are trading (1) between farmers; and (2) from farmers to markets for sale to other farmers or for slaughter in urban areas (such as Yangon and Mandalay City) (LPEAR, 2016).

Farmers usually sell cattle at the beginning and end of the cultivation period each year. They mostly sell directly to other farmers or to collectors at the farm gate or through dealers. Selling

at live markets is done by the farmers themselves or –less commonly – through a broker who handles the transaction for a commission fee.

Cattle markets

Cattle markets are important in the Myanmar cattle-trading pattern. The markets are the sites for farmer-to-farmer trade of productive animals, the supply of slaughter animals to the local and Yangon and Mandalay market, and for the sale of cattle and buffalos from Central Dry Zone and Delta to link the informal cross-border trade in Northern Shan and Muse.

Farmers or traders bring animals to markets on foot or on vehicles and every farmer or trader has to register the animals and pay a small amount of money per head for trading and registration. The seller also needs to give a health certificate issued by LBVD to the buyers. People who do not want to pay market fees do informal trading at locations near these markets.

There are 49 cattle markets registered with LBVD. These are located along the major transport routes in Myanmar. These markets are not open daily - 28 of the markets are held every fifth day and the remaining 21 are held every seventh day. A total of around 262,000 cattle per year are traded through the official market system.

Beef market

For slaughter and sale of meat products, a licence must be held. Although one person may hold multiple licences, licences pertain to one animal species only. Licences are awarded annually, usually with a baseline increase in the fee of 10-30 percent per year with tender system. Licences renewal may occur automatically if the City Development Committee (CDC) or Ministry of Border Affairs (MBA) has been happy with the licensee's performance. In some smaller districts, only one person bids for the licence each year. In addition to the annual licence fee, licensees pay a per- head slaughter fee. Licensees normally purchased the animals every few days and then keep at a farm near the slaughterhouse. A few animals are then taken to slaughter each day. Animals are slaughtered late at night or very early in the morning and are immediately distributed to retailers for sale (LPEAR, 2016).

1.2.2 Export Trade Patterns

Three distinct export trade patterns for cattle can be identified. These are; (i) Formal Exports; (ii) Semi-formalized export of cattle to China (since 2017); and (iii) informal/illegal export of cattle.

Formal Exports

Cattle have been classed as a restricted commodity since the Government nationalized all domestic industries and imposed protectionist trade policies in 1962. The restriction on live cattle movements and exports was reinforced in the 2012 Major Commodity and Service Law. Formal exports of cattle before 2017 were at a very minimal level. In 2000, the government exported 5400 head of cattle to Malaysia and a further 2223 head were exported to Malaysia in 2010, through seaport quarantine at Rakhine State, Tanintharyi Region and Yangon Region.

Semi Formalized Export of Cattle to China

In October, 2017 the government announced a one-year trial of permitting cattle live exports to China and set up a series of rules and regulations for this export trade. The rules and regulations note that export license holders approved by MOC are able to export cattle in accordance with the specifications and restrictions laid down from LBVD and MOALI.

This rapidly developing trade can still be classified as semi-formal, as the liberalization only affects the Myanmar side of the cross-border trade. China still has not issued any regulations formalizing the import of cattle directly from Myanmar, and bilateral agreement on the trade is still under discussion between the two countries.

For legal routes, the trader/company must have the export license issued by the Ministry of Commerce, the permission of cattle movement from the local authorities where the cattle are located and cattle movement certificate (PC-3) issued by LBVD. Veterinary inspection and 21 days quarantine is done for exported cattle.

Semi-formal cross-border live cattle trade to China has significantly increased since December 2017. During the four months period from December 2017 to April, 2018, the numbers of live cattle and buffalo exported to China were 25,250 and 2,990, respectively (Table 6).

All of the cattle and more than 99 percent of the buffalo exported to China through the semi-formal channel were male. Since the liberalization of trade from the Myanmar side, a total of 283 companies have become involved exporting, 447 companies have received a cattle movement certificate (PC-3) issued by LBVD and 326 companies have applied for veterinary inspection and quarantine status (Table 7). Until April 2018, the export value of cattle through the semi-formal channel had already reached more than USD24.2 million (Table 8).

Table 6 : Monthly Exporting Numbers of live cattle and buffalo to China through legal routes

| Sr. No | Month | Cattle | | | Buffalo | | | Cattle and Buffalo | | |
|--------|---------------------|--------|--------|-------|---------|--------|-------|--------------------|--------|-------|
| | | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| 1 | December | 773 | | 773 | 318 | 9 | 327 | 1091 | 9 | 1100 |
| 2 | January | 7480 | | 7480 | 446 | 54 | 500 | 7926 | 54 | 7980 |
| 3 | February | 6424 | | 6424 | 887 | 149 | 1036 | 7311 | 149 | 7460 |
| 4 | March | 9173 | | 9173 | 882 | 145 | 1027 | 10055 | 145 | 10200 |
| 5 | April (5.4.2018) | 1400 | | 1400 | 87 | 13 | 100 | 1487 | 13 | 1500 |
| 6 | Total | 25250 | | 25250 | 2620 | 370 | 2990 | 27870 | 370 | 28240 |

Source: Livestock Breeding and Veterinary Department (LBVD), 2018

Table 7 : Numbers of Companies in Operational Process of Export to China through legal routes

| Sr.No | Description | Numbers |
|-------|---|---------|
| 1 | Companies exporting the live cattle to China | 283 |
| 2 | Companies getting the cattle movement certificate (PC 3) | 447 |
| 3 | Companies applying for veterinary inspection and quarantine | 326 |

Source: Livestock Breeding and Veterinary Department (LBVD), 2018

Table 8 : Export value of cattle and buffalo exports to China from (1-4-2017) to (16-3-2018)

| Item Name | Value (million USD) |
|-----------|---------------------|
| Cattle | 21.499 |
| Buffalo | 2.760 |
| Total | 24.259 |

Source: Ministry of Commerce (MOC), 2018

Export quality cattle were mainly obtained from Delta and Central Dry Zone; Bago, Magway (Pakkoku, Magwe, Yenanchaung Townships), Mandalay (Mandalay, Myinchan, Kyaukse Township) and Sagaing (Shwebo, Wetlet, Kantbalu Township). Kyauk Se, Tadaoo, Myinchan, Meikhtila townships in Mandalay region are the main places for collection of cattle for subsequent trucking to Northern Shan State for export to China.

Informal/Illegal Export of Cattle

The large cattle and buffalo population in Myanmar combined with low domestic demand and restrictions on slaughtering and export of cattle have led to a significant differential between the price of cattle inside Myanmar and outside Myanmar.

This price differential, combined with rapid increases in demand for beef and beef products in China and Vietnam has led to the development of a significant informal/illegal export trade in cattle from Myanmar. (Yueming et al., 2015; Luong Phan, 2015; Khaing H. , 2017). Live cattle are mainly export to China (Muse) and other country includes Thailand (Mae Sot, Mae Sariang) and Vietnam.

According to the estimation of FAOSTAT using trading partners' databases, informal/illegal live cattle exports in 2011 numbered 71920 heads and reached to nearly 98419 heads in 2016. Likewise, from 2012 to 2016, number of export buffalo has increased from 28225 heads to 31428 heads (FAOSTAT). The study of cattle movement pathway through cross-border from Myawaddy, Myanmar to Mae Sot, Thailand showed that there was large livestock market in the border trade including as many as 5000 head of cattle and buffalo per market session with two market sessions each week, reaching a potential level of 520,000 head per year (Smith et al., 2015).

According to the 2012 Major Commodity and Service Law, the maximum penalty for cattle transporting without permission is three years of prison and 500,000 MMK fine (Khine, 2017).

1.3 Drivers of cattle sector development and export trade

The high cattle and buffalo populations in Myanmar, combined with increased mechanization, favourable agro-climatic conditions for cattle farming, low levels of domestic beef consumption and high levels of demand for beef in China and Vietnam are major drivers of the development of the cattle industry and cattle exports.

1.3.1 Production/ Supply

Over the past six years, between 2010-2016, cattle numbers across the country have been growing steadily from 13,600,000 to 16,500,000 with the estimated increase rate of 500,000 per year (Appendix-1). Likewise, goat numbers have been doubled over six years and are likely to continue to grow in coming years. The buffalo population has increased almost 20 per cent over the past six years, from 3,000,000 in 2010-2011 and 3,600,000 in 2016-2017. (Appendix-2). The abundant cattle and buffalo in the Central Dry Zone are the major source of supply for cross-border trade to Muse.

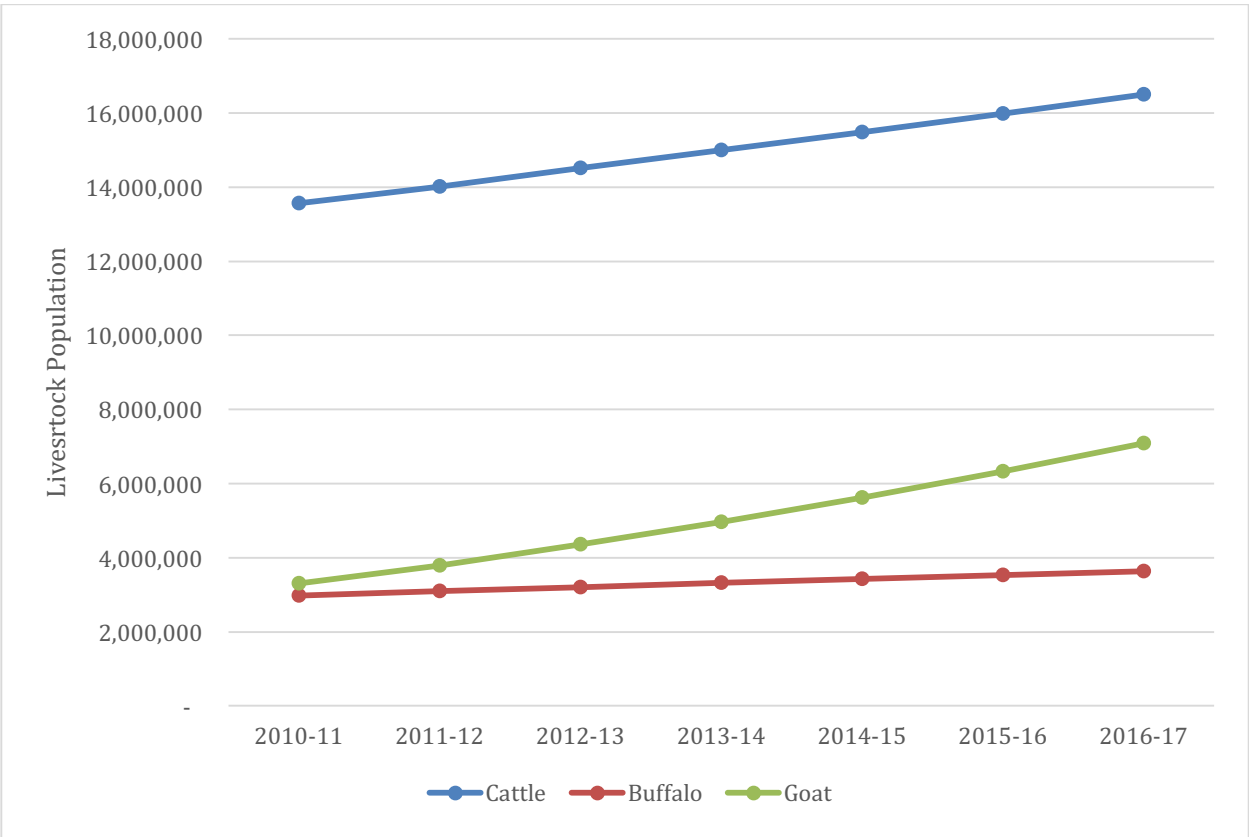


Figure 3 : Population of Livestock in Myanmar
 Source: Livestock Breeding and Veterinary Department (LBVD), 2018

1.3.2 Demographics and agro-climatic condition

Agro-climatic conditions are significant factors in shaping the trade structure. Different patterns of livestock raising take place in Myanmar in the context of the cropping systems, topography, and agro-ecological zones.

The Central Dry Zone of Myanmar is characterized as densely populated area containing 25 % of the country’s population, with the majority of households earned their living with farming. Flat plains feature in the topography of the Dry Zone and the climate ranges from semi-arid to semi-humid across the region. Dry Zone is especially important for cattle, sheep and goat production due to favorable agro-climatic condition and attaining the highest area for livestock and cattle farming (Table 9). The delta and coastal areas have high populations of buffalo, pigs and ducks. Dairy cattle are concentrated largely in the Mandalay region of the Dry Zone, and Yangon Region where there is good access to markets.

Table 9 : Distribution of MOALI defined Livestock Zones According to Agro Ecological Condition

| Agro-Ecological Zone | State/Region | Livestock Zone | Area (acre) | |
|----------------------|--------------|------------------|---------------------------|---------|
| Central Dry Zone | Nay Pyi Taw | Kan Gyi | 1614.00 | |
| | | Shwe Myo | 271.33 | |
| | | Pyaung Gaung Gyi | 623.00 | |
| | Sagaing | | Min Pyin | 2000.00 |
| | | | Yinmarpin | 21.13 |
| | | | Kantbalu (Myoma) | 59.23 |
| | | | Kantbalu (Zeegone) | 16.44 |
| | | | Khin U | 10.03 |
| | | | Ye U | 14.39 |
| | | | Shwe Bo | 23.45 |
| | | | Monywa (Poultry/Quail) | 123.45 |
| | | | Monywa (Dairy) | 15.05 |
| | | | Mandaly | |
| | Htee Hlaing | 60.00 | | |
| | Ye U | 1306.00 | | |
| Hilly Zone | Shan | Kyaut me | 61.00 | |
| | | Taunggyi | 429.67 | |
| | Kayin | | Kamamaung | 15.00 |
| | | | Hlaingbwe | 37.33 |
| | | | Hpha-An | 76.60 |
| | | | Myawaddy (Yepu) | 56.42 |
| | | | Myawaddy (Kyaut Lone Gyi) | 64.00 |
| | | | Kawtkarate (1) | 16.32 |
| | | | Kawtkarate (2) | 7.04 |
| Delta Zone | Yangon | Naungnapin | 1983.00 | |
| Coastal Zone | Tanintharyi | Meik | 81.27 | |
| | Mon | Yae | 15.52 | |

Source: Myanmar Livestock Statistics (2017)

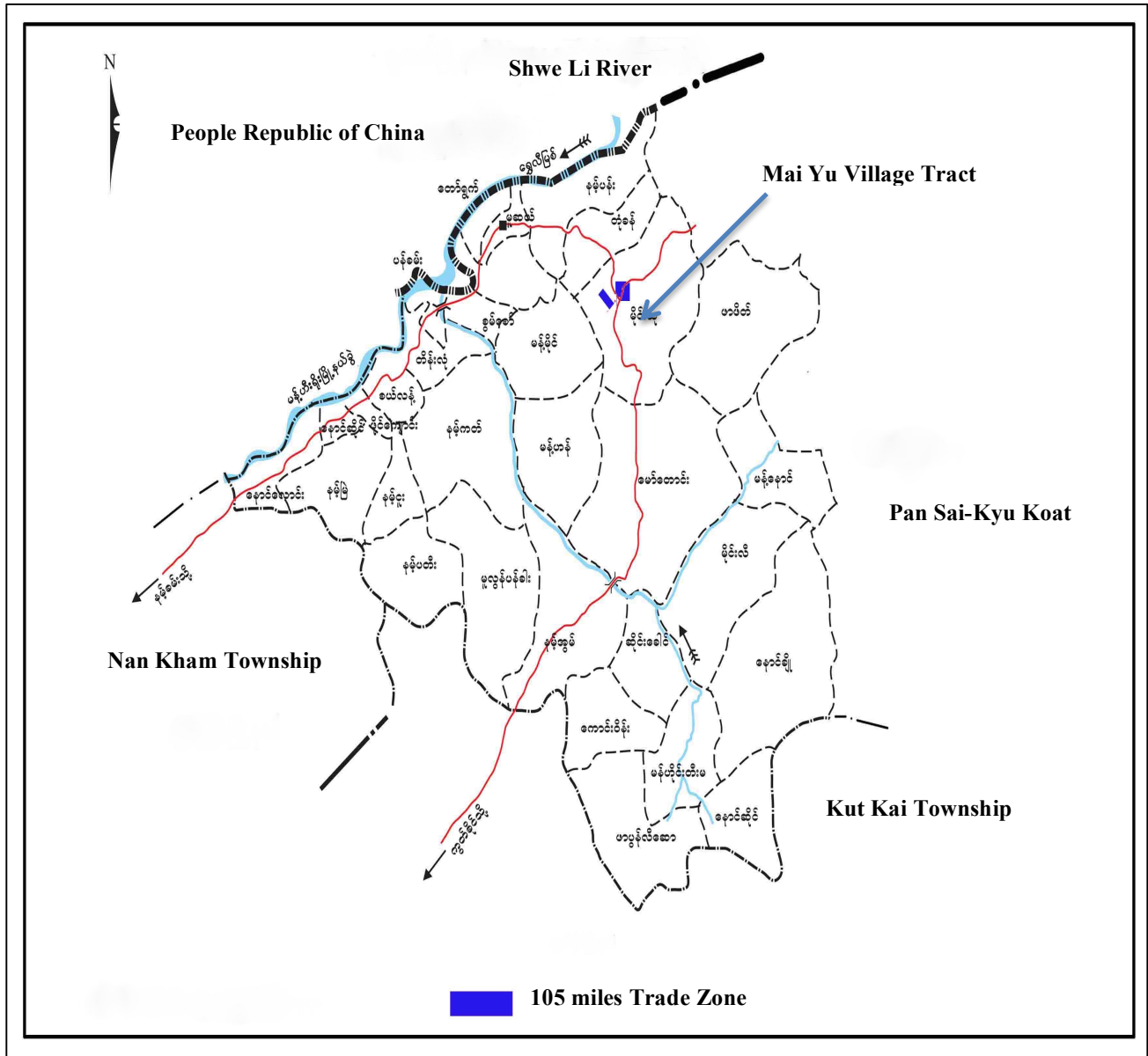


Figure 4 : Muse Township map showing the location of 105 miles Trade Zone

1.3.3 Current price of cattle for domestic and cross-border export

Oversupply of cattle and buffalo, low levels of domestic beef consumption and increased demand for beef in China and restrictions on cattle movements and exports meant that the average domestic price of cows or buffalo before 2017 was only 500,000 Kyats (USD 365) per head – significantly lower than the border price in China or Thailand. After the October 2017 liberalization of trade with China and the relaxation of restrictions on cattle movement the local market price of cattle in the Central Dry Zone has increased significantly to between 1,200,000 and 1,500,000 Kyats (USD 889 to 1000 USD) per head.

Figure 5 and Figure 6 present the daily minimum and maximum market price of cattle and buffalo at the border trade zone in May 2018. Chinese buyers set up the price by cattle lot, depending on the size, well-being and strength of the cattle. They give the maximum price for good export quality and minimum price for average cattle. There is no fixed or stable price of export cattle and cattle traders generally have to take the price as given by the Chinese buyers.. Compared to cattle price, the export price of buffalo is more stable.

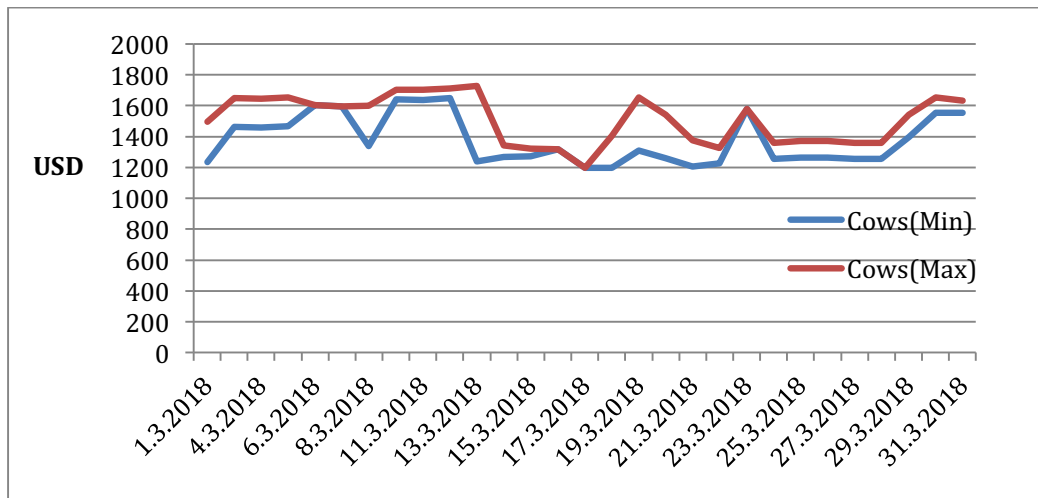


Figure 5 : Daily Export Price of Cattle in May, 2018

Source: 105-Miles Trade Zone

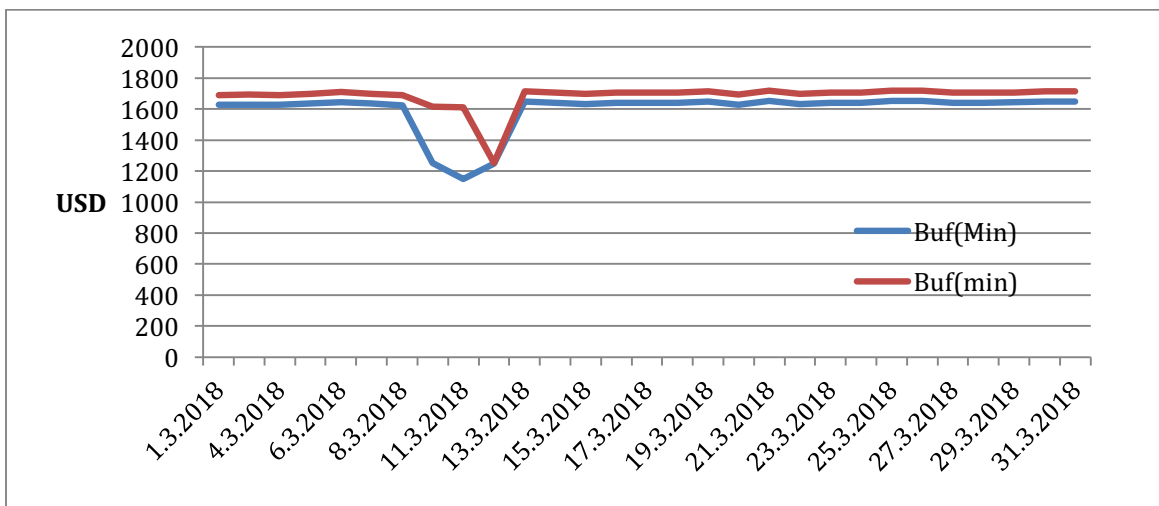


Figure 6 : Daily Export Price of Buffalo in May, 2018

Source: 105-Miles Trade Zone

Figure 7 and Figure 8 represent the average minimum and maximum monthly export price of cattle and buffalo in March, April and May 2018. The difference between maximum and minimum cattle price is low in March and is high in April. The average monthly price of buffalo

is more stable and there is not much differences between maximum and minimum prices. Daily export price of cattle and buffalo in March, April and May are shown in Appendix Table 3, 4 and 5. The prices are calculated based on daily exchange rates.

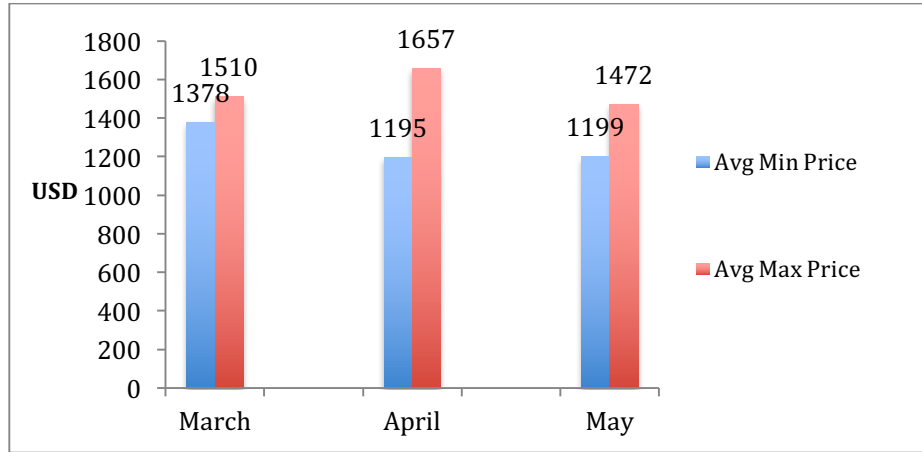


Figure 7 : Average Monthly Export Price of Cattle in March, April and May 2018
Source: 105-Miles Trade Zone

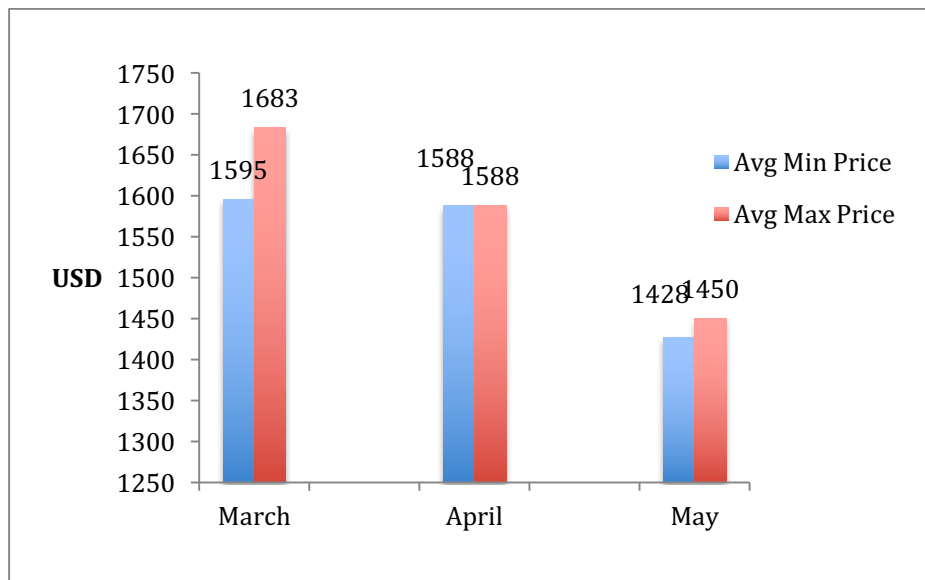


Figure 8 : Average Monthly Export Price of Buffalo in March, April and May 2018
Source: 105-Miles Trade Zone

2. Existing Government Policies

Productive cattle slaughter

In 1970, the Government decreed that only cattle less than 16 years and above or permanently disabled or permanently sterile female cattle can only be slaughtered. (NRAGR, 2001).

Transportation of Cattle

Strict regulations are applied to transporting live cattle and it is an offence to transport cattle without the required permissions. Government agencies such as the Myanmar Police Force, Livestock Breeding and Veterinary Department and village administrators are involved in decision making on transportation of cattle (Khaing, 2017).

Slaughter Licences

Before 2012-2013, the license system was not a competitive bidding system and generally one person was able to monopolize slaughtering in any one location (Khaing, 2017). Nowadays, the system has been changed to having two types of licenses for slaughter - township licenses and market licenses, the former have the individual sole rights to trade and slaughter within township and the latter is for managing municipal live stock markets. Licenses are awarded annually, usually with a baseline increase in the fee of 10-30 percent per year (Pham et al., 2015). Licenses may be open to tender each year, although it often appears that license renewal occurs automatically if the City Development Committee (CDC) or Ministry of Border Affairs (MBA) satisfy the licensee's performance. Slaughter facilities, which are simply partially-walled buildings, are owned by CDCs.

Only the slaughter person can sell beef to other vendors and customer in each market. It is illegal to sell beef without a license. There is no limitation on the number of slaughter cattle per day. The slaughter person also needs to pay tax at the slaughterhouse, which is calculated based upon number of head per day. The current tax rate is 2500 MMK per head. It is illegal to kill the cattle outside the government slaughterhouse, even for slaughter person.

Export Regulations

The rules and regulations for the one year trial of live cattle exports to China note that export license holders approved by MOC are able to export cattle in accordance with the specifications and restrictions laid down from LBVD and MOALI. The policy addresses cattle age, health status, ownership verification, numbers of cattle per permit, farm registration, export license and tax obligations. Exporting uncastrated males, female cattle and cattle under 5 years of age is not permitted – this is regulated in order to ensure the maintenance of the cattle population level.

The procedures for legal export of cattle under the 1 year trial are as follows:

(a) Registration as Exporter / Importer

The following individual/enterprises who wish to carry on an export/import business may apply to the Directorate of Trade for registration as exporter/importer:

- A citizen or associate citizen or naturalized citizen if the applicant is a sole proprietor;
- Partnership firms

The following enterprises registered under Myanmar Companies Act and Special Company Act of 1950

- Limited Companies (inclusive of foreign companies' branches)
- Joint Venture Corporation
- Co-operative societies registered under the Co-operative Societies Law

Necessary Documents for Application of the Registration of Exporter/Importer

- The original "Memorandum of Association" and "Articles of Association"
- Application Form with Company Letter Head
- Exporter/Importer Registration Form
- The Copy of the letter of the Company Registration Office for the issuing of Certificate of Registration
- Two copies of the Certificate of Company Registration
- The certified copy of Form 26 which is recognized by Company Registration Office.

- The copies of National Registration Card (or) Citizenship Scrutiny Card, Photo and Specimen Signature of Board of Directors

- Certificate of the Membership of UMFCCI

(b) Applying for an export/import license and cattle export permit

Cattle farms or companies can apply for an export/import license from the Ministry of Finance and Commerce and apply a cattle export permit in the office of the Minister of MOALI. The cattle export permit covers the exportation of a total of 100 cattle. When applying for a cattle export permit, the applicant must have a registered company and be able to show that he/she already has a cattle farm which can maintain 100 cattle. When the application for the cattle export permit is approved, a total of 100 cattle are collected at the registered or temporary farm. The collecting farm needs to be located in a district which has a District office of Livestock Breeding and Veterinary. The collecting farms are usually located in Mandalay, which has good road connections for collecting and exporting cattle.

When traders collect the cattle for transport to the collecting farm, they need to get a recommendation from the village or township authorities. The cattle must also have a health certificate from a veterinary officer. After collecting 100 cattle, the applicant has to inform the headquarters of LBVD to organize for LBVD to check each cattle and record ear tag number. The entire official process takes up to two months for each exportation to Muse.

(c) Exporting

With health certificate, transportation route and plan, the applicant can apply for a trading license at the Department of Trading, MOC. LBVD will release a transportation certificate with the exact truck number. Cattle are exported to Muse by trucks with a capacity of around 20 to 25 cattle. When exporting to Muse through legal routes, the documents and certificates have to be inspected under the checkpoints of 16 miles gate, Yay-Pu gate and 105 miles trading zone.

Although the Chinese market does not currently have any official requirements for quarantine, the cattle are visually observed at Animal Quarantine Station at Muse. If there is any indication that animals have health problems, a blood sample will be sent to the laboratory and tested. Usually, live cattle and buffalo are maintained for one to two days at the animal quarantine station in Muse before selling to Chinese buyers from Mensi, China (Muse, 2018). After checking the export license, cattle export permit and quarantine certificate, the Government imposes a withholding tax of 2% on the exported value of the cattle. Trading process in the Muse takes only two or three days.

3. Recent Initiatives to formalize trade

3.1 Domestic and international government and commercial discussions and negotiations

When the Government realized that imposing bans on cattle exports had created a significant black market for cattle and buffalo exportation, exempt from regulation, taxation and consumer safety oversight, formal and informal discussions around the issue of reducing trade restrictions on cattle export were undertaken. Various stakeholders from related ministries, private sector, livestock traders and NGOs participated in these discussions around the initiation of cattle formal trade in Myanmar.

At the Initial stage of trade liberalization, the Government has allowed one-year trial for live exports and restructuring the rules and regulations for the trade; cattle age for export, health status, ownership verification and withholding tax etc., to address the policy on live cattle export.

Construction of Muse cross-border inspection facilities and ways to meet China Quality standards and the standards set by the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) of China were on the agenda of recent bilateral negotiations on cattle trade between Myanmar and China (Table 7).

Table 10 : Domestic and International Government Discussions and Negotiations

| Year | Discussions and Negotiations |
|-----------------|--|
| September, 2012 | Government officials, businessmen and NGO officials are discussed about the live cattle trade in Myanmar to reduce the illegal export of cattle to China (Muse) and Thailand (Myawady, Mae Sot and Tarchilie) and to earn the government revenue from legal export of cattle, goats and sheep. The Ministry of Livestock and Fisheries has directed departments concerned to ban the export of live cattle to neighboring countries (Eleven Media, 2012) |
| August, 2016 | Livestock traders requested MOC to remove exclude buffalo and cows from the restricted export items list because rules and regulations released for cattle trade issued in July, 2016 approved to export dogs, cats, pigs, goats, horses and sheep only (Kyi, 2016). |
| July, 2017 | Provision of loans to farmers and allow livestock export to develop the agricultural and animal husbandry industries are discussed in a meeting of Vice President U Myint Swe (Current President) and businessmen on July, 2017. After discussion with the stakeholders, permit export of live animals and dairy products, and slaughter licenses without restrictions are decided. (Htwe, 2017). |
| August, 2017 | According to spokesperson from the Ministry of Planning and Finance, an official announcement of livestock export will release soon and trader can apply the permit to export live cattle to neighboring countries such as China, Thailand and Bangladesh after the official announcement. The government will also support semen straw, technologies and animal health services for the breeders. The exportation will include not only live cattle but also other livestock and LBVD of Myanmar will be responsible for the quarantine certificate to meet the quarantine standard from the exporting country (San, 2017). |
| 2017 | Chinese and Myanmar Governments have conducted meetings for consultation and construction of Northern Shan, Muse cross-border inspection facilities to test animals for virus and disease before entering the China (Thu, 2017) |
| September, 2017 | Growing demand of meat in China, legal export to China and Quality standards impose on exported and imported items; standards set by the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) of PCR were discussed at the forum jointly hosted by Myanmar Federation of Chamber of Commerce and Industries (UMFCCI) and Yun-nan Provincial General Chamber of Commerce (YPGCC) (Hein, 2017; Thu, 2017) |
| October, 2017 | The Ministry of Commerce officially allowed the live cattle export on 9th October 2017 which aims to build the independent livestock market and to create job opportunities for the farmers. The exportation process needs to operate in accordance with the rules and regulations from LBVD (MOC, 2017). |
| November, 2017 | According to the official from the Ministry of Commerce and LBVD, ban on live cattle exports will cancel and planned to allow one-year trial of live exports. The government is preparing a policy on live cattle export, which will set up rules and regulation for the trade. This policy will address on cattle's age, health status, ownership verification and tax, etc. and will allow 100 cattle at a time for each trader (Khaing, 2017) |

Source (Local Media, MOPF, MOC and LBVD)

3.2 Infrastructure and investment

Since the trial liberalization of cattle exports commenced in late 2017, the numbers of cattle and buffalo exported to China have increased significantly. Improvements in infrastructure such as the quality and quantity of transporting vehicles for the cattle movement from one place to another, the holding capacity and care of cattle, feed, slaughter and investment in establishing of breeding farm and improvement of cross-border inspection facilities are crucial for the continued expansion of cattle trade.

3.2.1 Existing transport, holding, and feeding infrastructure

Transport

Vehicles used in inland routes to carry the cattle from Mandalay to Muse are trucks with capacity of between 20-25 cattle each. The trucks are open on the roof and cover with straw on the floor to feed the cattle. The traders hire cattle drivers to take care of the cattle on the way.

Holding

Central Dry Zone is the main cattle collecting area for export. Cattle farm in the Dry Zone are small-scale and maximum holding capacity of cattle in each farm is around 20 to 30. With the recent boom in the cattle industry there is a lack of adequate cattle holding facilities in the Central Dry Zone to hold cattle before sending to Muse.

Most of the cattle traders are not cattle farmers and they collect the cattle from various places and regions to get to the targeted number of 100 head. As there are a very limited number of farms with capacity to hold 100 head, traders place the collected cattle in separate temporary farms, which have poor facilities for feed, water and maintenance.

Feeding

The common feeding system of cattle in Myanmar are mixing the crop stubbles (rice, corn, sesame, legumes) and rice bran, groundnut and sesame cakes and grazing on the road side and communal land. There is no extensive improved pasture in the country except natural grazing ground set aside by the Government for cattle grazing. The areas of natural grazing land become smaller due to encroachment by urbanization and industrialization. The present area of natural grazing land amount to over 800000 acres (324559ha) that is equivalent to 0.056 acre (0.02 ha) per cattle (NRAGR, 2001). When the numbers of cattle for export to China have increased, cattle feed resources have become increasingly scarce. After collecting 100 cattle for export, the traders have to wait the long verification process of LBVD in Mandalay which will and feed the cattle on increasingly expensive feed for one or two months.

3.2.2 Investment in Central Dry Zone and border points

Central Dry Zone

Currently, live cattle for cross-border export are mostly produced from small-scale cattle farms in the Central Dry Zone. There are very few cattle breeders and investment in commercial cattle breeding farms is needed. Provision of loans to farmers to develop the agricultural and animal husbandry industries are still in the early stages of development. In order to try to maintain the population of cattle, LBVD have proposed that cattle export companies should raise 10 breeding cows for every 100 cattle that they export.

Border points

There are six check points along the border areas, Tamu, Muse, Tacheleik, Myawaddy and Kawthhaung (Figure 9). These check points are for checking necessary documents for export/import (Khaing, 2017).

The current quarantine station in Muse is located in the compound of private cattle farm at Ton Khan, 105 miles Muse. LVBD have made a contract with the farm owner to hold the cattle before exporting to China. All cattle coming from legal routes are placed in this farm for quarantine. Due to the limited space of Ton Khan quarantine station to accommodate all live cattle, LBVD is trying to set up a new quarantine station in Kut Khai.

Investment in quarantine stations to upgrade the inspection facilities to test animals for virus and disease are important to meet the quarantine standard from the exporting country. LBVD is planning to invest 3.116 million USD in Muse and Myawady for upgrading Animal Check-points in border areas and upgrading animal and animal products export/import process between 2018 and 2023 (Wynn, 2018).

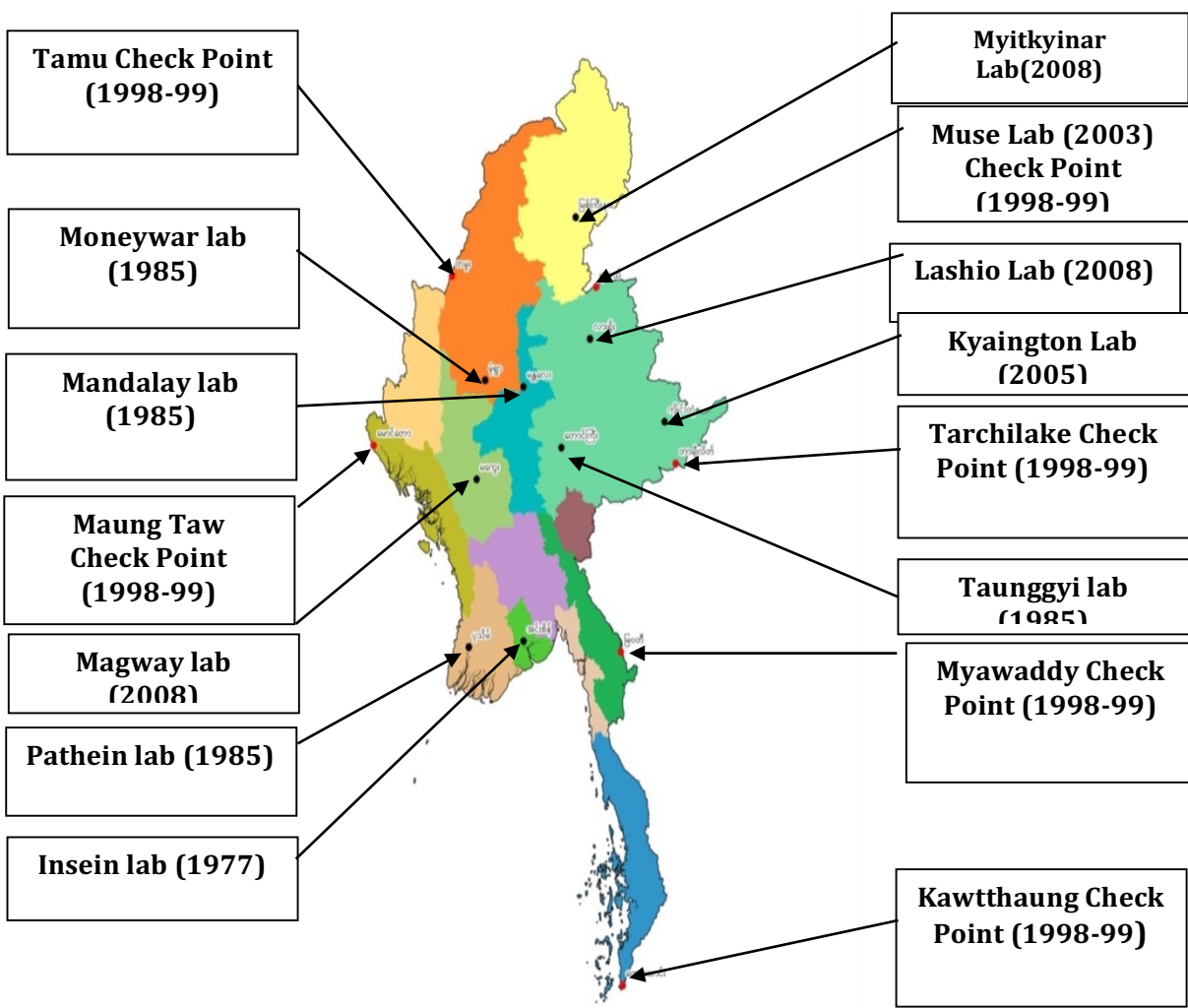


Figure 9 : Location of Laboratory and Checkpoints

4. Analysis of cattle value chain

4.1 Cattle Value Chain

Major actors involved in the cattle value chain are farmers, middlemen, agents, agents of wholesalers in local livestock markets, exporters, buyers, beef wholesalers and retailers and local beef consumers.

Cattle are collected from small-scale and medium farmers from Central Dry Zone (Magwe, Mandalay, Sagaing) and Shan Regions for domestic and export trade. Currently the cattle trade is booming and the value chain actors including farmers, collectors, brokers and agents of wholesalers in local livestock market have accrued benefits due to the good market price of exportable standard of cattle.

Exporters place the collected cattle at temporary farms in the Central Dry Zone until they receive an export permit. After that, cattle are transported by truck to Muse. Cattle buyers from China come and see cattle at the Muse 105 miles Quarantine Station. Chinese buyers offer different prices depending on availability and quality standard of the stock.

Domestically, cattle are traded between the farmers for farm operations, breeding or slaughter. For beef market, collectors link the persons holding slaughtering licenses and butchers licenses for wholesaling and retailing. The opportunities and constraints of each actor will be discussed in Sections 4.2 and 4.3.

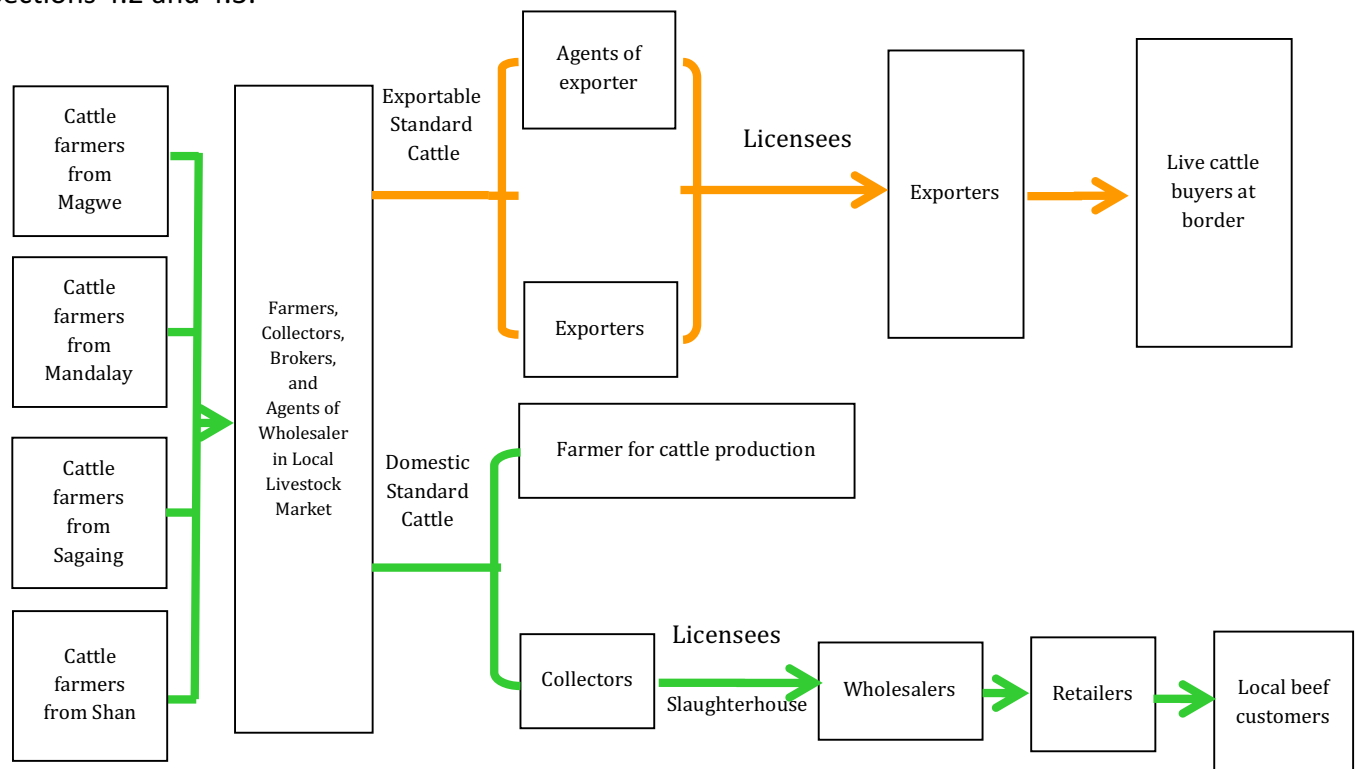


Figure 10 : Cattle Value Chain in Myanmar



4.2 Constraints

For Farmers

Farmers have not yet been able to take full advantage of the liberalization of the cattle export trade. In general, they lack the needed capital to collect 100 cattle, maintain them at collection points and then transport to Muse for sale. In addition, application process to get the export permit was also noted as being too complicated for them. The farm gate price of cattle farmer is relatively low as traders incur significant costs (transport cost, feed cost, license and toll fees) in exporting cattle. This results in a large difference between the farm gate price and export market price.

Case 1

U Soe, a small-scale cattle farmer from Kyan Khin village, Pathein Gyi village discussed that the price/ tax for an export permit is not clear but seemed to be expensive. He claimed that “we did not know how to apply and where to apply and which level to apply?”. He mentioned that he felt there was no one who can help small farmers to apply for the permit to export and suggested that the township veterinary officer should help them.

Case 2

U Ko Ko Gyi, small farmer and dealer from Chan Myar Thar Zan Township revealed that there is no fixed price for farmer. “Currently, cattle exports are permitted and cattle from all States and Regions are export to Muse almost every day. Farmers are unable to get export permits and did not get good price because the brokers and traders already considered the cost such as transportation, checkpoint tolls, cattle driver etc.,. So they reduce the price from us. Legal permits ruin the small trader’s business and rich people monopolize the cattle market. It will be better if we can sell the cattle at our farm and the Chinese buyer came to our place, which can also solve the unfair price problem.”

Case 3

U Hla Shwe, cattle farmer and trader from Magway Township explained that collecting the cattle, enough place to hold the collected cattle and feed are problems now. “I established the cattle farm for the last four years and have only 20 to 30 cattle. Although I got profit in the first and second time of trading, I did not get profit in the third time. This is because of the long verification process of LBVD after collecting 100 cattle for the approval of export permit. It costs me much in cattle feeding and maintenance for two months.”

Case Study 4

U Khin Maung Kyaw, cattle farmer and trader from Pakkoku Township mentioned that the cost of feeding for 100 cattle was around 150,000 MMK per day. “After verification process, as soon as we reach Muse, we sell the cattle with the price set up by the Chinese buyers. Now, the cattle breeding of small farmers has decreased because of price compression in local market. This is because, costs are added to the cattle price, such as feed cost, transportation, commission fee, township licensee and tolls points.”

For collectors and agents

Collectors and agents link the farmers, traders and liaise with government staff. Although the export trade is now legalized, the movement of cattle inside Myanmar is still restricted. Collectors meet difficulties in transporting cattle from one place to another. Movement of cattle needs permits from government agencies such as the Myanmar Police Force and the LBVD as well as village administrators. Cattle collectors carry the cattle in trucks from villages in the Central Dry Zone to Mandalay. Sometimes, cattle become tired or injured during transportation and do not achieve high prices in Muse. In addition, there may be legal and illegal payments made to authorities along the way.

When cattle arrive from Mandalay to Muse , traders connect with agents for the verification process of export licenses, recommendation of LBVD to DOT) and health certificates. After validation of all required documents, the agents inform the trader to provide the withholding tax of 2% of the amount of trading to the government.

Case 5

Ma Nan Shane May, head of the agents in the 105 mile trade zone, provided a service for processing verification of export documents in DOT. She reported that, “this is the business that I have engaged in for the last four months and I worked as fruits agent before that”. There are around five persons who are working as cattle agents. We have to collect all required documents form traders and submit to DOT to get the export permit. The verification process does not takes time and lasts only 1 or 2 days. Traders can sell their cattle after arriving to Muse within 3 days.

For wholesalers and exporters

Major constraints for wholesalers and exporters are time spent on applying for export permits due to lengthy process of verification from LBVD, poor market structure, scarcity of feed and the uncertainty of export market price. A rapid increase in the number of cattle exporters means that the LBVD has insufficient personnel to undertake the verification process in a timely fashion.

During the verification period, exporters have to feed the cattle with the average daily feed cost of 1,500 MMK per head. One export lot of 100 cattle will incur a feeding cost of 150,000 MMK per day. The longer the period of permit verification, the higher the total feed cost is. Further, there is not enough space for 100 cattle on a single farm and traders have to locate the cattle separately. When the export cattle are predominately located in one region (Mandalay), traders face a feed shortage problem. High feed costs, maintenance costs and transport costs reduce the profit margin of the traders. Traders who export cattle through illegal routes reportedly can earn up to 2-3 times the profit of those that export through legal channels. Chinese brokers offer a price for cattle based on the condition and size of cattle and the availability of cattle at the border.

Case 6

U Myat Khun Thar, cattle farmer and trader of Royal Pyaw Bwe Company complained that the verification process for permit takes two months and three days now. He said that in the past it only took one month. He suggested, if possible, that he would like to request the Government to set up the fixed market price or bilateral discussion on negotiation of price with China Government. Currently, Chinese buyers have no companies and come and buy our cattle by holding only one mobile phone.” I am always worried whenever these buyers bought the cattle because money is transferred 2 or 3 days after buying.”

Case 7

U Le Shaw, cattle farmer and trader of Wan Ywal Company suggested that it will be better if there is more space to hold the cattle in Muse. He explained that “ Currently, there is only one registered farm in Ton Khan, Muse beside the quarantine station.” The feed cost and maintenance per cattle is 4000 MMK and it costs 400,000 MMK for 100 cattle it makes my profit lower.”

Case 8

U Zaw Moe Tun, managing director of High Hill company argued that there should be an exact verification period or permit to reduce the unnecessary and additional cost for traders. “Although I got a profit of around 1.5 million MMK per head in the first trade, I could not cover feed, transport and labour costs in the second trade. Uncertainty of cross-border export price from unnamed Chinese buyers exposed me to risk and I wish that the Government can structure the good market for the sake of cattle farmers and traders.”

For domestic beef wholesalers, retailers

Permission is required for slaughter as well as for transporting and exporting cattle. If the slaughter person wants to carry the cattle from other township, it is necessary to have the required documents such as licenses, recommendations from the veterinary officer and township passes for transport. Without these documents, the person in charge of each

checkpoint can take action against the transporter and slaughterer. Some illegal slaughterers negotiate at the checkpoint and avoid punishments.

The slaughter license holders from Mandalay also illegally buy beef from other regions, mostly from Magway and Sagaing region. It is cheaper to buy beef from other regions instead of buying cattle. The beef price is 7100kyats per viss in Magway which is 1900ks less than Mandalay. In order to purchase beef from another region, the slaughter person needs to pay a certain fee to a legal cattle trader in a township or region to buy beef and carry it to Mandalay. This increases the price of beef for consumers. It will be better for the beef market, if the government liberalizes the internal trade in beef and cattle.

For international live cattle buyers

The cross-border trade in Muse is still semi-formal trade and the health certificate issued by LBVD does not fully address the Quality standards imposed on exported and imported items and standards set by the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) of China. However, the vaccinations of LBVD for health certificate for export cattle include Anthrax, Hemorrhagic Septicemia and Black Leg or Black Quarter.

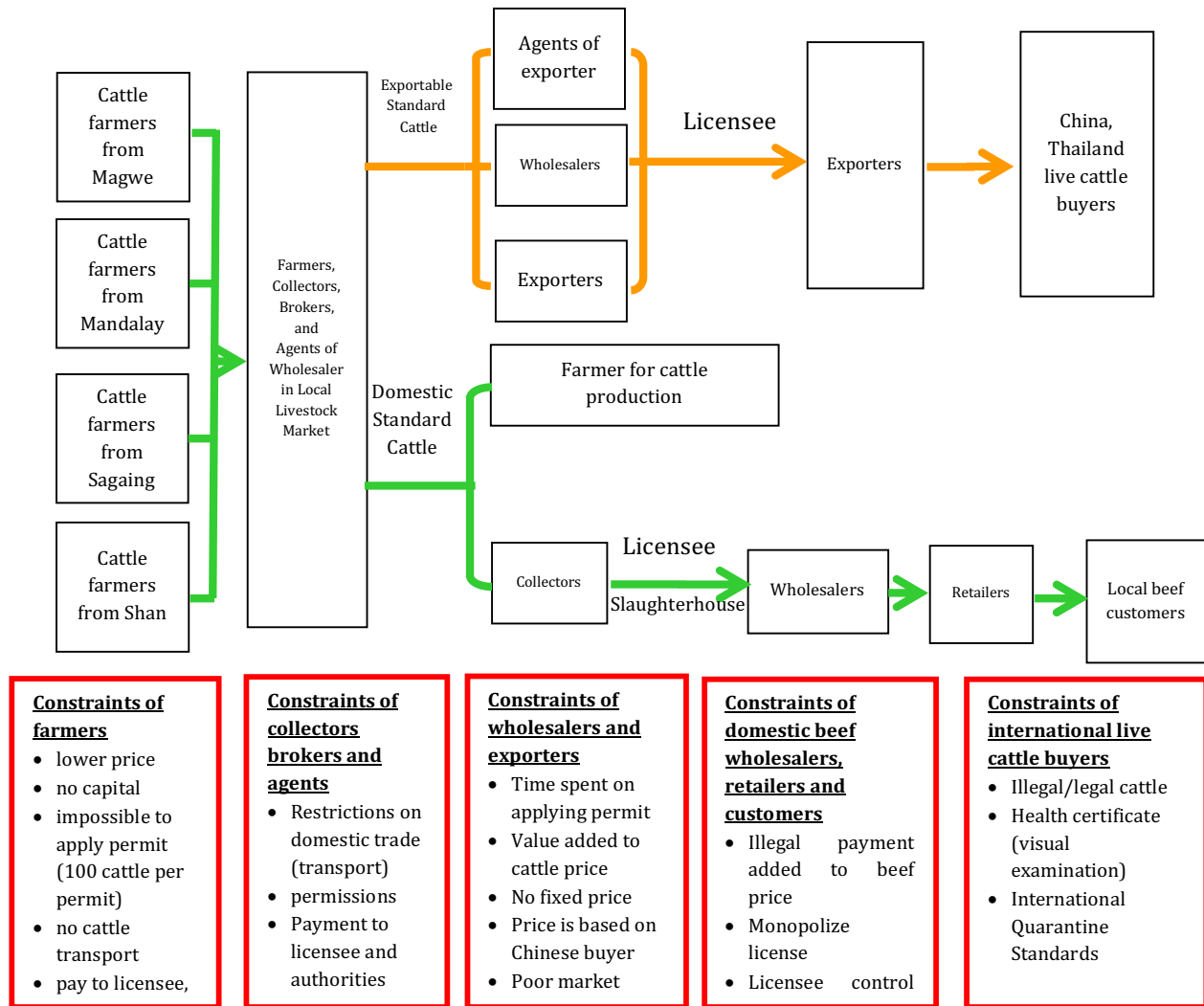


Figure 11 : Value Chain Map and Constraints of Major Stakeholders of Live Cattle Trade



4.3. Potential

For farmers

Formalizing the cattle trade can benefit the farmers due to the higher demand for cattle. Farmers have the potential to expand cattle farming by more frequent selling and buying of younger cattle.

Although the allotted number of cattle per permit is 100, farmers can group together and apply for an export permit as a farmer group. Given favorable agro-climatic conditions and long experience of cattle breeding there is good potential for farmers to expand from from small-

scale to commercial breeding. Further, the Government is trying to confine cattle exporting to groups or organizations who have cattle farms and plan to continue in the cattle business in the long run. This will encourage small and medium scale cattle farmers to become more involved in cattle export marketing channels.

Case 2 Continued...

U Ko Ko Gyi, small farmer and dealer from Chan Myar Thar Zan Township said that “the trader and animal husbandry got information about the export from meeting with the government authorities. I think it will benefit to the farmer if the government limits the price at Muse because most of the small trader sold their cattle at the price given by Chinese traders at Muse. Mostly, both large and small trader did not get the good price at Muse”. The farmers already have long experience in cattle breeding and if the government limits the fixed price for Chinese buyer, I think commercial cattle breeding will become developed.”

Case 9

Dr. Than Myo Oo, head of quarantine station, from Tone Khan, 105 miles Muse Check – Points discussed that “ I observed that traders, buyers and brokers got more benefit than actual cattle farmer. Although one farmer can not afford to apply for 100 numbers of cattle, they should try and group and export together. The profit will increase significantly as they don’t need to expend extra costs for feed and places to locate the cattle.”.

For collectors and agents

Collectors and agents also benefit from the cattle value chain in terms of commission fees for transporting the cattle from Mandalay to Muse, fees for negotiating between buyers and sellers and agent fees for providing the service of official processing of export documents.

Case 5 continued...

Ma Nan Shane May, head of the agent in 105 mile trade zone reported that “I got 400,000 to 500,000 MMK of agent fees for one permit of cattle. We take agent fees per truck and the average agent fee per one cattle truck is 100,000 MMK. This is a good business compared to working as a fruit agent. In one month, I have provided services for 4 or 5 companies and my monthly income has increased.”

For wholesalers and exporters

Wholesalers and exporters receive the highest profit in the chain if they can manage the costs of transport, feeding and holding facilities. Exporters need to have a large amount of working capital to operate their businesses and in the future could potentially expand their operations by developing their own larger scale farms, rather than only purchasing cattle from other producers.

Case 8 Continued...

U Zaw Moe Tun, managing director of High Hill company mentioned that, “ I guess, cattle business will stop if the Government did not plan for commercial breeders. I know collecting the cattle from here and there and exporting will lessen local cattle herds. I welcome the proposed plan of the government to make the trade sustainable ..and I will try to change my business from natural to commercial breeding farm.”

For international live cattle buyers

Chinese buyers are able to benefit by buying cattle at a lower price than in the Chinese market. They can bargain the price from the legal and illegal markets and control the market price at border.

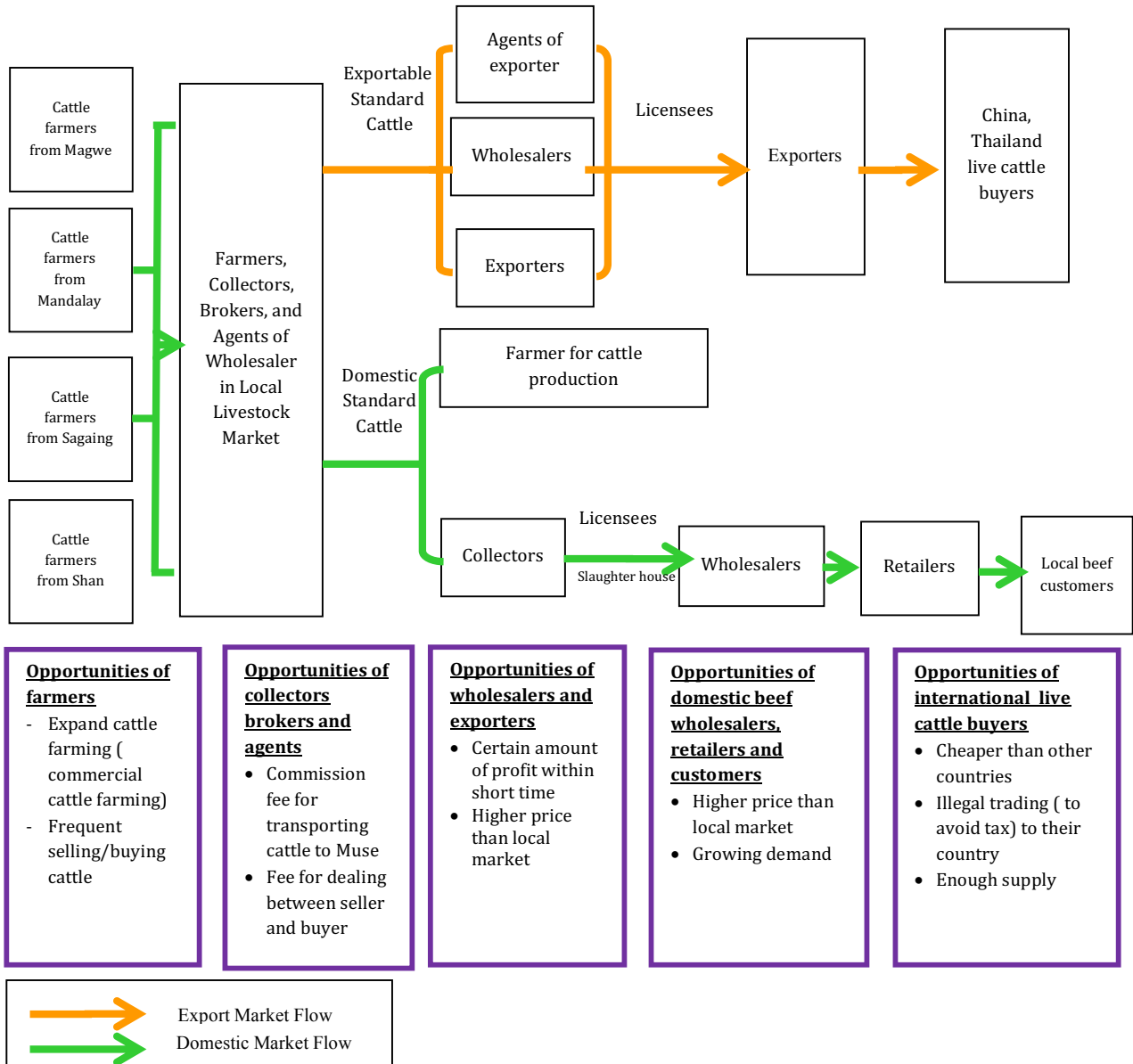


Figure 12 : Value Chain Map and Opportunities of Major Stakeholders of Live Cattle Trade

5. Implications

5.1 For Trade (likely numbers of cattle involved)

The current export permit is issued for for 100 cattle per permit, which represents a large capital outlay for small farmers, and only large-scale and medium scale farmers who have enough capital are able to trade with this permit. At present, 70 % of cattle exporters are traders who have an export license for trade and do not own cattle farms.

The price differential between the farmgate price of cattle and the export price is high, but farmers lack the numbers of cattle and the working capital to export the required number of 100 cattle by themselves.

LBVD should consider allowing groups of small farmers to receive an export permit to export cattle directly. In addition, the number of cattle per permit should be adjusted depending on the type of trader. Encouraging small-scale farmers to be involved in the export sector will deliver sustainable benefits to smallholders and enable them to reinvest in cattle breeding activities.

Restrictions on export quality such as allowable size or weight of cattle should be re-considered by LBVD. The majority of cattle are still traded through informal channels with no trade specifications. Imposing restrictions puts formal cattle exports at a cost disadvantage relative to informal cattle exports.

5.2 The Economics (Cost, prices and margins)

For Semi-formal exports

For semi-formal exports, the additional costs on top of the farm gate price of cattle are transportation costs, inspection fees, feed costs during the verification process for export permits, maintenance costs and withholding tax. The average domestic transportation cost ranges between 160,000 and 200,000 MMK per head. The transportation route is Central Dry Zone-Mandalay- Muse on trucks carrying 20 to 25 head. On the way to Muse, checkpoints such as 16 miles, Yay-Pu Gate and 105 miles gate are set up to check the necessary documents for cattle export.

The informal toll fees for trading differ from one township to another, ranging from 3,000 to 5,000MMK per head. Before exporting to China, the cattle are kept in a temporary farm where the feeding and maintenance costs are 15,000 Kyat per head. If the farmer or small trader wants to export their cattle but they don't have an export permit, they can also give 40,000 MMK per head to a trader who has an export permit. This trader will take care the cattle until they arrive to Muse.

The estimated price for export quality cattle is around 1,600,000 to 2,000,000 MMK per head. The average profit margin of cattle is around 160,000 MMK for average export quality and up to around 230,000 MMK for good export quality (Table 11).

For informal/illegal trade

Illegally, some traders collect cattle from farmers and export to Muse. Large traders used illegal methods by mixing trucks of cattle without export permission with trucks of cattle with export permits. All these large trucks pass the same route from the Central Dry Zone and Mandalay to Muse. Some smaller traders drive the cattle on foot using jungle routes. They have to pay cattle drivers, toll fees, illegal payments and the township licensee (which differ with region, from 6,000 to 12,000 MMK per head).

Table 11 : Cost and Return Analysis of Export Cattle

| Variables | Legal Route | | Illegal Route | |
|---|------------------------|---------------------|------------------------|---------------------|
| | Average Export Quality | Good Export Quality | Average Export Quality | Good Export Quality |
| Average Marketing Cost (per cattle) | 1507066 | 1807066 | 1406000 | 1706000 |
| Cattle price at cattle market, dealers and brokers | 1200000 | 1500000 | 1200000 | 1500000 |
| Feed and maintenance cost during verification process of permit (for one month) | 45000 | 45000 | | |
| Domestic Transportation (Dry Zone –Mdy -Muse) | 200000 | 200000 | 200000 | 200000 |
| Toll fees | 3000 | 3000 | 6000 | 6000 |
| Inspection fees | 6666 | 6666 | | |
| Feed and maintenance cost at Muse | 15000 | 15000 | | |
| Agent Fees | 5000 | 5000 | | |
| Withholding Tax | 32400 | 32400 | | |
| Average Export Price (per cattle) | 1668089 | 2039409 | 1668089 | 2039409 |
| Average Revenue (per cattle) | 161023 | 232343 | 262089 | 333409 |

Source: (105 miles Trade Zone and Respondents)

Traders who export cattle through illegal routes got a higher profit margin than traders who export cattle through legal routes (Table 11). This is due to the fact that illegal traders do not pay tax and do not need to pay inspection fees and feed and maintenance costs.

For legal exporters, feeding cost of cattle during the regular permit verification process amounts to around 2 percent of marketing cost. However, the longer the verification process is,

the higher feeding and maintenance costs are. Developing the verification system as a one stop service will shorten the process and reduce the costs of legal trade in cattle.

Chinese brokers monopolize the export market at Muse. When there are a large number of cattle arriving from Mandalay, the price given by the buyers is low. The price each day is set up as a maximum and minimum depending on the size and quality of the cattle.

The unit price of exported cattle is around 1200 USD and the total value of trade for one lot of 100 cattle is 120,000 USD. The exporters have to pay 2 perct withholding tax of total trade value. Therefore, withholding tax for one lot of cattle is 2400 USD.

Completely formalizing the trade with China and reducing the volume of cattle exported through informal channels will increase the flow of money from export taxes to the government revenue.

5.4 For Animal Health

Quarantine stations are responsible for inspection of export/import licenses, granting export permission, and issuing animal health certificates (including laboratory test results approved by veterinarian and visual examinations of animals). In Muse, the quarantine station is located at Tone Khan, within the 105 miles trade zone. At the quarantine staion, visual checks are made on animals and blood samples are sent to a laboratory for testing if necessary.

The required documents for Quarantine Certificate for live cattle export are:

- (a) Animal health and development/ prevention and control form-1 (AHD/PC-1)
- (b) Animal health and development/ prevention and control form-3 (AHD/PC-3)
- (c) Animal health and development/ prevention and control form-7 (AHD/PC-7)
- (d) Summary of health certificate
- (e) Record of animal quantity on transportation vehicle
- (f) Permit from Ministry of Trade
- (g) Permit for transportation

Currently, export to China is semi-formal and there are no quality standards imposed on exported cattle by the Chinese authorities. When the trade is fully formalized, quality standards of exported items will need to be in accordance with the standards of the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) of China.

Appendixes

Appendix 1 : Population of Cattle in State/ Region ('00000)

| No. | State/Region | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 |
|-----|--------------|---------|---------|---------|---------|---------|---------|---------|
| 1 | Naypyitaw | - | 2.19 | 2.23 | 2.29 | 2.34 | 2.41 | 2.48 |
| 2 | Kachin | 3.14 | 3.31 | 3.48 | 3.58 | 3.64 | 3.71 | 3.78 |
| 3 | Kayah | 0.83 | 0.85 | 0.87 | 0.89 | 0.92 | 0.95 | 0.98 |
| 4 | Kayin | 3.27 | 3.37 | 3.46 | 3.56 | 3.66 | 3.75 | 3.85 |
| 5 | Chin | 1.52 | 1.57 | 1.62 | 1.68 | 1.74 | 1.80 | 1.86 |
| 6 | Sagaing | 22.49 | 22.98 | 23.47 | 23.99 | 24.57 | 25.27 | 26.09 |
| 7 | Tanintharyi | 1.47 | 1.50 | 1.54 | 1.58 | 1.62 | 1.66 | 1.70 |
| 8 | Bago | 13.95 | 14.27 | 14.58 | 14.91 | 15.23 | 15.56 | 15.89 |
| | Bago(East) | 6.96 | 7.11 | 7.26 | 7.42 | 7.57 | 7.73 | 7.89 |
| | Bago(West) | 6.99 | 7.16 | 7.32 | 7.49 | 7.66 | 7.78 | 8.00 |
| 9 | Magwe | 22.66 | 23.72 | 24.88 | 26.07 | 27.29 | 28.56 | 29.86 |
| 10 | Mandalay | 22.07 | 20.52 | 21.17 | 21.86 | 22.55 | 23.26 | 24.00 |
| 11 | Mon | 4.46 | 4.60 | 4.75 | 4.9 | 5.06 | 5.21 | 5.37 |
| 12 | Rakhine | 8.80 | 9.50 | 10.25 | 11.02 | 11.79 | 12.57 | 13.23 |
| 13 | Yangon | 5.85 | 6.01 | 6.17 | 6.34 | 6.51 | 6.68 | 6.81 |
| 14 | Shan | 13.44 | 13.90 | 14.45 | 14.93 | 15.43 | 15.93 | 16.42 |
| | Shan (South) | 6.99 | 7.26 | 7.61 | 7.89 | 8.19 | 8.49 | 8.79 |
| | Shan (East) | 1.32 | 1.36 | 1.41 | 1.45 | 1.49 | 1.53 | 1.57 |
| | Shan (North) | 5.13 | 5.28 | 5.43 | 5.59 | 5.75 | 5.91 | 6.06 |
| 15 | Ayeyarwady | 11.71 | 11.94 | 12.18 | 12.33 | 12.46 | 12.60 | 12.75 |
| | Union | 135.6 | 140.23 | 145.10 | 149.93 | 154.81 | 159.92 | 165.07 |

Source: LBVD

Appendix 2 : Population of Cattle in State/ Region ('00000)

| No. | State/Region | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 |
|-----|--------------|---------|---------|---------|---------|---------|---------|---------|
| 1 | Naypyitaw | - | 0.68 | 0.68 | 0.68 | 0.69 | 0.70 | 0.70 |
| 2 | Kachin | 2.26 | 2.42 | 2.58 | 2.67 | 2.70 | 2.74 | 2.77 |
| 3 | Kayah | 0.31 | 0.32 | 0.33 | 0.34 | 0.35 | 0.36 | 0.37 |
| 4 | Kayin | 0.82 | 0.86 | 0.89 | 0.92 | 0.95 | 0.99 | 1.02 |
| 5 | Chin | 0.43 | 0.45 | 0.46 | 0.48 | 0.50 | 0.52 | 0.54 |
| 6 | Sagaing | 4.32 | 4.43 | 4.55 | 4.67 | 4.79 | 4.94 | 5.10 |
| 7 | Tanintharyi | 1.43 | 1.47 | 1.51 | 1.56 | 1.59 | 1.63 | 1.68 |
| 8 | Bago | 2.88 | 2.96 | 3.04 | 3.12 | 3.20 | 3.28 | 3.37 |
| | Bago(East) | 2.41 | 2.47 | 2.53 | 2.59 | 2.65 | 2.71 | 2.78 |
| | Bago(West) | 0.47 | 0.49 | 0.51 | 0.53 | 0.55 | 2.57 | 0.59 |
| 9 | Magwe | 1.21 | 1.29 | 1.39 | 1.49 | 1.59 | 1.69 | 1.80 |
| 10 | Mandalay | 1.30 | 0.66 | 0.68 | 0.70 | 0.71 | 0.72 | 0.73 |
| 11 | Mon | 0.84 | 0.86 | 0.89 | 0.91 | 0.94 | 0.96 | 0.99 |
| 12 | Rakhine | 3.29 | 3.49 | 3.68 | 3.88 | 4.07 | 4.26 | 4.43 |
| 13 | Yangon | 1.37 | 1.42 | 1.47 | 1.52 | 1.57 | 1.63 | 1.66 |
| 14 | Shan | 7.05 | 7.32 | 7.62 | 7.91 | 8.19 | 8.49 | 8.78 |
| | Shan (South) | 2.82 | 2.94 | 3.08 | 3.20 | 3.33 | 3.47 | 3.60 |
| | Shan (East) | 1.41 | 1.46 | 1.51 | 1.57 | 1.62 | 1.67 | 1.72 |
| | Shan (North) | 2.82 | 2.92 | 3.03 | 3.14 | 3.24 | 3.35 | 3.46 |
| 15 | Ayeyarwady | 2.23 | 2.27 | 2.31 | 2.34 | 2.38 | 2.41 | 2.44 |
| | Union | 29.74 | 30.90 | 32.08 | 33.18 | 34.22 | 35.32 | 36.38 |

Source:LBVD

Appendix 3 : Cattle and Buffalo export price per head in quarantine station of Muse 105 mile Trade Zone (in March 2018)

| Date | Exchange rate | | Buffalo price per head (Yuan) | | Cows price per head (Yuan) | |
|-----------|---------------|------------|-------------------------------|-------|----------------------------|-------|
| | Yuan to MMK | MMK to USD | Min | Max | Min | Max |
| 1.3.2018 | 205 | 1340 | 10600 | 11024 | 8048 | 9756 |
| 3.3.2018 | 205 | 1335 | 10600 | 11024 | 9512 | 10731 |
| 4.3.2018 | 205 | 1336 | 10600 | 11024 | 9512 | 10731 |
| 5.3.2018 | 206 | 1336 | 10600 | 11024 | 9512 | 10731 |
| 6.3.2018 | 206 | 1329 | 10600 | 11024 | 10339 | 10346 |
| 7.3.2018 | 206 | 1336 | 10600 | 11024 | 10339 | 10346 |
| 8.3.2018 | 206 | 1345 | 10600 | 11024 | 8734 | 10436 |
| 10.3.2018 | 206 | 1345 | 8106 | 10436 | 10600 | 11024 |
| 11.3.2018 | 206 | 1345 | 7427 | 10436 | 10600 | 11024 |
| 12.3.2018 | 207 | 1333 | 8019 | 8067 | 10600 | 11024 |
| 13.3.2018 | 207 | 1330 | 10600 | 11024 | 7971 | 11096 |
| 14.3.2018 | 207 | 1340 | 10600 | 11024 | 8212 | 8695 |
| 15.3.2018 | 207 | 1345 | 10600 | 11024 | 8260 | 8599 |
| 16.3.2018 | 207 | 1338 | 10600 | 11024 | 8502 | 8502 |
| 17.3.2018 | 207 | 1338 | 10600 | 11024 | 7729 | 7729 |
| 18.3.2018 | 207 | 1338 | 10600 | 11024 | 7729 | 9082 |
| 19.3.2018 | 207 | 1332 | 10600 | 11024 | 8405 | 10628 |
| 20.3.2018 | 207 | 1349 | 10600 | 11024 | 8212 | 10048 |
| 21.3.2018 | 207 | 1329 | 10600 | 11024 | 7729 | 8841 |
| 22.3.2018 | 207 | 1344 | 10600 | 11024 | 7971 | 8599 |
| 23.3.2018 | 207 | 1338 | 10600 | 11024 | 10200 | 10200 |
| 24.3.2018 | 207 | 1338 | 10600 | 11024 | 8116 | 8792 |
| 25.3.2018 | 207 | 1328 | 10600 | 11024 | 8116 | 8792 |
| 26.3.2018 | 207 | 1328 | 10600 | 11024 | 8116 | 8792 |
| 27.3.2018 | 207 | 1339 | 10600 | 11024 | 8116 | 8792 |
| 28.3.2018 | 207 | 1339 | 10600 | 11024 | 8116 | 8792 |
| 29.3.2018 | 207 | 1336 | 10600 | 11024 | 9010 | 9952 |
| 30.3.2018 | 207 | 1331 | 10600 | 11024 | 10000 | 10628 |
| 31.3.2018 | 207 | 1331 | 10600 | 11024 | 10000 | 10500 |

Source: 105 Miles Trade Zone

<https://www.exchange-rates.org/history/MMK/USD/T>

Appendix 4 : Cattle and Buffalo export price per head in quarantine station of Muse 105 mile Trade Zone (April)

| Date | Exchange rate | | Buffalo price per head (Yuan) | | Cows price per head (Yuan) | |
|-----------|---------------|------------|-------------------------------|-------|----------------------------|-------|
| | Yuan to MMK | MMK to USD | Min | Max | Min | Max |
| 2.4.2018 | 207 | 1334 | | | 8454 | 11111 |
| 3.4.2018 | 210 | 1335 | | | 9143 | 10167 |
| 4.4.2018 | 210 | 1332 | | | | 19380 |
| 6.4.2018 | 210 | 1336 | | | 7476 | 11234 |
| 7.4.2018 | 210 | 1335 | | | 8476 | 10095 |
| 8.4.2018 | 210 | 1332 | | | 7620 | 10952 |
| 9.4.2018 | 170 | 1324 | | | 8195 | 8952 |
| 10.4.2018 | 210 | 1326 | 10000 | 10952 | 7666 | 9905 |
| 11.4.2018 | 211 | 1327 | 10000 | 10952 | 7251 | 10952 |
| 12.4.2018 | 211 | 1332 | 9953 | 11611 | 6327 | 10640 |
| 13.4.2018 | 211 | 1332 | 9479 | 10374 | 7701 | 10284 |
| 14.4.2018 | 211 | 1332 | | 10900 | 6800 | 9620 |
| 15.4.2018 | 211 | 1332 | 7820 | 9953 | | 10900 |
| 16.4.2018 | 211 | 1332 | | | 6635 | 10900 |
| 17.4.2018 | 211 | 1325 | 10427 | | 6256 | 9953 |
| 18.4.2018 | 211 | 1325 | | | 6706 | 10924 |
| 19.4.2018 | 211 | 1328 | | | 7242 | 9621 |
| 20.4.2018 | 211 | 1332 | | 9621 | | 8294 |
| 21.4.2018 | 211 | 1332 | | 11374 | 7583 | 9953 |
| 22.4.2018 | 211 | 1332 | | 10332 | 7583 | 9100 |
| 23.4.2018 | 210 | 1336 | | | 7976 | 10000 |
| 24.4.2018 | 210 | 1325 | | | | |
| 25.4.2018 | 210 | 1338 | | | 8815 | 11611 |
| 26.4.2018 | 210 | 1340 | 11143 | | 6429 | 9048 |
| 27.4.2017 | 210 | 1332 | 11143 | | 8857 | 11381 |
| 28.4.2018 | 210 | 1332 | 10238 | | 8095 | 9762 |
| 29.4.2018 | 210 | 1344 | 10000 | | 8810 | 10381 |
| 30.4.2018 | 210 | 1334 | 10381 | | 7286 | 10000 |

Source: 105 Miles Trade Zone

<https://www.exchange-rates.org/history/MMK/USD/T>

Appendix 5 : Cattle and Buffalo export price per head in quarantine station of Muse 105 mile Trade Zone (May)

| Date | Exchange rate | | Buffalo price per head (Yuan) | | Cows price per head (Yuan) | |
|-----------|---------------|------------|-------------------------------|-------|----------------------------|-------|
| | Yuan to MMK | MMK to USD | Min | Max | Min | Max |
| 1.5.2018 | 210 | 1346 | 10381 | | 8810 | 1060 |
| 2.5.2018 | 210 | 1348 | 10381 | | 7762 | 9762 |
| 3.5.2018 | 210 | 1350 | 10714 | | 824 | 9929 |
| 4.5.2018 | 211 | 1346 | 10664 | | 7867 | 8720 |
| 5.5.2018 | 210 | 1346 | 10762 | | 7619 | 9905 |
| 6.5.2018 | 210 | 1346 | 10762 | | 7619 | 10238 |
| 7.5.2018 | 210 | 1344 | 10762 | | 8000 | 8571 |
| 8.5.2018 | 210 | 1348 | 10000 | | 8048 | 9143 |
| 9.5.2018 | 210 | 1348 | 10000 | | 8500 | 9238 |
| 10.5.2018 | 211 | 1334 | 9953 | | 8104 | 9194 |
| 11.5.2018 | 211 | 1345 | 9858 | | 7251 | 9242 |
| 12.5.2018 | 212 | 1345 | 9811 | | 7217 | 9198 |
| 13.5.2018 | 212 | 1344 | 9670 | | 8443 | 8821 |
| 14.5.2018 | 211 | 1344 | 10095 | | 7872 | 9858 |
| 15.5.2018 | 211 | 1346 | | 10900 | 7820 | 9953 |
| 16.5.2018 | 211 | 1345 | 9336 | 9573 | 7820 | 8957 |
| 17.5.2018 | 211 | 1351 | 7346 | | 8531 | 7810 |
| 18.5.2018 | 212 | 1350 | 7311 | 8491 | 7783 | 8726 |
| 19.5.2018 | 211 | 1350 | 7346 | 8531 | 7488 | 10332 |
| 20.5.2018 | 211 | 1350 | 7346 | 8531 | 7678 | 10379 |
| 21.5.2018 | 210 | 1353 | 7820 | | 7109 | 9289 |
| 22.5.2018 | 212 | 1354 | 7783 | | 7075 | 9245 |
| 23.5.2018 | 210 | 1355 | 7820 | 0 | 7441 | 8531 |
| 24.5.2018 | 210 | 1355 | 7725 | 0 | 6872 | 8531 |
| 25.5.2018 | 210 | 1356 | 8009 | 0 | 7251 | 9336 |
| 26.5.2018 | 210 | 1356 | 8009 | 0 | 7962 | 10806 |
| 27.5.2018 | 210 | 1364 | 9858 | 0 | 6825 | 9384 |
| 28.5.2018 | 210 | 1364 | 8720 | 0 | 8152 | 8720 |
| 29.5.2018 | 210 | 1354 | 6667 | 0 | 6667 | 7857 |
| 30.5.2018 | 210 | 1357 | 6809 | 9619 | 7619 | 11143 |
| 31.5.2018 | 210 | 1357 | 11048 | 0 | 6810 | 11143 |

Source: 105 Miles Trade Zone

<https://www.exchange-rates.org/history/MMK/USD/T>

Appendix 6 : List of Respondents

| No. | Name | Gender | Age | Occupation | Address |
|------------|-------------------|---------------|------------|--|---|
| 1 | U Ko Ko Gyi | Male | 55 | Cattle farmer | Chan Aye Thar Zan Township, Mandalay |
| 2 | U Khin Maung Soe | Male | 53 | Cattle farmer | Chan Aye Thar Zan Township, Mandalay |
| 3 | U Nyunt Aung | Male | 57 | Cattle farmer | Amarapura Township, Mandalay |
| 4 | U Thaw Zin Phyo | Male | 22 | Cattle farmer | Gan Village, Pyi Gyi Takon Township, Mandalay |
| 5 | U Soe | Male | 60 | Cattle farmer | Kyan Khin Village, Patheingyi Village, Mandalay |
| 6 | Nan Shane May | Female | 28 | Agent leader providing service for processing export licence and tax documents | 105 Mile Trade Zone, Muse, Shan State |
| 7. | U Moe Zat | Male | 49 | Farm Owner to retain the cattle at Muse before exporting to China | Tone Khan, Muse 105 miles, Shan State |
| 8. | Dr. Than Myo Oo | Male | 39 | Assistant Director, Head of Quarantine Station, LBVD, MOALI | Quarantine Station, Tone Khan, Muse 105 miles, Shan State |
| 9. | U Lan San Oo | Male | 52 | Deputy Director, Department of Trade, MOC | 105 Miles Trade Zone, Muse, Shan State |
| 10. | U Zaw Moe Tun | Male | 43 | Cattle farmer and trader, Managing Director of High Hill Company Ltd., | Kyauk Se Township, Mandalay |
| 11. | U Hla Shwe | Male | 60 | Cattle farmer and trader, Managing Director of Min Chan Thar Pin Myint San, Sein Aharya and Sat Khine Khine Kyaw Company Ltd., | Magway Township, Magway Region |
| 12. | U Khin Maung Kyaw | Male | 58 | Cattle farmer and trader, Managing Director of Pyae Phyo Tharzan and Pan Kahtay San CompanyLtd., | Pakkoku Township, Magway Region |
| 12 | U Li Shaw | Male | 44 | Cattle farmer and trader, Managing Director of Wan Ywal Company Ltd. | Leway Township, Nay Pyi Taw Region |

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Photo Record



Interview with local farmers (dealers, traders) in Mandalay

Interview with government officials, farm owners, traders and agents in Muse



1. Collecting the cattle



2.Transporting the cattle



small
vehicles



By Truck





4. Black market controlled by armed groups



Brief Biography of Authors

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Dr. Theingi Myint is an Agricultural Economist working in the field of rural development especially agricultural marketing and value chain, project planning and management, socioeconomic impact assessment and rural development policy. She started her career in Yezin Agricultural University since 1992. She has more than 26 years of work experience in University and rural development projects with some International Organizations such as ICRISAT, SEARCA, IRRI, CSEAS-Kyoto University, ACIAR, WB, IDE, JICA, UN HELVETAS, IFAD and GRET etc. At the meantime, she is working as a Professor of Department of Agricultural Economics, Yezin Agricultural University, Nay Pyi Taw, Myanmar.

Seinn Seinn Mu

Dr. Seinn Seinn Mu is a Rural Development Specialist working in the field of development planning, natural resource management, project monitoring and evaluation and climate change adaptation. She has started her career in Ministry of Agriculture since 2001. She has more than 15 years of extension and research experience affiliated with Department of Agriculture and some international organizations such as AIT, SEARCA, ADB and ICIMOD. At the mean time, she is working as an extension officer of Department of Agriculture, District Office, Muse, Northern Shan State, Myanmar.

Khin Nyein San

Ms. Khin Nyein San is a Forester working in the field of natural resources management especially forest management, rural development project and socioeconomic impact assessment. She has an M.Sc in Natural Resources Management from NTNU (Norwegian University of Science and Technology), Trondheim, Norway. For her M.Sc, she had done her research on “Impacts on the biodiversity by living inside a protected area, Natma Taung National Park, Myanmar; A human perspective” in Chin State. She started her career as a Range Officer since 2011. She has more than 6 years of work experience in natural resources management and now working with HELVETAS during which she has gained experiences in rural agricultural marketing, value chain analysis, socioeconomic impact assessment, sustainable livelihood development and sustainable agricultural development. At the meantime, she is working as a Staff Officer of Nature and Wildlife Conservation Division, Ministry of Natural Resources and Environmental Conservation, Mandalay, Myanmar.