

# Developments in the China-Myanmar cattle trade

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## Highlights

Myanmar has the largest cattle herd in the Mekong region, with over 17 million head of cattle in 2017. However, per capita beef consumption is very low (Hla Hla Thein, 2017) and there are restrictions on cattle transport, export and slaughter. As a result, the cattle herd has grown at a relatively fast rate of 3.3 percent per year over the last five years, leaving a surplus for export.

In contrast, the cattle herd in China has stagnated, especially as the opportunity costs of labour for farmers increase with urban migration and more opportunities for off-farm work. At the same time, per capita demand for beef nearly doubled from 2.89 kg/year in 1996 to 5.72 kg/year in 2017 (National Bureau of Statistics, various years).

As a result of these forces, the trade of live cattle from Myanmar to China has increased rapidly in recent years to reach over 250,000 head by 2017 (Yunnan Livestock Industry Statistics, 2017). The trade has occurred through various routes directly between Myanmar and Yunnan and also from Myanmar to Yunnan via Thailand and Laos. As Myanmar has not been a formal exporter to China due to disease protocols and regulations, this trade has been informal in nature until relatively recently. The nature of the informal trade entails risks of disease and disruption to prices and markets. The governments of China and Myanmar are seeking to expand the cattle trade through formal channels especially in order to control disease. This coincides with China's "one belt one road" strategy to integrate China with other countries through international trade, infrastructure and technical cooperation.

China plans to import up to one million buffalo and cattle annually from Myanmar, although numbers may vary according to market demand and supply-side limitations. Measures are now being taken by both governments to formalize the trade. The Government of China requires that cattle and beef imported from Myanmar are import from designated areas within Myanmar to prevent the spread and transmission of animal diseases. In the first stage, it is planned that Ruili County (Dehong Dai and Jingpo Autonomous Prefecture), Jinghong City and Mengla County (Xishuangbanna Dai

Autonomous Prefecture) in Yunnan province establish three cross-border regional animal epidemic management pilots<sup>1</sup>. The three pilot projects have been carried out by contractors in China. Gengma County of Lincang city and other counties are planned to be included in the second stage pilots. It is further planned in the long-term future that pilots will be replicated and expanded across the China-Myanmar border.

The comparative advantages of the Myanmar and Chinese beef industries mean the trade is highly complementary. Formalizing trade has the potential to benefit both Myanmar and China. These developments in formalizing the trade have the potential implications for a range of actors including small and large cattle farmers, traders, abattoirs and consumers, as well as effects of domestic beef prices and potential disease risk resulting from large-scale, cross-border cattle trade. These implications are explored in this report.

## **About the report**

This research was conducted by Dr Si Zhizhi as a visiting scholar at the University of Queensland. Thanks are due to CSC for support and SAFS for hosting her visit. Yang Guorong, Professor of Yunnan Academy of Grassland and Animal Science provide fieldwork in Yunnan. It has also been conducted in collaboration with Scott Waldron, Colin Brown and Dominic Smith, University of Queensland.

The research project has been funded by and conducted for ACIAR project AGB/2016/031 “Developing a trade model and information network for the cattle and beef trade sector of South East Asia and China”.

This report draws on secondary research from the (Chinese) Ministry of Agriculture, the National Bureau of Statistics and Yunnan Agricultural Bureau. It also draws on fieldwork conducted in Yunnan including interviews with government, traders, feedlots and farmers). For details, see Appendix 2.

The report should also be read in conjunction with the report Theingi Myint, Seinn Seinn Mu and Khin Nyei San (2018) “Recent Developments in the Cattle Trade between Myanmar and China” which gives insights into recent trade developments from the Myanmar side.

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<sup>1</sup> Cattle imported to Ruili and Jinghong would come from Myanmar, while cattle imported into Mengla would come from Laos, through Mohan border gate.

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# Acronyms

AQSIQ —— China's General Administration of Quality Supervision, Inspection and Quarantine

ASEAN —— Association of Southeast Asian Nations

BQ —— Black Quarter

BSE —— Bovine Spongiform Encephalopathy

CIQ —— China inspection and Quarantine

CPPCC —— Chinese People's Political Consultative Conference

CSC —— China Scholarship Council

FAO —— Food and Agriculture Organization

FMD —— Foot-and-Mouth Disease

GACC —— General Administration of Customs of the People's Republic of China

MOA —— Ministry of Agriculture

MOC —— Ministry of Commerce

MOFA —— Ministry of Foreign Affairs

MOU —— Memorandum of Understanding

NDRC —— National Development and Reform Commission

OIE —— World Organization for Animal Health

SAFS —— School of Agriculture and Food Sciences, The University of Queensland

WHO —— World Health Organization

# 1 Yunnan beef industry

## 1.1. Location and description of industry in Yunnan

Yunnan province is located in the southwest of China, bordering Myanmar, Vietnam and Laos. The province has favorable climatic and grassland resources for cattle production. Altitude varies from 76 meters to 5,760 meters ASL. Feed resources available in Yunnan include grasslands, and crop residues including straw from crops, rubber seed cake, cassava, canna, taro and molasses (Chen Wenli, 2007).

Yunnan has 15.27 million ha of natural grasslands, which account for 39 percent of the land area in the province. Although the area of available grassland<sup>2</sup> is lower at 11.87 million ha, this is the largest in southern China. The annual production of fresh grass in the province is 58.57 million tons. Yunnan has more than 3,200 forage species including gramineae, leguminaceae, cyperaceae, polygonaceae and compositae grasses.

Figure 1 The location of Yunnan province in China



### 1.1.1 Cattle stock and production

Yunnan province has the third largest cattle herd in China with a total of 7.89 million head in 2016, and is the tenth largest beef producing province in the country, producing 352,400 tons in 2016. These statistics suggest that the productivity of cattle production in Yunnan is still low, as cattle weights, slaughter rates and the beef per capita are lower than national average level (Wen Jikun, 1999; Zhaohang, 2015).

The Yunnan beef industry is gradually growing and commercializing. Cattle numbers decreased slightly between 1998 and 2016, but beef production more than tripled during the same period, due to higher carcass weights and slaughter rates. (Figure 2).

<sup>2</sup> Available grasslands are areas where the vegetation is dominated by grasses, deducting the area of non-grassland, including residential areas, roads, water areas, small plots of farmland, forest, bare land and unusable grassland within the scope of grassland.

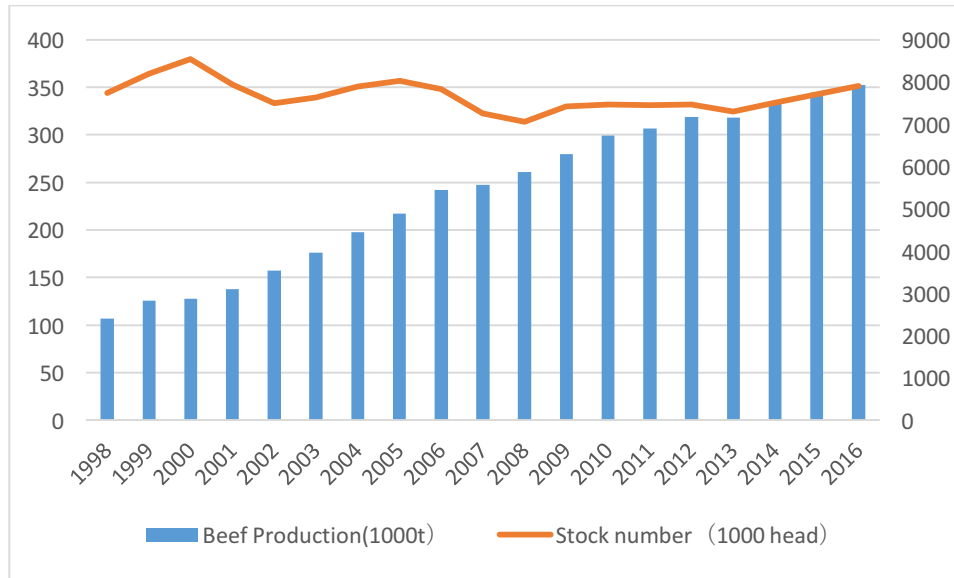


Figure 2 Beef production and cattle numbers in Yunnan, 1998-2016

Note: Beef production on left axis, stock number on right axis.

Source: National Bureau of Statistics, 2017.

### 1.1.2 Cattle breeds

Yunnan has a long history of cattle raising and has abundant genetic resources. There are four genus, and six species in Yunnan, including Yunnan cattle, Yunnan yak, gayal, zebu, Asian wild Cattle and Java (Wen, 1999). Starting the in 1970s, Yunnan also cultivated many local breeds, such as Dehong Zebu, Wenshan cattle, Zhaotong cattle, Dengchuan cow and Dehong buffalo.

In 2015, Yunnan has also bred China's fourth beef cattle breed called "Yunling cattle", which is cross between Brahman, Murray Grey and Yunnan yellow cattle. The breed has traits of high disease resistance, meat quality and low nutrition demands. It has been recognized by Ministry of Agriculture (MOA) as one of the main cattle varieties of southern China during the "13th five-year plan" in 2016 (Wang, 2017).

### 1.1.3 Scale of cattle production

Cattle production in Yunnan is dominated by scattered, small-scale farms with a low degree of specialization compared to other provinces and regions in China. According to official statistics, there were 1.42 million smallholder in Yunnan with less than 10 head accounting for 98.7 percent of the Yunnan cattle stock, 16,106 cattle farms with 10-49 head accounting for 1.1 percent, and 2,730 cattle farms with more than 50 head accounting for 1.2 percent of the Yunnan cattle stock. (Figure 3). This underlines the importance of smallholders in the Yunnan cattle industry.

Policy makers in Yunnan are attempting to facilitate an increase in the scale of production through the development of standardized and centralized large-scale breeding, feedlots and cooperatives. After many years of development, 32 counties have

developed “beef bases”, accounting for 36 percent of cattle in Yunnan (Huang, 2007). The numbers of cattle farmers with more than 50 head have increased dramatically, especially medium and large scale. The number of cattle farmers with 500-999 head has expanded six-fold from eight in 2008 to 56 in 2015 (Figure 3)

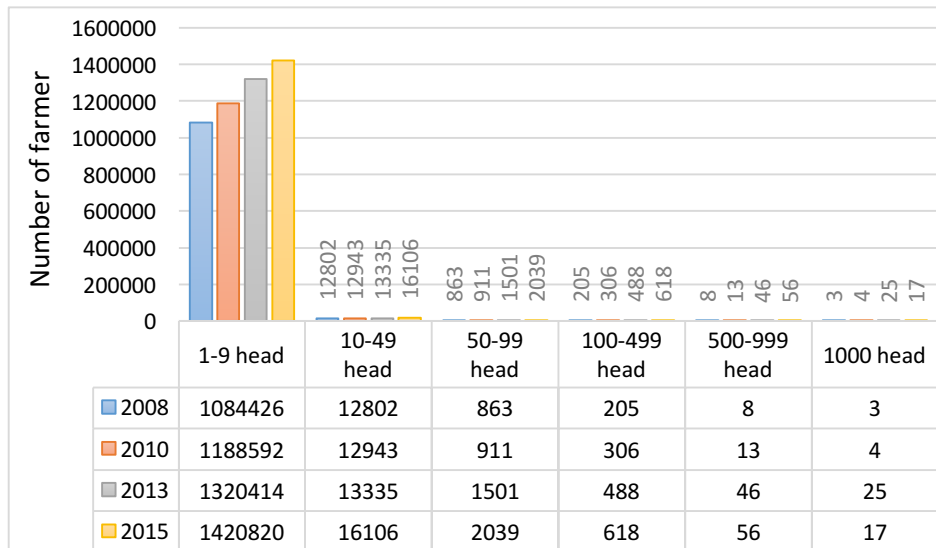


Figure 3 Scale of cattle herd in Yunnan, 2008-2015

Source: China animal husbandry and veterinary yearbook, 2009-2016.

## 1.2. Trade of cattle into Yunnan from Myanmar

### 1.2.1 Informal trade

The informal trade of cattle from Myanmar to Yunnan has been conducted for many years. The border between the two countries is 1997 kilometers long. Yunnan has 16 city-level ports, 7 provincial-level ports, more than 20 exit roads and 93 border trade routes. Driven by cross-border price differentials, the informal live cattle trade has increased rapidly in recent years.

According to the statistics of the livestock sector in Yunnan, the number of cattle entering from the China-Myanmar border in 2017 was 255,046 head (86,642 buffalo and 168,404 head of yellow cattle), an increase of 5 percent over the previous year. The vast majority of these cattle are imported through informal channels, although a small volume is traded legally through border residents that are permitted to trade.



Table 1 Cattle imported through the China-Myanmar border, 2014-2017

	Buffalo(head)	Yellow cattle(head)	Total cattle(head)
<b>2014</b>	102200	198276	300476
<b>2015</b>	117698	228269	345967
<b>2016</b>	82516	160385	242901
<b>2017</b>	86642	168404	255046

Resource: Yunnan animal husbandry industry statistics, 2017.

Note: Cattle import data includes informal trade and legal border trade.

These statistics include cattle originating from Myanmar and also cattle from other countries exported to China through Myanmar. It is difficult to accurately estimate the total number of Myanmar origin cattle exported to China from Myanmar. FAO estimate that Myanmar exported 98,419 head to all countries in 2016, which is much lower than the figures for informal cattle trade reported in Table 1.

There is some illegal import of cattle from Bangladesh to Myanmar, but there is no official confirmation for this (Luong Pham, 2015). Waldron et al (2015) report that about 100,000 cattle may have entered China directly from Myanmar and perhaps 150,000 indirectly from Myanmar through Thailand, Laos and Vietnam.

### 1.2.2 Semi formal trade

In July 2012, the Chinese government suspended cattle and beef imports from Myanmar due to Foot and Mouth Disease (FMD). In 2012, the FAO reported that only 117 head of cattle were exported from Myanmar to China. However, with the increasing demand for beef in recent years, the Chinese government is officially preparing to re-open beef and cattle imports from Myanmar.

In October 2017, the Myanmar government announced a one-year trial of permitting cattle live exports to China. This has led to a substantial semi-formal<sup>3</sup> flow of live cattle export to China. From December 2017 to May 2018, 50,022 head of cattle and 6,771 head of buffalo were exported to China, 36,000 of which were exported through Muse border gate in Myanmar (Close to Ruili), with a total value of US\$43 million (Khin Su Wai,2018).

## 1.3. Drivers of trade

The gap between domestic beef production and beef demand in China of current cattle and the disparity between prices of cattle in Myanmar and China are major drivers for formal and informal trade of cattle between Myanmar and China.

### 1.3.1 Cattle production/supply

China is the third largest beef producer in the world, and the industry has developed and commercialized over the past 2 decades. Beef production doubled between 1996 and

<sup>3</sup> The trade can be classified as “Semi-formal” at present, as cattle trade is now permitted from the Myanmar side, but has not yet been formally approved from the Chinese side.

2017. However, the beef cattle<sup>4</sup> herd stagnated over the period of 2008-2012 due to powerful forces, including urbanization, rising opportunity costs of labor, agricultural mechanization, and grassland degradation (Waldron, 2018). Between 2013-2017, beef cattle numbers grew slowly from 68.39 million to 74.41 million (China Livestock and Veterinary Yearbook, various years)

### 1.3.2. Demand

Even though beef production has increased in China, it has not kept up with rapid increases in demand for beef. With rapid urbanization and rising standard of-living, beef consumption of both rural and urban residents has risen dramatically in China. As shown in Figure 4, beef consumption more than doubled, from 3.53 million tons in 1996 to 7.96 million tons in 2017.

The shortfall between domestic production and consumption has been met by increasing volumes of imports. China's beef import dependence rose from less than 1 percent in 2012 to 8 percent in 2017, the highest import dependence ratio in the Chinese meat sector. China's formal beef imports increased from 2,947 tons in 1996 to 695,000 tons in 2017. In addition, the actual import volume of beef and buffalo meat is much larger than the legal import volume. The actual import volume of beef and buffalo meat in 2016 was estimated to be above 1 million tonnes (Dublin, 2017). These trends are forecast to continue into the longer term future. Beef consumption is forecast to increase to 9.85 million tons by 2027, and the gap between supply and demand of beef will reach 1.22 million tons at that stage (Market Early Warning Expert Committee of MOA, 2017).

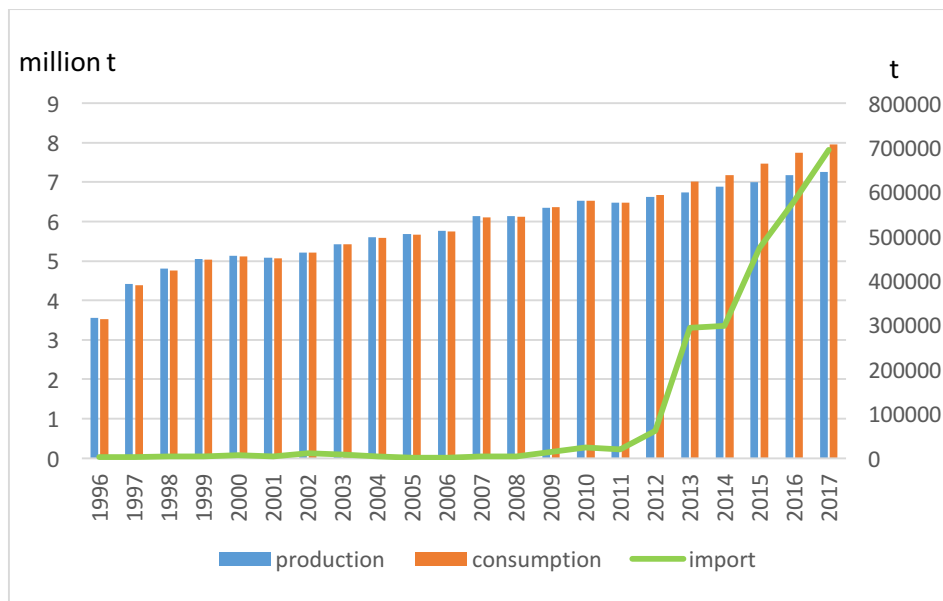


Figure 4 Beef production, consumption and formal imports in China, 1996-2017

Source: China Livestock Yearbook and Customs (1996-2017).

<sup>4</sup> Beef cattle means the cattle raised for meat production, not including dairy cattle number and buffalo number.

Note: Beef production and consumption on left axis, Beef imports on right axis.

### 1.3.3. Prices

These economic trends are expressed in rising beef prices. Between 2002 and 2017, average annual beef consumption increased by around 2.8 percent in China, while beef prices increased by 10.4 percent. The market price in China increased 3.4 times from 14.30 Rmb/kg in 2002 to 62.75 Rmb/kg in 2017 in nominal terms. The price was 2.5 and 3.4 times higher than pork and poultry respectively in 2017. Historically, the price of mutton has been higher than beef, but beef has been higher than mutton since March 2015 (Sizhizhi, 2015).

As a superior product, beef price growth has outstripped the growth of general food prices (Waldron, 2015). However, with increases in the opportunity costs (feed, fuel, labor and other prices) for cattle production, resource constraints and relatively long cattle cycles, the domestic supply response to higher beef prices has been muted.

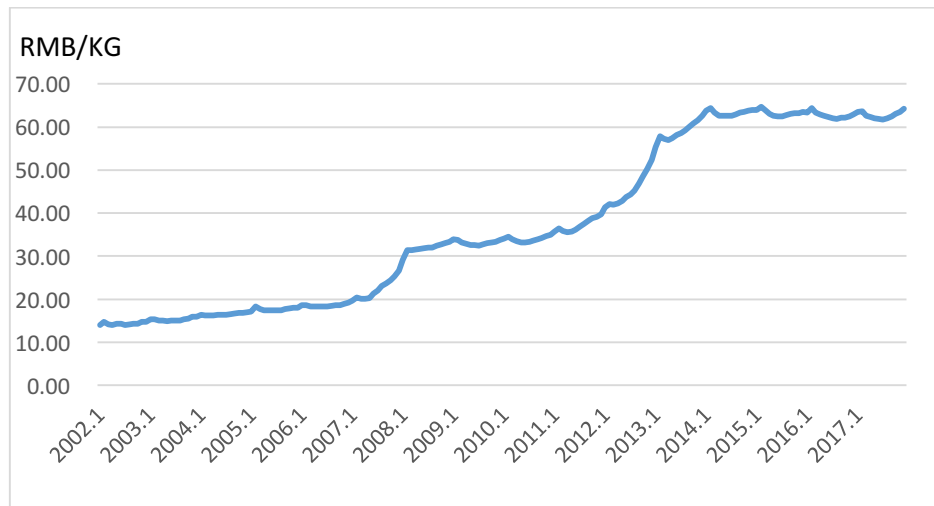


Figure 5 Average National beef market nominal monthly prices in China, 2002-2017

Source: MOA in China.

As a result, the price gaps between domestic and overseas beef can be large. The beef price in neighboring countries – especially Myanmar – is much lower than China. For example, the price of beef round in March 2018 was US\$7.68/kg (Rmb48.66) in Yangon, compared to US\$11.84/kg (Rmb75) in Kunming. The price in Beijing was US\$10.13/kg (Rmb64.15), 24 percent higher than Yangon (Numbeo,2018).

There is also a gap in the prices of live cattle. Fieldwork suggests that an average price of local cattle was US\$3.67/kg (Rmb25) in Yunnan, while the price of Myanmar live cattle was more than 8 percent lower at US\$3.38/kg (Rmb23). This is US\$145 (Rmb1,000) lower than the price of a 500kg local breed bull in the “Tian long street” big animal market in Dehong Mangshi. While prices of Myanmar cattle are lower, local buyers said they have low carcass weights and need to be fattened for several months for slaughter.

Table 2 Price of beef comparison between Myanmar and China, 2018

Price	Beijing, China	Kunming, Yunnan	Yangon, Myanmar
Beef Round (1kg) or Equivalent Hind Leg Red Meat	US \$10.13 (Rmb64.15)	US \$11.84 ( Rmb75.00 )	US \$7.68 (Rmb48.66)
Price gap between Myanmar and China	-24.15 %	-35.12 %	

Source: Numbeo, Cost of Living Comparison, March 2018.

## 2 Central government policies

The development of the Yunnan beef industry and trade with Myanmar are influenced by a range of policies at national level, which are discussed in this section.

### 2.1. Policy toward domestic / provincial industry

The Chinese government has published a series of ruminant livestock industry development plans, including the "National grain-saving animal husbandry development plan (2011-2020)", the "National cattle genetic improvement plan (2015-2025)" and the "13th five-year National development plan for herbivorous animals (2016-2020)". These national medium term development plans aim to promote the development, structural adjustment, transformation and upgrading of the herbivorous livestock sector, the effective supply of high-quality and safe livestock products and the accelerated modernization of livestock industries.

In terms of beef development, on July 2016, Yunnan government published "13th five-year development plan for "Yunling cattle" industry of Yunnan plateau characteristics modern agriculture (2016-2020)", which plans to increase beef production to 150,000 tons by 2020, and increase the size of the Yunling cattle herd to 500,000 head or more.

### 2.2. Trade policies

A major development and internationalisation program promoted in recent years is the "One belt and one road" initiative. This is reflected at province level in policies including "Participation in the construction of the silk road economic belt and the 21st century maritime silk road implementation plan" (Yunnan development [2015] No. 13) and "Construction of radiation center plan facing South Asia and Southeast Asia in Yunnan (2016-2020)". Among "One belt and one road" initiatives, agricultural supply and safety is an important factor that China tries to use to manage its supply chain and meet local needs.

In 2002, China signed a comprehensive economic cooperation framework agreement with ASEAN. As a member of ASEAN, Myanmar participated in all intra-ASEAN agreements as well as has border trade agreements with China. The Government of Myanmar has signed a number of Memoranda of Understanding (MOU) to expand bilateral trade with China.

On 16 May 2017, an MOU has signed by the Ministry of Commerce of China and the Ministry of Commerce of Myanmar undertook to construct the China-Myanmar border economic cooperation zone. Based on this MOU, 95 percent of import items can be imported tariff-free. Myanmar has become the largest trading partner of Yunnan

province, with a trade value of US\$7.05 billion in 2014, accounting for 26.2 percent of Yunnan's trade and 29.7 percent of trade between China with Myanmar (Maoang, 2015). At the same time, China has become Myanmar's largest trading partner, export market and import source. China-Myanmar trade accounted for 33.2 percent of Myanmar's total foreign trade in 2014 (People's Daily, 2015).

As discussed in previous sections, China historically had a very small beef trade sector for both imports and exports. However, import volumes increased rapidly from 2012 due to increased consumption and high domestic beef prices. On September 2014, the State Council announced that China would increase imports of beef, mutton and aquatic products. China has adopted a more liberal approach to beef and cattle trade, including the relaxation of import restrictions on beef from the European Union, United States, South Africa and neighboring countries (a total of 14 countries by 2018). In 2016, China became the world's second-largest importer of beef after the US.

As a border country with a significant cattle herd, China has been negotiating a meat (including beef) import agreement with Myanmar government since 2016. Bilateral agreement on the trade is still under discussion between China and Myanmar. At the same time, the government of Myanmar has instituted a one-year trial on liberalizing livestock exports to China, according to the Ministry of Planning and Finance (Chan Mya Htwe, 2018). The Myanmar government currently permits the export of frozen beef and other beef foods for exporters that have an export license to China from the 105-miles border trade zone of Muse, which is the country's main overland route for many exports (Myanmar Ahlin, 2018).

### 2.3. Animal health and biosecurity policies for China

China notionally has strict quarantine rules for the import of live cattle to prevent disease transmission, especially imports from countries with animal epidemic risks. A list of policies and laws relevant to the import of animal and animal products is shown in Table 3. One of the major policies is the "Administrative Measures for Inspection, Quarantine and Supervision of Inbound and Outbound Meat Products" issued by China's General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) (AQSIQ No 136), which took effect on June 1, 2011. These measures establish the requirements of inspection, quarantine and supervision on import and export meat products. The details of related quarantine approvals issued by AQSIQ are shown in Appendix 3.

Table 3 Relevant animal and animal products import policy in China

Year	Relevant documents
1992	Law of the People's Republic of China on the Entry and Exit Animal and Plant Quarantine.
1997	Regulations for the Implementation of the Law of the People's Republic of China on the Entry and Exit Animal and Plant Quarantine.
2002	Administrative Measures on examination & approval of entry animal & plant quarantine. (AQSIQ Order No.25).
2009	Measures for the supervision and administration of entry animal quarantine inspection and quarantine sites (AQSIQ Order No.122).
2009	Food Safety Law of the People's Republic of China.

2010	Measures for the Supervision and Administration of Inspection and Quarantine of Imported and Exported Aquatic Products (AQSIQ Order No. 135).
2011	Measures for the Supervision and Administration of the Inspection and Quarantine of Imported and Exported Meat Products (AQSIQ Order No. 136).
2011	Measures for the Safety Administration of Imported and Exported Food (AQSIQ Order No.144).
2013	Measures for the Supervision and Administration of Inspection and Quarantine of Imported and Exported Dairy Products (AQSIQ Order No. 152).
2015	Measures for the Administration and Approval of Quarantine of Entry Animal and Plant (AQSIQ Order No. 170).

Source: Collected from AQSIQ and website of government.

## 3. Policies that impact on the trade of cattle into Yunnan

### 3.1 Regional management of cross-border animal diseases

China and Myanmar have entered into a series of agreements to formalize the cattle and beef trade (Table 3). One important agreement was made in March, 2015 by the Ministry of Agriculture (MOA), the Ministry of Commerce (MOC), the General Administration of Customs (GACC), and the General Administration of Quality Supervision, Inspection and Quarantine (GAQSIQ). The agreement is titled “principal agreement for cross-border regional animal epidemic management pilot in Yunnan (Agriculture and Veterinary Bureau, Nong Yi Han [2015] No. 1).

On May 3, 2017, “Ministry of Agriculture, Commerce, General Administration of Customs, General Administration of Quality Supervision, Inspection and Quarantine support pilot work of cross-border animal epidemics regional management in Yunnan (Agriculture and Veterinary Bureau, Nong Yi Han [2017] No. 1). The document permits Yunnan to carry out pilots projects in cross-border animal epidemics regional management.

Ruili City in Dehong Dai and Jingpo Autonomous Prefecture , Jinghong City and Mengla County in Xishuangbanna Dai Autonomous Prefecture are designed as the three pilot areas. The Nongdao channel of Ruili, the Mohan channel of Mengla and the 240 channel of Menglong in Jinghong are designated as the three entry ports (channels) for cattle import and slaughter to be established over three years (2017-2019) (Figure 6).

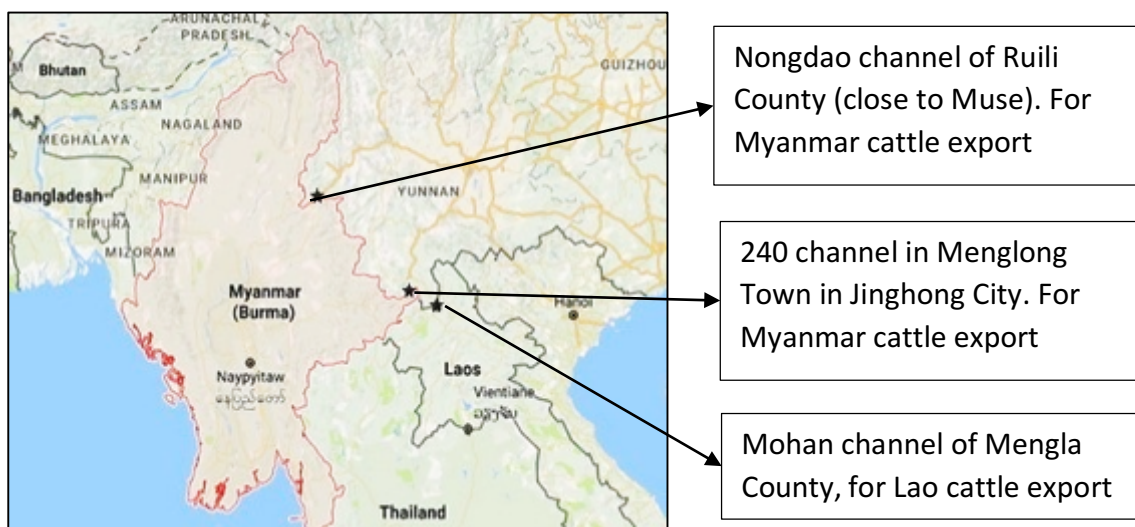


Figure 6 Three port (channels) of entrance in Yunnan

In accordance with the principle of "unified layout and step-by-step implementation", the pilot work will be divided into three stages, based on the decree "Reply to proposal 013 of the first session of the 12th session of the Chinese People's Political Consultative Conference (CPPCC) in Yunnan province". (Yunnongmu [2018] No. 28):

- (1) The first pilot stage. Pilot projects have been carried out in Ruili, Jinghong and Mengla.
- (2) Expansion of pilot. On the basis of the original work, the pilot project will expanded to Gengma county of Lincang city, Menglian county of Pu'er city and Tengchong of Baoshan city.
- (3) Full opening of the China-Myanmar and China-Laos border areas for livestock trade.

In addition, Yunnan established the first "Cattle Industry Import Chamber of Commerce" in Xishuangbanna in June 2018. The chamber has 51 members at present, composed mostly of cross-border cattle companies. The government plans to help 150,000 to 200,000 cattle farmers to develop and participate in the cross-border trade from 2018 to 2020, and plan for more than 500,000 cattle to be imported annually. The establishment of the Cattle Industry Import Chamber of Commerce will facilitate the joint development of overseas breeding entities and domestic entities (Daizhenhua, 2018).

Table 4 National policies to support the pilot of cross-border animal quarantine management in Yunnan.

Year	Domestic Document
2014.12	"Request for instructions from Yunnan government on the illegal import of cloven-hoofed animals (Yun Zheng Bao [2014]No.60)
2015.3	"Ministry of Agriculture (MOA), Ministry of Commerce (MOC), General Administration of Customs (GACC), General Administration of Quality Supervision, Inspection and Quarantine (GAQSIQ) principal agreement of pilot work of cross-



	border animal epidemics regional management in Yunnan". (Nong Yi Han [2015] No. 1) Reply document (27.3.2015)
<b>2015.9</b>	"Yunnan province cross-border animal regional management and industrial development pilot program implementation" (2015.9 Yunnan government report to MOA)
<b>2015.10</b>	"Application guide for Yunnan border cattle industry development project" (Yun Mu Han [2015] No.255)
<b>2015.12</b>	"Supplementary explanation on relevant issues concerning the implementation plan of the pilot project of cross-border animal regionalization management in Yunnan province"( Nong Ban Yi Han [2016] No. 1) (12.30.2015)
<b>2017.5</b>	"Ministry of Agriculture, commerce, general administration of customs, General Administration of Quality Supervision, Inspection and Quarantine support pilot work of cross-border animal epidemics regional management in Yunnan (Nong Yi Han [2017] No. 1)
<b>2017.9</b>	Implementation plan of the pilot work on the cross-border animal epidemics regional management in Xishuangbanna. (Xi Zheng Ban Han [2017] No.122)
<b>2018.6</b>	Reply to proposal 013 of the first session of the 12th session of the CPPCC in Yunnan province. (Yun Nong Yi Han[2018] No. 28). On the basis of the original work, the pilot project will expanded to Gengma county of Lincang city, Menglian county of Pu'er city and Tengchong of Baoshan city.

## 3.2. Infrastructure and investment

The government of China has taken major measures to build infrastructure for transport and to prevent and control trans-boundary animal diseases. This includes animal quarantine stations on both sides of the border, breeding and feedlot bases and ports of entrance.

### 3.2.1 Infrastructure projects

Myanmar has been isolated from the rest of the world for nearly 50 years, and this is reflected in undeveloped infrastructure within the country. China is developing infrastructure in Yunnan province as well as supporting infrastructure development in Myanmar through transport links, roads, ports, logistics centers and railways. This greatly facilitates the transport of cattle and beef from Myanmar to China. Dehong has strengthened coordination and communication with the corresponding governments of Myanmar and transportation authorities, established a system of regular meetings, and actively promoted cross-border convenient transportation between China and Myanmar.

The Chinese government has completed the Hangzhou and Ruili highway and the Ruili and Longchuan highway. The Tengchong and Longchuan highway construction has been accelerated. The construction of the Dali to Ruili section of the western line of the Fan-Ya railway has been promoted and Mangshi airport has been designated as a port airport. Construction of the Longchuan general airport has started.

The China – Myanmar railway will link Kunming with Yangon covering 1,920km. The Chinese section has been under construction since December 2015, and it is expected to be completed by 2020. In addition, China plans to build a railway road between Kunming and Kyaukpyu, the deep-sea port in Myanmar, also via Ruili. Yunnan has also developed the Lancang River-Mekong River as an international shipping route.



### 3.2.2 Investment in border cattle development

#### *Animal isolation and quarantine stations in Yunnan*

Based on the policies on “Implementation plan of the regional management of cross-border animal epidemics in Xishuangbanna” (Xi zheng ban han [2017] No.122) and “Pilot work Progress on regional management of cross-border animal epidemic diseases in Ruili”, the Yunnan government is planning to construct three to five quarantine stations. One station will be located in Mengla county, and cover more than 300 ha of land, within a non-epidemic areas of five square kilometres. Each animal quarantine station is planned to have a capacity to inspect 500,000 head per year.

Other animal quarantine stations in Yunnan will be located in north of Menglong Town in Jinghong (the “240 channel”) and Ruili county in Dehong city. These two animal quarantine projects have been constructed by Chengkang company in Jinghong and Penghe company in Ruili during March 2018. Each cost more than Rmb100 million with a capacity to inspect 500,000 head annually.

#### *Cattle abattoir and processing base*

The Yunnan government has also proposed the construction of four abattoir and processing bases. One will be located in east of Mandong Village, Menglong Town, Jinghong City, six kilometers from the new animal quarantine station. It is planned to cover an area of 16ha with a slaughter capacity of 500,000 head per year. Another abattoir is planned for Shangjinglong Village and Mengman farm, in Mengman Town, Mengla County. With an investment of Rmb1.1 billion, it is planned to cover 15 ha and a slaughter capacity of 500,000 head per year, which is a scheduled maximum slaughter capacity. These projects are likely to be adjusted based on real demand and funding in the construction period.

In addition, Dehong City is constructing two abattoir and processing bases. Construction is nearly complete on a cattle abattoir and processing base in the Ruili border cooperation economic zone in Nongdao Town. The cattle slaughter and processing bases meet environmental requirements, and are constructed on the principles of standardization, modernization of quarantine, slaughtering, deep processing, packaging, warehousing, freezing, logistics and transportation integration.

#### *Breeding and feedlot bases in Myanmar.*

Five or more breeding and feedlot bases will be developed in Myanmar and Laos. These will be located within a non-epidemic area that will range from three to 50 kilometers in diameter. All animals in the base will vaccinated and treated in to meet non-epizootic standards. Each breeding and feedlot base will cover more than 60 ha, and each can hold more than 500,000 head.

The bases are designed to encourage Chinese investment into Laos and Myanmar, and to foster development of agriculture including in forage planting, processing and storage from farmers in those countries. The production bases also fit with local policy to encourage technology transfer, reform the grain market (for feed) and develop crop and breeding comprehensive demonstration projects. Several Chinese companies have registered in Myanmar to breed cattle for China export. One company (Yingrui company in Dehong) hopes to use land, feed and labor in Myanmar efficiently to generate profits.

### *Dedicated ports (channels) of entrance.*

To cater for the major planned increase in feeding, transport and slaughter of cattle from Myanmar, China has also planned comprehensive facilities for the inspection, disinfection and administration in border ports of entrance.

Three ports of entrance will be developed

- Mengla Mohan port (Mengman channel) with an investment of Rmb282 million.
- Jinghong Menglong (240 channel) with an investment of Rmb192 million.
- Nongdao channel in Ruili port with an investment of Rmb60 million, covering an area of 2.4ha, for temporary inspection.

Facilities include accommodation, inspection areas, inspection-waiting areas, yards, car parks, weighing scales, and animal health inspection, supervision and isolation sites.

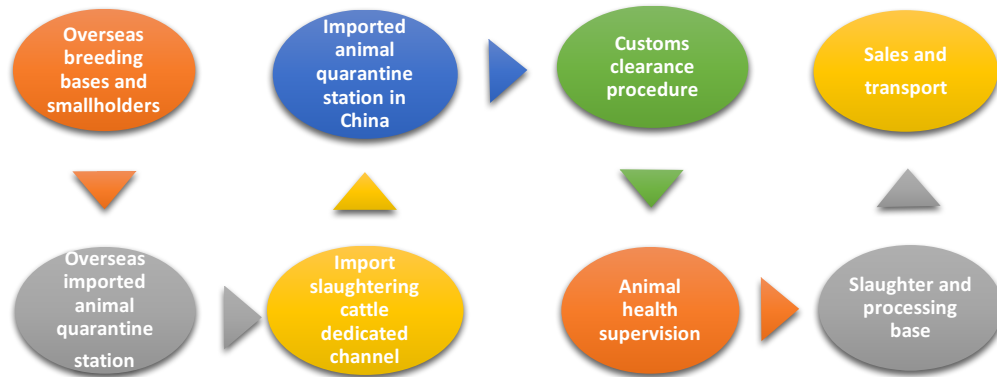


Figure 7 The road map of imported cattle to China

Source: Interpretation by authors of information from Xi zheng ban han [2017] NO 122.

### 3.2.3 Current investment projects and activities by companies

In addition to government funding, the Yunnan government is actively encouraging enterprises to invest in cattle projects that link to Myanmar. Projects are listed in this section and in Table 5.

On Jun 2015, the Xinxiwang company signed a framework agreement with Jinghong and Ruili governments, under which the company will set up “Jinghong beef industrial park” in Menglong Town of Jinghong city with an investment of Rmb1 billion, and the “Ruili beef industrial park” in Dehong, also with a Rmb1 billion investment.

On Oct 2015, the government published the “Application guide of Yunnan border cattle development project” (Yunnan livestock document [2015] No 255) to introduce enterprises to projects in border cattle breeding, fattening, slaughtering and processing . From 2015, nearly 100 enterprises have expressed interest and participated in the project. For example:

- On 26 July 2017, the first cross-border cattle project was signed between the Ruili government and Dakang company called the “pilot project on the regional management of cross-border animal epidemic diseases ”in Ruili city.
- On 11 August 2017, Mengla government signed an agreement with the company Yunnan urban construction investment company, titled “Investment project for cross-border regional cattle epidemic management“.
- On 24 August 2017, the Jinghong government signed an agreement with the Yunnan urban investment company titled “Investment agreement on cross-border animal epidemic regional management industry project”.

Table 5 Current investment project and completion status

	Investment and construction	Completed	Plan (2017-2019)
Ruili Pilot project	Penghe Agricultural Food Development Co. Ltd, a subsidiary of Dakang Co.Ltd. Cattle industrial base project, including quarantine station, abattoir and processing  Kangrui Agricultural and Livestock Co. Ltd, a subsidiary of Dakang Co. Ltd. Project to fatten cattle in Myanmar	The quarantine station covers an area of 195 mu in Nongdao. Abattoir and processing in operation at the end of July, 2018. A temporary inspection site has finished.  A dedicated Artiodactyl channel of 8.14 kilometers is operating.	The construction of a standardized inspection site is expected to be completed in 2019.
Jinghong, Pilot project	Yunnan Urban Investment Co. Ltd. and Dakang Co. Ltd established the Jinghong Chengkang Beef Cattle Co. Ltd in Jinghong	Construction of quarantine station and abattoir started on 15 March 2018 in Jinghong.	Completion expected 2019.
Mengla, Pilot project	Yunnan Urban Investment Co. Ltd and Dakang Co. Ltd established Mengla Chengkang Agricultural Food Development Co. Ltd	Construction of quarantine station and abattoir starts on 3 April 2018 in Mengla.	The construction project is expected to be completed in 2019.

Source: Collected by authors.

It is also important to note that these individual facilities are all covered under larger umbrella agreements - “General plan of Yunnan and Myanmar Economic Cooperation Zone Development (2017-2035)” and “Construction Plan of Economic and Trade Center Facing South Asia and Southeast Asia in Yunnan”. The Dakang “Cross-border Cattle Project” has been incorporated into the broader “1+3+1” general plan of the border economic cooperation zone of “Ruili - Muse, Myanmar” in Yunnan province, and become the core project of the development zone.

## 4 Implications

As discussed, government and private actors are taking major measures to expand and formalize the trade of live cattle from Myanmar to China. This will have implications for a range of actors on both sides of the border including cattle producers, traders, feedlots, abattoirs, retailers and consumers. An increased flow of cattle could have effects on regional markets, trade and biosecurity, but the effects are largely unknown or unquantified. These are examined below.

### 4.1. Impacts on trade

The Chinese and Myanmar governments have a signed agreement to trial the export of around 100,000 live cattle per year. About 5,000 live cattle have been exported to China per month [in 2018] according to MoC of Myanmar. The Chinese government is planning to import one million cattle from Myanmar to meet rising market demand, but Myanmar only has the capacity to export 700,000 per year according to the Animal Husbandry and Veterinary Department of Myanmar (MOC of Myanmar, 2018).

Based on an assumption of 500kg live weight and 50 percent dressing percentage, the the annual import of 100,000 cattle is the equivalent of 25,000 tons beef. This would account for just 3.6 percent of China's official imports, about 1.5 percent of all (including informal) imports, and 0.3 percent of total (including domestic) beef supply. The potential for cattle exports from Myanmar in the future is constrained by herd size, low turnoff (due to use of cattle for draught) and government regulations.

### 4.2. Impacts on industry actors

The expansion of trade could be expected to have a positive impact on business opportunities and incomes of cattle breeding and fattening farmers in both countries. There are many opportunities for feedlots, but also have to face different types of risks.

#### *Impacts on farmers*

Fieldwork interviews showed that most farmers in Dehong (in Yunnan) are not worried about the impact of Myanmar's cattle imports, especially small households. One old farmer said that he would not change cattle production practices by feeding cattle from Myanmar. He is unfamiliar with the breed and characteristics of the imported cattle. He also thinks that there would be high costs involved in building infrastructure to expand operations and to separate local from imported cattle (for disease and inspection purposes). Most smallholders in Yunnan are old villagers that lack technology and capital and are satisfied with their current production practices and systems.

Most feedlots reported that formalisation of the trade would affect their operations. One mid-scale feedlot manager said that cattle from Myanmar have large frames and have high weight gain potential. About 80 percent of the young cattle in the live cattle market in Dehong are from Myanmar or are improved breeds (local). This suggests that imported cattle are in demand in Yunnan, especially for feedlots or larger producers. However, smallholders would appear to have difficulty competing with large commercial feedlots in sourcing and utilizing feeder cattle from Myanmar as the trade becomes legal.

### *Impacts on cattle traders*

Fieldwork in Dehong confirmed that large numbers of cattle are informally traded across the border. More than 100 cattle from Myanmar are traded every day in the “Tianlong street big animal trading market” in Dehong Mangshi. This of course provides opportunities for cattle traders of a range of sizes and types of cattle.

The formalisation of trade is likely to benefit larger traders and companies. Only a few companies have authorisation to formally import live cattle from Myanmar, which requires permits from the government of Yunnan Province, and is associated with supporting infrastructure projects in Yunnan or Myanmar. Two processors interviewed (Yingrui and Ruili Jifeng) have registered companies in Myanmar and are looking now to process and export beef from Myanmar. Other major companies (Dakang and Chengkang) are investing in farms, forages and plants in Myanmar.

On the Myanmar side, it is reported that a total of 283 Myanmar companies have become involved in cattle exports, 447 companies have received a cattle movement certificate issued by Livestock Breeding and Veterinary Department (LBVD) of Myanmar and 326 Myanmar companies have applied for veterinary inspection and quarantine status (LBVD, 2018). The increasing profitability of cattle trading has encouraged the involvement of larger companies, which has squeezed out small traders.

### *Impacts on consumers*

A greater flow of cattle from Myanmar would benefit consumers in China through increased supply, competition and lower prices (Table 1). Interviews suggested Yunnan local consumers don't like beef from Myanmar because it is older and tougher than local beef. However Myanmar beef has gained acceptance due to its low price relatively to local beef. The beef from Myanmar is used mainly in stews rather than local beef which is usually fried. Beef from Myanmar is commonly consumed in hotpot restaurants (Anonymous, 2018). In general, only low quality, cheap beef is required for this market. Staff of a restaurant in Dehong said that they use beef from Myanmar because it is cheaper than local product. In addition, a lot of beef from Myanmar is used in spicy or processed food to sell in Hubei and Sichuan.

Xinxiwang company (Sichuan) signed agreement with Jinghong City in Xishuangbanna and will set up a beef industrial park in Menglong and Ruili to process 20,000 tons of beef products every year for the Sichuan market (Linling,2018)

## **4.3. Economic Impacts**

The border trade between Myanmar and China has significant economic impacts for both countries. Broad calculations suggest that if China imports 300,000 cattle from Myanmar per year, the output value of feeding and process will be Rmb10.5 billion with a tax revenue of R360 million (Ruili Agriculture Bureau).

### *Semi-Formal trade*

Formal imports of cattle through designated channels have not officially started in Yunnan. Part of the reason is that the border quarantine and isolation stations have not been completed. The current semi-formal cattle imports are mainly through temporary quarantine stations in Yunnan. Information gathered during fieldwork in a poverty

alleviation village in Mengla, shows that imported cattle from Myanmar through Muse “105 Mile trade Zone” have been vaccinated (twice), isolated and fattened for two months in the border areas of Yunnan. After the quarantine period, an inspection certificate is issued by authorities and imported cattle are permitted to enter the Chinese market. If the cattle show symptoms of disease, they are forbidden to be transferred or slaughtered.

The cost of trade through formal channels includes preliminary import procedures (including preparation for an import license, registration, certificate of consignee, business corporation card and operator card). Other costs include cattle purchase costs, tariffs and added-value tax (VAT), fattening, quarantine and transport costs. Interviewees claimed that profit margins may be as high as Rmb1,500-2,000 per head for cattle imported through formal channels, with variation.

### *Informal trade*

The price of smuggled cattle at the border is made up of the purchase price in Myanmar plus the cost of each checkpoint through Myanmar to border (according to an official of the Dehong Agriculture Bureau). The live cattle price in Mandalay (Myanmar) is Rmb17-18 /kg, while the price is Rmb22-23 /kg in Dehong Mangshi or the Ruili trade market.

The profit margin for one smuggled cattle may be as high as Rmb2,500-3,000 depending on the size of cattle. This profit margin can be Rmb1,000 higher than through the semi-formal trading. The profitability of the informal trade is welcomed by actors on both sides of the border, despite the risks of being arrested and animal disease.

## 4.4. For animal health

Myanmar is not free from Foot and Mouth Disease (FMD) and OIE (the World Organisation for Animal Health) list diseases such as Anthrax, Haemorrhagic Septicaemia (HS) and Black Quarter (BQ) as endemic in Myanmar (Myanmar beef cattle industry, 2015). Increased cattle movement in recent years could be expected to have increased disease transmission rates and outbreaks. It is difficult under current systems for authorities to manage disease risks associated with border trade. Cattle from Myanmar travel from many areas over long distances and over long border areas, and border areas have not sound entry inspection and quarantine processes. Thus, the Chinese government has sought to respond by speeding up infrastructure construction including breeding, quarantine, port of entrance and free trade zones and abattoir and processing facilities on the border of Myanmar and other countries, including Laos.

## 5 Challenges and Recommendations

The Myanmar government and Yunnan province are now finalising an agreement to facilitate and formalise the trade in cattle and beef. However, some challenges in the development of this trade were cited on fieldwork.

(1) Myanmar has an opportunity to expand cattle exports, with high demand for beef in China and limitations for exports from other countries (including in recent times, increased tariffs on US beef). However, at same time, China is negotiating import agreements from countries neighboring Myanmar including India and Laos. An increase in cattle and beef trade from these other countries will affect regional cattle movements.

China signed an MOU to import bovine meat from India in 2013, and agreed to remove restrictions on bovine meat export from India. The MOC of China has sent quality inspection team to India to examine buffalo meat facilities.

(2) While the cattle herd in Myanmar is large compared to other Mekong countries, the cattle supply is limited. Officially, China plans to buy around one million cattle from Myanmar. However, Myanmar has announced that will only be able to export 700,000 cattle a year, after domestic consumption, deaths, calves and those used for draught purposes (MOC of Myanmar, 2018). Myanmar's cattle supply is further constrained by low productivity. Limitations in Myanmar's cattle supply will mean that China will still need to turn to other countries to guarantee sufficient cattle supply.

(3) While Myanmar has liberalized live cattle export policies, there are many elements of policy relating to cattle and beef that are still restrictive. Government policy modified the age of cattle for export from 16 years to five years. Even this reduced limit is still higher than most other exporting countries. In addition, although cattle exports is legalized in Myanmar, the trade is still limited by restrictions on domestic trade in Myanmar, including numerous permits that need to be obtained to transport cattle and gain permission for exports. The Myanmar government should aim to further simplify laws and procedures to facilitate cattle exports.

(4) Animal disease is another critical problem in Myanmar. Managing the spread of diseases is an expensive and logistically difficult process, as shown by the scale of investments proposed for quarantine facilities in the two countries. Furthermore, the health certificates 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. Several fieldwork interviewees said that even if cattle and buffaloes were certified disease-free, there is still concern about the true status and disease risks. Food safety and quality is the first requirement for export.

## Appendices

### Appendix 1 Beef and cattle price in Dehong “Tian long street” trading market

<b>year</b>	<b>Beef (rump) Yuan/kg</b>	<b>Beef (flapFraudinha) Yuan/kg</b>	<b>live cattle Yuan/kg</b>
<b>2017.1</b>	65.5	55	22
<b>2017.2</b>	64.3	56	22
<b>2017.3</b>	62.5	54	22
<b>2017.4</b>	60	54	22
<b>2017.5</b>	60	54	24
<b>2017.6</b>	60	54	24
<b>2017.7</b>	60	54	24
<b>2017.8</b>	60	54	24
<b>2017.9</b>	60	54	24
<b>2017.10</b>	60	54	24
<b>2017.11</b>	60	54	24
<b>2017.12</b>	62	54	24
<b>2018.1</b>	66	56	25
<b>2018.2</b>	66.5	56	25
<b>2018.3</b>	65	56	25
<b>2018.4</b>	62	55	25
<b>2018.5</b>	62	55	25
<b>2018.6</b>	62	55	25
<b>2018.7</b>	61	55	25

Source: “Tian long street” trading market’ in Dehong Mangshi, 2018.



## Appendix 2 List of Respondents

<b>NO</b>	<b>Name</b>	<b>Occupation</b>	<b>Address</b>
1	Sun Dingzhao	Family farmer, small scale	Dehong Mangshi
2	Feng Chengxiu	Family farmer, middle scale (feeding smuggle cattle)	Yingjiang county, Dehong
3	Mao Congguo,	Feedlot (Myanmar branch)	Longchuan county, Dehong
4	Xia Fachun	Breeding, processing and trade company	Dehong Mangshi
5	Yu Xuanfu	Buffalo breeding	Tengchong county, Dehong
6	Dai Bingliang	Yunnan province agriculture bureau (Official document provided)	Kunming, Yunnan
7	Li Ruisheng	Dehong livestock station	Dehong Mangshi
8	Yin Yichang	Dehong livestock station	Dehong Mangshi
9	Huangmeng	Yingjiang livestock station (Smuggle cattle expert)	Yingjiang county, Dehong
10	Luo Zairen	Yingjiang livestock station (Myanmar cattle expert)	Yingjiang county, Dehong
11	Duan Dahua	Longchuan livestock station (consumer)	Longchuan county, Dehong
12	Ding Yunchun	Longchuan livestock station	Longchuan county, Dehong
13	Xiao Luo	Gold elephant Dai nationality restaurant waiter (consumer)	Yingjiang county, Dehong

## Appendix 3 The details related quarantine approval issued by AQSIQ

### **Approval for animal quarantine station**

#### *Use of State Animal Quarantine Station.*

According to Article 6 and Article 10 of Measures for the Supervision and Administration of the Use of Imported Animal Quarantine Station, cattle entry need to get approval from AQSIQ, and the imported cattle need to be isolated for quarantine in State Animal Quarantine Station. Once the approval is granted, AQSIQ will list the details in the Approval of Quarantine for Entry and Exit Animal and Plant.

The applicant needs to file the following documents for the application of approval for State animal quarantine station:

- a. Application Form of Use of Imported Animal Quarantine Station;
- b. The copy of identification materials of the users (legal entity or natural person);
- c. Transportation arrangement plan and the routes from the port to the quarantine station for imported animal.

#### *Use of Designated Animal Quarantine Station*

When a state animal quarantine station cannot meet the requirements, the isolation quarantine need to be carried out in the designated animal quarantine station, the applicant needs to apply to local quarantine bureau for approval.

Required documents will be filed as follows in this case.

- a. Application Form of Use of Animal Quarantine Station.
- b. The copy of identification materials of the users (legal entity or natural person).
- c. The copy of documents for rights of foreign trade management.
- d. The general layout plan and photographs that showing the facilities and equipment for the designated animal quarantine station.
- e. The system of animal epidemic prevention, feeding and management for the animal quarantine station.

- f. The evidence to prove the place where the animal quarantine station does not occur any animal infections which outlined in Catalog of the People's Republic of China on Quarantine and Epidemics Involving Imported Animals related to the cattle of isolation and quarantine, such evidence need to be issued by the administrative departments of people's Governments above the county level.
- g. Transportation arrangement plan and the routes from the port to the imported animal quarantine station.
- h. When the user of animal quarantine station is not the owner of the animal quarantine station, the user needs to provide the agreement of the animal quarantine station which signed with the owner.
- i. Other documents required by the local quarantine bureau.

The temporary animal quarantine station will meet the following conditions in accordance with Article 19 of Measures for the Supervision and Administration of the Use of Imported Animal Quarantine Station.

- a. The infrastructure need to meet the construction standards of animal quarantine station.
  - b. develop appropriate management systems in accordance with the relevant provisions for management on temporary animal quarantine station for imported animal quarantine farm management issued by AQSIQ.
  - c. The owner and user of animal quarantine station comply with the relevant provisions and enter into a lease agreement.
  - d. The local quarantine bureau has the capacity of handing basic animal quarantine and laboratory for the big and middle size of animal.
  - e. The infrastructure comply with the relevant provisions and have legal documents for land use.
  - f. The port has the capability of loading and unloading animals.
- After passing the examination, the local quarantine bureau will issue the Approval of Animal Quarantine Station for Entry and Exit Animal. If unqualified, the applicant needs to rectify or alter the animal quarantine station.

### **Approval of Quarantine for Imported Animal**

For the import of dairy cattle or beef cattle, the applicant needs to submit the documents as follow to apply the Approval of Quarantine for Imported Animal:

- a. The copy of Certificate of Identification for the legal entity.
- b. The approval of use of state or designated animal quarantine station.

After the examination, AQSIQ will issue the Approval of Quarantine for Imported Animal for the qualified application; otherwise, the local quarantine bureau or AQSIQ will issue the Notice of Refusal for Approval of Quarantine for Imported Animal to the applicant or its agency.

However, for the breeding cattle import, the applicant needs to submit the following required documents to get Approval of Breeding Stock and Poultry from Ministry of Agriculture.

- a. The application form of import or export breeding stock and poultry.
- b. The copy of Certificate of breeding stock and poultry.
- c. The Certificate of Genealogy for breeding stock and poultry issued by the exported country.
- d. The documents that proof the quantity of the imported breeding stock and poultry are matched with the production ability of importer.
- e. The Purchase agreement on Breeding Stock and Poultry signed by exporter and importer.

### **Inspection Reporting to the Port of Entry.**

The applicant or its agency needs to report to relevant quarantine departments and apply the inspection in advance 30 days before the entry of cattle. The following documents will be required for the application:

- a. Application for Inspection Form;
- b. A legal Approval of Quarantine for Imported Animal;
- c. The official Certificate of Quarantine issued by the export country;
- d. Relevant agreements, letter of credit, invoice, packing list;
- e. If reported and applied by the agency, the agency needs to provide the Power of Attorney.

### **On-site Inspection**

When imported live cattle arrive in the port of entry, the applicant or his agent needs to inform the inspection and quarantine authorities to

conduct on-site inspection. Inspection and quarantine officials will perform the boarding check. After passing the on-site inspection, the applicant will be granted Entry Customs Clearance Bill and Certificate of Disinfect for Conveyance; at the same time, the officials will escort the imported cattle to the designated animal quarantine station for the follow up isolation quarantine.

If the following occurs, inspection and quarantine authorities will conduct corresponding measures.

- a. When the cattle arrive in the port of entry without a valid certificate or a quarantine certificate, these cattle will be returned or destroyed.
- b. The official find dead or infected animals at the on-site inspection, inspection and quarantine authorities need to record the quarantine in detail and isolate the infected animals immediately, make quarantine treatments, remaining feed and excrement and so on; and dissect the dead animals then sent samples to the laboratory for diagnosis.
- c. The imported cattle have the symptoms of animal infections which are outlined in Catalog of the People's Republic of China on Quarantine and Epidemics Involving Imported Animals. The official will blockade the site and take urgent prevention measures, notify the owner or its agency to stop unloading, and report to AQSIQ or local governments in accordance with Notice of the State Administration of Quality Supervision, Inspection and Quarantine on Issuing the Plan for Handling Serious Entry and Exit Animal Epidemic Emergencies.
- d. Fails to transport the imported cattle under the route designated by Approval of Quarantine for Imported Animal, the applicant will be punished according to the degree of seriousness, and the cattle will be returned or destroyed.
- e. The imported cattle are unloaded without the consent of inspection and quarantine authorities, the applicant will be punished according to the degree of seriousness.
- f. Before the cattle arrival or when the cattle arrival, the exported country occur animal disease emergency, inspection and quarantine authorities will implement relevant announcements issued by AQSIQ.

### **Isolation Quarantine**

The general period of isolation quarantine is 45 days. Laboratory quarantine will be carried out on the period of isolation quarantine, the applicant or its agency needs to assist the sampling work, inspection and quarantine authorities will issue the Certificate of Sampling after the sampling finish. If the cattle get sick or the test result of sampling is positive, the following steps will be taken: (Sarah Xuan,2017)

- a. Separate isolation for the cattle;
- b. Disinfect to the contaminated sites, articles and related items;
- c. The cattle are forbidden to be transferred or slaughtered.

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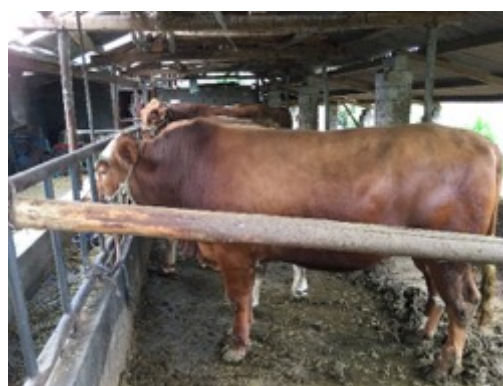
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## Photo record

Interview with local farmers owners in Dehong, Yingjiang, Longchuan





**Interview with a family farmer in Yingjiang County, who help to feed cattle confiscated from the China Anti-smuggling office. The cattle are auctioned**



**online**



**Visiting boundary river and Ruili port.**



Interview with feedlots, processors and traders





Interview with government officials, Dehong autonomous region, Longchuan County and Yingjiang county livestock station.



Interviews in “Tianlong street” big animal trading market in Dehong Mangshi, the biggest trading market in western Yunnan, with an annual turnover of 30,000 head, including cattle form Myanmar



## Brief Biography of Authors

Si Zhizhi, Associate Professor of Agricultural information institute of China Agricultural Academic Sciences (CAAS), PhD of Agricultural Economy Management, mainly engaged in the research on agricultural products' market monitoring and early warning, animal husbandry economy and food security. Dr. Si has served as chief analyst at beef and mutton market for MoA, closely involved in the industry survey and policy-making on major issues, accumulated remarkable research on the issue of supply and demand, price fluctuation, industry support and value chain analysis. She has published more than 80 academic papers and an academic works. She has several years of work experience with some International organizations and university such as FAO, OECD, IFAD ,WFP , University of Adelaide, USA Virginia Tech, etc.

Scott Waldron, Senior Research Fellow in School of Agriculture and Food Sciences of UQ. As a livestock economist, Scott has conducted 20 collaborative projects on ruminant livestock in developing Asian countries. He also co-leads a research program on cattle and beef markets and trade in China, Southeast Asia and Australia. Scott has published nine scholarly books, more than 50 peer-reviewed journal articles and book chapters, and numerous industry reports. He is a famous expert of livestock market in China, attended China cattle industry conference many times and made speech.

Yang Guorong, Professor of Yunnan Academy of Grassland and Animal Science. Yunnan provincial government special allowance. He has been engaged in animal science and technology research and promotion since 1981. He has more than 37 years of work experience in institute and rural development projects with some International Organizations. During 1989 - 1991, he attended 18 months of training and study in Australia, inspected and purchased short-horn cattle in 1986 and 2008, helped cattle raising technology for 10 months for Laos , visited animal husbandry in Brazil and South Africa in 2005, and visited southeast Asia for many times. He has rich field research experience as famous cattle and buffalo breed expert, set up a border county workstations providing technical support for research and farming.