Report No: AUS0000216

Mongolia Central Economic Corridor Assessment

A Value Chain Analysis of the Cashmere-Wool, Meat, and Leather Industries

WORLD BANK GROUP

Report No: AUS0000216

Mongolia Central Economic Corridor Assessment

A Value Chain Analysis of the Cashmere-Wool, Meat, and Leather Industries

May 2019

WORLD BANK GROUP

Acknowledgments

This report was prepared by a team led by Julian Latimer Clarke (Senior Economist, GMTP1) and Marcin Piatkowski (Senior Economist, GFCPN), with inputs from John Arnold and Mendsaikhan Ganbat (Consultants). Jigjidmaa Dugeree (Senior Private Specialist, GMTIP) provided valuable comments. This task was prepared under the overall guidance of Deepak Mishra and Irina Astrakhan. The support of the World Bank's Country Managers, James Anderson and Andrei Mikhnev, is gratefully acknowledged.

The report benefited from discussions with government officials from Mongolia's Ministry of Foreign Affairs (MoFA) and comments from Chimguundari Navaan-Yunden, ambassador-at-large at the MoFA. It also had discussions with the Ministry of Finance, Ministry of Food, Agriculture and Light Industry, Ministry of Road and Transport Development, and the General Agency for Specialized Investigation (GASI). The report also benefitted from the valuable comments from Jean-Pascal Nguessa Nganou and Davdalaai Batsuri.

The authors would like to acknowledge the editorial input from Otgonbayar Yadmaa, who also provided logistical and administrative support.

Table of Contents

BOXES

FIGURES

TABLES

Acronyms

BRI	Belt and Road Initiative
CEC	Central Economic Corridor
CGF	Credit Guarantee Fund
EU	European Union
FCA	Free Carrier
FMD	Foot-and-mouth disease
GASI	General Agency for Specialized Investigation (Mongolia)
GDP	Gross Domestic Product
LITS	Livestock Identification and Trace-back System
LPI	Logistics Performance Index
MNCCI	Mongolian National Chamber of Commerce and Industry
OECD	Organization for Economic Co-operation and Development
OIE	World Organization for Animal Health
SME	Small and Medium Enterprise
TFA	Trade Facilitation Agreement of the World Trade Organization
TTFA	Trade and Transport Facilitation Assessment
WTO	World Trade Organization

Executive Summary

Great promise, modest performance: The role of economic corridors and industry value chains

Enhancing the efficiency of the Central Economic Corridor (CEC) is vital to Mongolia's effort to improve trade competitiveness and diversify exports. Mongolia has a comparative advantage in agribusiness, especially downstream industries using livestock products. Yet its share in worldwide exports of agribusiness commodities is insignificant. This is primarily because Mongolia's Central Economic Corridor—the key transportation network connecting it to its immediate neighbors, China to Russia, through Mongolia's capital city of Ulaanbaatar—is underutilized and underdeveloped. Understanding why a large, low-cost producer of agribusiness commodities currently occupies such a minor position in the global market is critical to designing a reform strategy that will increase Mongolia's exports through an efficient economic corridor.

The role of Mongolia's economic corridors is best understood when seen as an integral part of the country's supply chain. An overview of Mongolia's economic corridor has so far remained incomplete because it has not been examined in an integrated manner—through value chains linking farm to retail. Most existing studies have examined only a single stage of the supply chain, such as farm-level productivity, or problems associated with poor infrastructure, lacking any consideration of the economic corridor as an integral aspect of the supply chain.

This report analyzes the performance gap of the CEC through an examination of three key agribusiness industries that produce Mongolia's primary agricultural exports: (i) the cashmere-wool industry, (ii) meat, and (iii) leather. These industry's highlight the major challenges that Mongolian producers face in a world where agribusiness depends on a demanding retail industry characterized by tight delivery schedules and high-quality standards, which are more important than tariffs. The report diagnoses the challenges that these industries face, identifies opportunities for the growth of these industry's—including by leveraging the potential of the CEC—and shares policy recommendations on how to seize these opportunities. The analysis shows that Mongolia's comparative advantage has been significantly diluted by weaknesses associated with its economic corridors. Weak growth of agricultural exports has in turn undermined the economic benefits of economic corridors, which grow larger as the trade volumes that they channel also increase. This vicious circle thwarts Mongolia's development.

The analysis of the performance gap was based on Trade and Transport Facilitation Assessment (TTFA) methodology (Box 1). The TTFA analysis was used in Mongolia for the first time, building on similar analyses conducted in peer economies. The data needed for the analysis were collected through structured interviews with a selected sample of key firms in each industry, logistics providers, and government agencies. The objective of the interviews was to understand the industries' and the firms' business models, the extent of the firms' involvement in their inbound and outbound supply chains, and the relationship between the structure of the supply chains and the quality and availability of the goods they export.

Box 1. The Trade and Transport Facilitation Assessment (TTFA) methodology

The Trade and Transport Facilitation Assessment (TTFA) is a tool developed by the World Bank to evaluate the competitiveness of a country's trade and the quality of logistics services used for specific trades. The tool has two components. The first focuses on public policy that affects trade and logistics. The second examines the performance of supply chains used by importers and exporters. Both components utilize background research and interviews to identify current constraints and opportunities related to improving competitiveness and quality of service.

Source: World Bank 2010.

The report adds to the existing literature by laying out the cost and price structure of market players and providing an integrated view of the industry. The TTFA analysis (see Box 1) makes it possible to analyze the relative importance of factors that place Mongolian producers at a disadvantage in the international marketplace and identify priorities for reform. The analysis helped identify initiatives that would increase the value and volume of exports from other industries besides mining and minerals (no mining related exports). The problems faced in increasing the quality and availability of these exported goods are relatively well documented and specific solutions have been proposed in previous publications. This study breaks new ground and examines how the supply chains could be restructured to implement those solutions. This analysis considers both the general objectives and constraints in terms of quality, variety, availability, and scale.

Economic corridors underutilized and underdeveloped

Mongolia's CEC faces several major impediments. First, high delivery costs and inefficient logistics restrict the range and volume of products that can profitably access export markets. All other things equal, lower transport costs should allow the expansion of existing exports as well as emergence of new export products, especially those where the costs of logistics play a large role. Second, there is a gap between local and international standards, which undermines exports of standard-sensitive products such as meat. Third, the development of the CEC is stymied by Mongolia's idiosyncratic trade facilitation regime and poor infrastructure.

The findings of this report align closely with earlier analysis on the red meat markets. The World Bank's 2017 policy note on Mongolia's red meat value chain focused on the potential for Mongolian exports to China, where meat imports grown considerably over the last decade. The report showed that the well-known challenges in Mongolia's meat industry need to be overcome before exports could increase. These include distance to markets and poor transportation infrastructure, lack of veterinary services, and poor-quality control of slaughtering, processing, and sale of meat. The findings of this report reinforce those conclusions.

The results also incorporated the findings of a recent study of economic corridors. The World Bank background paper (World Bank 2017) assessed the transport and logistics environment in Mongolia in terms of road and rail infrastructure. It argued that the underperformance of the economic corridors undermined the development of value chains, including because of challenges associated with market information and the timely arrival of inputs. The paper asserted that by creating efficiencies in the economic corridor, value chains can become stronger by accommodating a greater variety of products, improving collaboration among transport service providers, providing more real-time market information, better insurance and credit facilities, and more timely information about buyer requirements.

The report finds that the benefits of CEC as the linchpin of growing value chains are likely to be much larger than benefits of transit trade. Transit corridors through Mongolia have featured prominently in discussions about the China Belt and Road Initiative (BRI) projects and the Tripartite Agreement involving China, Mongolia, and Russia. However, it is not clear that the potential benefits of transit between Russia and China would be substantial. This is also often the case for transit corridors in other countries, where most of the value of corridors lies in improving the environment for the local economy rather than in revenues from transit fees (Roberts et al. 2018).

For CEC to provide value to the economy, several issues need to be addressed. A literature review suggests that for economic corridors to bring tangible economic benefits, they need to be supported by (i) a strong infrastructure, (ii) a robust institutional framework and coordination, (iii) efficient logistics services, and (iv) business potential. In addition, the economic fundamentals need to be conducive. All these factors need to be strengthened with respect to the CEC in Mongolia.

Making logistics more efficient

The logistics inefficiencies along the CEC stem from three factors. These include (i) geography, whereby a large herder population must traverse long distances to reach producers or markets; (ii) the nomadic lifestyle of herdsmen, which compounds the geographic challenges with additional problems related to traceability and agglomeration of supply; and (iii) weak transport and storage capacity.

Several challenges must be overcome to encourage scale economies along the economic corridor. The storage, transportation, marketing, and distribution (wholesale and retail) of agribusiness products are subject to economies of scale. But these scale economies are underexploited in Mongolia in the absence of access to financing for processors, the development of clusters, and ready access to information. As a result, the Mongolian value chains tend to be fragmented into many smaller markets linked to each stage in the value chain. An underwhelming business environment acts as a constraint on foreign investment (though there have been notable recent exceptions in cashmere), preventing the private industry from undertaking large-scale investment. As a result, Mongolia's markets remain fragmented, small-scale, and inefficient.

Bridging the standards gap

The gap between domestic production standards and international buyers' demand is significant, forming a barrier to agribusiness exports. There is evidence that quality standards—in the form of both governmental standards and those imposed by buyers—on the other side of Mongolia's borders represent a challenge to the expansion of Mongolia's agribusiness exports. Frequent outbreaks of animal diseases in Mongolia result in consignments being rejected by international clients, undermining producer profitability. These rejections are not linked in any obvious way to protectionist tendencies from trading partners but rather to legitimate health and safety concerns.

Making the trade facilitation regime more predictable

Trade facilitation—in the sense of border procedures linked to imports and exports—is time-consuming and complex. Reducing the "friction" associated with goods crossing the border will make it easier for domestic producers to become exporters. By reducing the time and burden associated with trade, the private industry can more fully capture the potential offered by international trade.

Access to markets needs to be complemented by deeper domestic reforms. In international

negotiations with trade partners, Mongolia must put forward a strategy that provides not only market access but also transparency, predictability, and simplicity on the part of trading partners. Mongolia's negotiating position would be more credible if accompanied by domestic trade reforms that would bring it into compliance with its commitments to the World Trade Organization's Trade Facilitation Agreement (WTO TFA), along with the implementation of internationally recognized product standards and traceability (see Box 2).

A well-functioning CEC is a necessary but not enough condition for the success of agribusiness exports. Continued delays *en route*, as well as economic and regulatory constraints, also need to be resolved if export-oriented value chains are to reach their full potential. The study frames its assessment of the economic corridor around the value chains for cashmere-wool, meat, and leather. This report finds that agribusiness export industries can be viable sources of growth, though they are unlikely to displace the primacy of mineral exports as Mongolia's main engine of development and only if well-known challenges are overcome.

Enhancing the value chains

The results of the TTFA analysis produced for this report highlight challenges faced by the three selected industries. The cashmere-wool industry is the most successful industry as its exports have the highest value per unit of weight (the so-called value density). The producers tend to be better organized in terms of their supply of inputs, value-added production, and distribution channels. They have more control over their inbound and outbound supply chains and are increasing their control over the production and supply of inputs. Their major challenge is to increase their distribution channels while continuing to increase the value of their products. They are addressing these issues by increasing the scale and sophistication of their production and enhancing access to information needed for design and marketing of their products.

The meat value chain is much less organized than the cashmere-wool industry. The meat exports are primarily intermediate goods with a relatively low value per unit of weight. Their distribution channels for exports are limited to nearby markets. Producers have problems ensuring the quality of inputs as well as backwards quality control over the collection and processing of these inputs. Production is seasonal, and the distribution of exports is primarily through individual orders rather than supply contacts. Producers are dependent on the domestic market for most of their business. Their major challenge is to increase their control over the supply of inputs. This will allow them not only to increase the quality but also ensure a regular supply so that they can transition to regular suppliers of higher value products. This will require improvements in logistics and distribution channels.

The leather industry is constrained by its processing technology, a legacy from a time when output was centrally planned. The industry suffered from a collapse of the production of higher value leather products during the transition to a market economy and the commodities boom and rush to develop the minerals industry in the past decade. The producers have little control over their input supply chains or the quality of inputs. The industry is at an early stage of rebuilding not only its production capacity but also its inbound and outbound supply chains.

Main short-term and medium-term recommendations

There is a large set of policy reform measures that could improve the functioning of the CEC. Such measures would help improve trade facilitation, promote cluster development, and bridge the

implementation gap in policy. Trade negotiations related to the Belt and Road Initiative (BRI) and WTO TFA agreement can be used as an entry point to these discussions.[①] Short-term recommendations include the need to streamline and coordinate the procedures of all border agencies; promote BRI and other trade negotiations as a quid pro quo for transit agreements for Mongolian products through China; set up new clusters around the capital city of Ulaanbaatar; and implement existing agreements with Russia and China on trade, custom inspection, and food security. Medium-term recommendations include the need to increase rail capacity along the CEC, ensure full compliance with international standards, and fully implement the WTO TFA.

There is also considerable scope for supporting the growth of the selected three industries, cashmere-wool, meat, and leather. The main short-term solutions include the need to improve collection, consolidation, and preliminary processing of the inputs and increase the exchange of information between producers and their suppliers; establish new distribution channels and improve the transfer of information to the buyers, especially for higher value exports; and increase the producers' involvement in the logistics and quality control activities in their supply chains. Medium-term recommendations include the need to facilitate the creation of cooperatives among herders, ensure mutual recognition of veterinary inspections at the border by the neighboring countries, and encourage industry players to propose production standards with respect to environmental pollution and waste elimination.

① The importance of the BRI for Mongolia's trade facilitation environment is explored in Bartley et al. 2018.

Chapter 1: The Unutilized Potential of the Central Economic Corridor

Concept of Economic Corridors

The concept of an economic corridor refers to the complementary production, trade, and transport activities located along a linear alignment (as opposed to a radial one). It has variously been defined as "a route along which people and goods move" to promote economic growth,"[①] a physical space that provides "two important inputs for competitiveness: lower distribution costs and high-quality real estate"[②] or "a spatial development initiative, primarily defined as a route along which goods and people move. The efficiency of this movement contributes to and stimulates economic development, existing and planned, along the route" (Mitra et al., 2016, p. 12).

Economic corridors usually combine three complementary elements. These include (i) a transport corridor, which defines the physical space and underpins in the flow of goods and services; (ii) industrial centers, which produce goods to be shipped through the corridor for domestic and international consumption; and (iii) urban centers, which are the key suppliers of labor, technology, and financing. All three elements are critical for economic growth along the corridor to take place (Mitra et al. 2016).

Efforts to develop an economic corridor encompass three activities. For production, it involves the development of clusters in the immediate hinterland of the corridor. For trade, it involves facilitating the movement of goods along the corridor and across borders. For transport, it involves improving the infrastructure and services used for transport of freight.

For economic corridors to provide value to the economy, they need to be supported by a set of factors. As argued in the World Bank report on the economic benefits of economic corridors (Sequeira, Hartmann, and Kunaka 2014), for them to support economic growth, the economic corridors need to be supported by (i) strong infrastructure; (ii) a robust institutional framework and coordination; (iii) efficient logistics services; and (iv) large business potential. In addition, the overall economic fundamentals need to be conducive.

Background of the CEC

Mongolia's CEC corridor serves both as a transit corridor for trade between China, Russia, and Western Europe and a trade corridor for Mongolia's international trade. It is composed of (i) a road and rail transport corridor, referred to as the Central Corridor, connecting Zamiin Uud on the Chinese border and Sukhbaatar/Altanbulag on the Russian border (Figure 1), (ii) a transit corridor, referred to as the Trans-Mongolian corridor, that extends beyond Mongolia's borders east by road and rail to Tianjin and northwest by road and rail to Moscow and the border with Western Europe, and (iii) a trade corridor

① https://reconnectingasia.csis.org/analysis/entries/what-economic-corridor/

② https://www.brookings.edu/research/economic-corridors/

providing access for trade with Western Europe and East Asia.

Figure 1: Mongolia's Central Economic Corridor

Source: Mongolian Railways

The CEC competes with other transit routes providing connections between China's ports and Western Europe. In particular, it competes with the Trans-Manchurian route connecting the ports on Bohai Bay to the Trans-Siberian Railway at Zabaykalsk and the Eurasian route from Lianyungang port through Kazakhstan (via Khorgos and Dostyk) and then Russia.

While the CEC offers a shorter travel distance for many of the origins/destinations in northwest China, it has a much smaller market share than the competing transit routes. Part of the difficulty is that it requires two border crossings to connect China and Russia. In contrast, the Trans-Manchurian route crosses a single border between Russia and China. The Eurasian route involves multiple border crossings but all within the Eurasian community. These competing routes also require greater distance to be traveled on Chinese and Russian railways, thereby providing them with greater revenues. On the other hand, the CEC has attracted additional traffic diverted from the other two routes because of serious congestion at the Khorgos and Zabaykalsk border crossings. All three routes face strong competition from multimodal routes using ocean transport from northwest China to Europe. About 90 percent of the total shipments continue to use the ocean route (Figure C.4).

At present, the CEC serves the majority of Mongolia's foreign trade and all its transit trade. To accommodate the growth in this traffic, it will be necessary to increase the physical capacity of the economic corridor as well as the quality of the transport and logistics services. The improvement in the services is needed to increase the competitiveness of Mongolia's exports as well as to maintain its share of regional transit trade. A critical area for improvement will be the integration of these services both within the country and with complementary services in the adjoining countries. This will require modification of the road agreement between Russia, China, and Mongolia to allow equal access for road transport services and efficient connections between the national railways in the three countries.

The economic corridor integrates two types of services: transport and trade facilitation with the production of the traded goods. The transport services include road and rail freight both within Mongolia and in the adjoining countries as well as other modes providing connections to Europe and Asia. Europe

has the most options: road, rail, air, and multimodal rail-road and rail-ocean. East Asia has three options: air, roads-sea, and rail-sea.

Transport

Mongolian transporters are at a competitive disadvantage because of the small nonmineral export volumes and long distances traveled in Russia and the short distances traveled in Mongolia. Not only is it more expensive for Mongolian transporter to operate outside their country but opportunities for securing backhaul (return) cargo outside the country are limited. They can only achieve an acceptable load factor when transporting export cargo and returning with import cargo (backhaul cargo). In contrast, given the bigger scale of the Russian market, Russian transporters can haul domestic traffic on the backhaul to ensure a reasonable load factor for the round trip.

The participation of Mongolian transporters in international trade is also constrained by limited bilateral agreements but could benefit from the WTO TFA agreement. Mongolia currently has nine bilateral agreements governing the entry of trucks into Belarus, China, the Democratic People's Republic of Korea, Kazakhstan, Kyrgyzstan, Turkey, Latvia, Russia and Ukraine. Of these agreements, the most restrictive is the agreement with China. Mongolia is negotiating agreements with Poland, the Czech Republic, and Germany, but currently its trucks cannot transport goods to/from the European Union (EU). The special provisions for landlocked countries under the WTO TFA agreement may enable improved transit mechanisms through neighboring countries.

Logistics issues are also a concern. The portion of the corridor extending from Zamiin Uud to Altanbulag includes both the main rail line and the national road. The road and rail freight services allow a continuous movement to the northwest through Russia up to Western Europe. In contrast, the services to China and beyond to East Asia require transshipment at the border. For rail, this is necessary due to the change in gauge, though a large infrastructure project is underway to unify the national gauge with that of China. For road, transshipment is required by the prevailing transit agreements.

A Tripartite Road Transport Agreement was prepared in 2017 allowing for additional movements along the Asian Highway network. The Agreement (hereafter referred to as the Tripartite Agreement) has been subsequently ratified by all three parties to the agreement (Russia, China, and Mongolia). Although it sets minimum standards for the vehicles and drivers operating in other countries, it nonetheless significantly reduces current restrictions on foreign trucks operating in China.

Trade Facilitation

Trade facilitation reform by government and development partners has come alongside the increasing use of trade facilitation provisions in international agreements. These include bilateral, regional, and multilateral trade agreements, notably the World Trade Organization Trade Facilitation Agreement, which Mongolia ratified in November 2016. Even the lower end of available estimates shows that implementation of the TFA would deliver significant development dividends around the world. These benefits would fall disproportionately on low- and lower-middle-income countries as their relatively poor border management performance leads to high transaction costs, which dampen exports. The Organization for Economic Co-operation and Development (OECD) estimates that the potential transaction cost reduction from full and effective implementation of the TFA are in the order of 16.5 percent of total costs for low-income countries such as Mongolia.[①] Estimates on the impact on trade also

① OECD, Trade Facilitation Indicators, 2015.

tend to favor developing countries: for example, estimates from the World Trade Organization predict an increase in exports of 13 percent for least-developed countries and 11 percent for non-G20 developing countries (smaller, middle-income countries) (WTO 2015, p. 78). These estimates assume the economic gains from implementation of the TFA require its full and effective implementation rather than mere legal compliance with the basic requirements of the Agreement. The ongoing discussions on Mongolia's free trade agreement with the Eurasian Economic Union (EAEU) could also result in an improved trade facilitation framework.

The economic benefits of trade facilitation reform are now widely understood. Countries need to reduce trading costs, bolster export competitiveness, and pursue trade supportive policies. All these factors are important, but trade facilitation reform should be emphasized, as it plays a major role in improving national competitiveness and facilitates the capacity of countries to participate in regional and global value chains. The World Bank's Logistics Performance Index (LPI) clearly illustrates that trade logistics performance is directly linked with important economic outcomes such as growth, trade expansion, and export diversification. Countries with better logistics grow faster, become more competitive, and increase their trade-related foreign investment (Arvis et al. 2010).

Mongolia's trade facilitation regime is not improving. Perceptions of Mongolia's Customs and other border agency performance have declined in recent years, with its LPI Customs score decreasing from 2.39 in 2016 to 2.22 in 2018.[①] Judging from the detailed responses to the domestic LPI surveys, there is significant room for improvement. Survey results of logistics operators active in Mongolia indicate low perceptions of the quality of work performed by all agencies involved in the border clearance process (see Table 1). While 60 percent perceive the standard of custom services as "high or very high," only 20 percent think that the standard of quality/standards inspection agencies are "high or very high"; and only 20 percent of respondents rate the performance of health/sanitary and Phytosanitary (SPS) agencies as "high or very high." According to logistics operators surveyed, pre-shipment inspection is the most prevalent source of delays (potentially, for conformity assessment purposes[②]), followed by solicitation of informal payments (Table 1, panel a).[③]

Table 1: Private Industry Views on Trade Facilitation Performance in Mongolia, 2016

a. Perceptions by logistics operators of "high or very high performance" by different institutions involved in trade facilitation

Customs agencies	60%
Quality/standards inspection agencies	20%
Health/SPS agencies	20%

① From: https://lpi.worldbank.org/international/scorecard/radar/254/C/MNG/2018#chartarea

② See Australian Trade Commission guide for export to Mongolia (available at https://www.austrade.gov.au/Australian/Export/Export-markets/Countries/Mongolia/Doing-business/Tariffs-and-regulations), which mentions that conformity assessment may be required before export, to avoid potential lengthy border clearance delays on arrival.

③ Under the WTO-TFA, WTO members are obliged not to require preshipment inspection for the purposes of tariff classification or customs valuation.

b. Sources of major delays that are "always or nearly always" experiences by logistics operators

Compulsory warehousing/transloading	20%
Pre-shipment inspection	20%
Maritime transshipment	0%
Criminal activities (such as stolen cargo)	0%
Solicitation of informal payments	0%

Source: World Bank Group, Domestic Logistics Performance Index (LPI), 2016.
Note: SPS = sanitary and phytosanitary.

There are several causes for delays at Mongolia's border checkpoints. These include congestion; physical inspections and security checks; inefficient sampling procedures; late arrival of documentation; and limited use of electronic systems for document submission. The border crossings are advertised as operating twenty-four hours per day, seven days per week whereas they operate closer to eight hours per day, six days per week with light traffic volumes. The restricted operating hours are not so problematic at the border, but in the commercial center of Ulaanbaatar, restricted operating hours cause considerable traffic congestion. The World Bank survey conducted for this report pointed to unbalanced staffing levels between regional and urban checkpoints. For example, the remote Zamyn Uud checkpoint employs twenty more staff (150) than are assigned to Ulaanbaatar (130), resulting in relatively speedy processing times at Zamyn Ud (5 hours) whereas processing times in the capital city can take up to 24 hours.

The development of the CEC could facilitate export trade by simplifying the procedures for movement of goods in transit. This mainly applies to trade flows from the clusters around Ulaanbaatar to the land border and onward through China. Among the initiatives to accomplish this are to empower the National Trade Facilitation Committee that supports all the processes required for export—including customs, internationally certified laboratories, and cargo consolidation facilities—to allow movement in transit not only to the land borders but also to the international airport.

An agreement to allow China's transit traffic to move through Mongolia could help ease access to Chinese ports, even if transit trade does not bring any direct benefits to the Mongolian economy. Such an agreement could serve as a *quid pro quo* to expedite the movement of Mongolian cargo in transit between the border crossing at Erlian and the Port of Tianjin. This could be accomplished initially by ensuring sufficient scheduled rail capacity for this movement and/or permitting appropriately certified Mongolian trucks to transfer cargo to and from the port without interruption. However, it will assume increasing importance with the growth in exports of medium-value agricultural products, which are more sensitive to transit time and reliability of delivery, especially for the markets in East Asia and Western Europe.

Low internet penetration has limited the impact of automated customs facilities. The customs agency has made internet filing of declarations widely available, along with supporting documents that can be submitted online as scanned copies. For example, at Ulaanbaatar, an electronic data interface (EDI) has been put in place for prearrival information and preapproval by customs and other government agencies. Nonetheless, shippers continue to use hard copies. At Zamyn Uud, EDI is used for communication between border agencies, though its habitual use by exporters is less apparent. Electronic signatures are issued at Ulaanbaatar, but it is not clear from the survey whether electronic signatures are widely accepted at other border stations. Declarations can be submitted online; government forms and government regulations are also publicly available online. Although back-office processing and selectivity have been

computerized,[①] the systems require regular electricity and reliable internet connections. Poor connectivity ensures that manual declarations are still relatively common, particularly in border areas.

Automated border services have not always been accompanied by streamlined procedures, consistent interpretation of rules, or strong enforcement. The major difficulties with import declarations pertain to misclassification and undervaluation. Sanitary and phyto-sanitary (SPS) certificates for goods passing through Zamyn Uud require clearance from laboratories located in Ulaanbaatar. Payment of taxes and duties can be made through designated bank deposits at Zamyn Uud, but Ulaanbaatar expects electronic transfers for payment of taxes and duties. In Zamyn Uud, Customs is responsible for security issues and health requirements, whereas Ulaanbaatar separates these functions but requires fewer signatures. This needs to be addressed, given that the majority of Mongolia's freight (90 percent) is concentrated around Ulaanbaatar.

The weak perception of institutions involved in trade facilitation is also reflected in other surveys. According to the OECD Trade Facilitation Indicators database, while Mongolia's performance is relatively higher than in the LPI (for example, compared with China; see Table 2), weaknesses are identified in processes related to the submission of documents, and the procedures associated with clearing shipments. There are also concerns with the integrity and impartiality, reinforcing the concerns expressed by logistics operators on formalities and automation, among other sources of delays. Mongolia's implementation of the TIR Convention for road transit is also an important issue for its role in the BRI corridors.

Table 2: OECD Trade Facilitation Indicators (TFIs) for Mongolia, Russia, and China

	Mongolia	Russia	China
Information availability	1.29	1.40	1.50
Involvement of the trade community	1.40	1.40	1.40
Advance rulings	0.75	1.80	1.70
Appeal procedures	1.30	1.70	1.30
Fees and charges	1.50	1.40	1.70
Formalities – documents	0.88	0.70	1.30
Formalities – automation	0.90	1.40	1.20
Formalities – procedures	1.10	1.20	1.30
Internal border agency co-operation	1.10	1.00	1.00
External border agency co-operation	0.80	1.10	0.80
Governance and impartiality	1.80	1.40	1.70

Source: OECD Trade Facilitation Indicators (TFI), 2018.
Note: Scoring ranges from 0 to 2 (best performance).

The main border crossing between Mongolia and China is at Erenhot, which is a link on the China-Europe rail connection. Trains are already transiting through Mongolia and Russia as part of the expanding China-Europe "block train" links. In 2017, the three countries signed a road transport agreement granting traffic rights for trucks along two routes, with border crossings at Yarantai and

① Anecdotal evidence gathered through a World Bank project suggests that while the Customs system includes a selectivity module, risk profiling is under-developed and risk management capabilities require further improvement.

Tashanta, and at Erenhot and Kyakhta.[①] Anecdotal feedback suggests that the agreement has not facilitated a greater volume of border crossings, given that the constraints on Mongolian exports run deeper than simple trade facilitation measures (as discussed later in this report for individual value chains for cashmere, meat, and leather). A set of "Guidelines on Construction of the China-Mongolia-Russia Economic Corridor" agreed between the three countries in 2016 includes investment in physical infrastructure of border clearance facilities, as well as streamlining border clearance procedures.[②] Mongolia has made only minor progress implementing the provisions of this agreement.

Trade Competitiveness

Trade competitiveness refers to the ability of Mongolia to produce exportable products that can compete in terms of price and quality and volume with those of rival producers. Trade competitiveness originates in coordinated value chains where suppliers, producers, and processors can interact in a predictable fashion without "friction" caused by transport delays, missed delivery deadlines, unreliable quantities or patchy quality (see the discussion of quality infrastructure in Box 2 and the chapters on meat and leather regarding weaknesses in the respective value chains).

To achieve a more competitive trade environment, the private industry will need to work with the government and commercial banks to improve the organization, control, and monitoring of the inbound and outbound supply chains along the corridor. These reforms will be aimed at predictable and transparent value chain functioning, with the intention of achieving transactions between value chain participants at the least cost and time. Value addition in the supply chain increases the competitiveness of the final product, reflected in its price, whether the product is destined for export or for domestic sale. The introduction of technology such as information and communication technology (ICT) (in the form of tracking and tracing, price updates, logistics updates, buyer requirements, and so on) can also play an important role in strengthening the efficiency of the CEC.

There are several options to boost transit cargo in the economic corridor. These include (i) modifying existing bilateral trade and transport agreements; (ii) improving border crossing facilities and procedures; and (iii) increasing the quality of the transport and logistics services.

The common objective is to reduce the cost and time for delivery and to increase the reliability of arrival (order fulfillment). Currently, higher value exports do not use the economic corridor but instead rely on air freight to provide shorter transit times and, equally importantly, reliable deliveries. Efforts to improve the transit time and reliability of road and rail services will divert some of this trade to the central corridor but will also allow diversification into markets that are more price-sensitive and into more medium- value products.

Mongolia suffers from an "implementation gap" that prevents the country from putting its modern regulatory framework into action. Mongolia has advanced in the creation of a regulatory framework to address its main challenges in terms of physical, financial, and logistic infrastructure. Implementing this complex set of regulations requires a motivated civil service, a capable private industry, and political actors that refrain from clientelism. The government should encourage harmonization between ministries and

① "Mongolia Backs TIR to Spur Trade with China and Russia," IRU, March 30, 2017 Press Release, https://www.iru.org/resources/newsroom/mongolia-backs-tir-spur-trade-china-and-russia; "China, Mongolia and Russian Federation to Open Up New Era of Trade Cooperation," ESCP News, December 9, 2016, http://www.un.org/sustainabledevelopment/blog/2016/12/china-mongolia-and-russian-federation-to-open-up-new-era-of-trade-cooperation/.

② Office of the Leading Group for the Belt and Road Initiative (2017), https://eng.yidaiyilu.gov.cn/zchj/qwfb/35979.htm (accessed March 28, 2018).

Box 2. The Importance of Quality Infrastructure

Standards and certification play a key role in enhancing competitiveness, increasing market access, improving productivity, and protecting public goods, as shown in Table below.

Table. The Benefits of Quality Infrastructure Reforms

Enhance Competitiveness	• To enhance the product quality and compatiblity by offering proof that products and services adhere to requirements of governments and/or companies. • Sales volume depends on conformity assessment and accreditation in product and services markets. These are large multiples,estimated as a factor of 35-60 in conformity assessment, which translates to about 100 for accreditation.
Reduce Testing & Certication Burdensome	• 44% of firms had to conduct significant duplication of testing procedure to meet foreign requirements after domestic requirements have been met; • 30% of firms had to conduct complets duplication of testuing procedures; • 68% of firms cited testing and certification costs as an important reason for not exporting.
Expand and Open Markets	• 84% of manufacturing companies in Germany use European and Interrnational Standards to gain axxess to global markets; • Estimates by OECD and the US Department of Commerce Show that standards and related conformity assessmernt have an impacr on 80% of the world's trade in commodities.
Increase lnnovation & Technology Diffusion	A survey of British companies found that over 60% of prosuct and process innovators used standards as a source of information for innovation.
lmprove Efficiency	To improve dissemination of information, allow interoprability,and economies of scale by improving national standards,and harmonizing with international standards.
lncrease Productivity Gains	• ln modern industries,metrology is considered ti reoresernt about 10-15% of ptoduction costs. • Investment Climate firm-level surveys in developing economirs found that lSO 9000 certufucation achieved average productivity gains berween 2.4% and 17.6% for three Central American economies,1% for four Southeast Asian Economies, and 4.5% in China; • Standards reform contributed to 13% of growth in labor productivity in the UK.
Ensure Safety,Health, Environmental Application	Help ensure legitim ate compliance with health,safety and environmental concerns for export purposes but also for internal consumption towards the wellbeing of the population.

From: http://www.worldbank.org/en/topic/competitiveness/brief/qi

Surveys of investment climate in developing countries conducted at the firm level found that ISO 9001 certification, for instance, boosted productivity by between 2.4 percent and 17.6 percent in three Central American countries; by 4.35 percent in China; and by 1 percent for four southeast Asian economies (Racine 2011).

Source: http://www.worldbank.org/en/topic/competitiveness/brief/qi, World Bank and NMI 2018
Note: ISO = International Organization of Standardization.

agencies to work together to overcome the "implementation gap" and to apply the existing regulations towards the transformation of the economy. For example, Bartley et al. (2018) shows that Mongolia's implementation of its commitments under the WTO TFA underperforms many other WTO member states.

Key Findings from the CEC Study

The World Bank conducted an earlier study with the objective of understanding the function of the Central Economic Corridor as a means of encouraging the flow of Mongolia's nonmineral exports. The study (World Bank 2018a) was based on literature reviews and meetings with stakeholders in the private and public industries. Interactions with government officials and logistics firms revealed several weaknesses in the CEC that undermine the trade competitiveness of Mongolia's agribusiness exports.

Impact of Transport Performance on Modal Choice

An efficient trade corridor requires movement of import and export cargoes across the border with Russia and China. This would entail predictable clearance procedures as well as effective transfer of cargo between Mongolian and Chinese trains. It also requires unimpeded movement by road and rail to the border with Eastern Europe and the ports in northeast China.

The choice between road and rail transport for both international trade and transit traffic depends on the countries involved and the quality of service offered by the two modes. For exports to Europe, improvements in frequency and reliability of unit container train services has attracted an increasing volume of transit traffic but has had little impact on exports. The improvements in the quality of road transport have had little impact because of continuing delays *en route* and both economic and regulatory constraints on participation by Mongolian truckers.

The restriction on movement of trucks between China and Mongolia limits reliability and reduces the use of road transport for medium-value exports despite the relatively short travel distances. Similarly, the unpredictability of delays at the border crossing discourages the use of rail services for exports of medium- and high-value goods despite the relatively short transit times. For both Europe and East Asia, uncertain availability and high cost for refrigerated transport limits exports of meat products.

For imports, demand is less sensitive to cost and, until recently, had been relatively insensitive to transit time and reliability. As a result, most imports from Europe have been shipped by ocean to Tianjin and from there by rail to Mongolia, despite attractive backhaul rates for cargo shipped by rail. The exceptions are critical spare parts and higher-value inputs to production, most of which are shipped by air. For imports from Japan and the Republic of Korea, goods are shipped via Tianjin and then use either road or rail depending on availability. With the introduction of modern retailing in Ulaanbaatar and other large cities, the emphasis on time and reliability is expected to increase and with it the use of road transport, especially if cross-border movements are permitted.

The transport corridor needs to provide enough capacity to accommodate the projected volume of Mongolia's international and domestic traffic as well as transit traffic. It should also provide efficient transport and logistics services with enough frequency and reliability to serve this traffic. The transit corridor requires a similar level of connectivity at the borders, as well as the uninterrupted movement of trains on the Trans-Mongolian corridor. The clearance of transit cargo entering Mongolia from either Russia and China should be expedited. The same applies to cargo exiting Mongolia for locations beyond China and Russia.

Improving Supply Chain Performance

The economic corridor should promote the development of production clusters for Mongolia's exports and logistics clusters for distribution of its imports. It could also provide economic zones at either end of the corridor to add value to traded goods. However, previous efforts to establish production clusters in Mongolia suggest that there is need to provide additional support for the clusters for them to become competitive relative to similar clusters located in the origin and destination countries.

Most of the challenges facing Mongolia's nonmineral exports are associated with the performance of the inbound supply chains. The inbound supply chains are used to deliver raw materials to the processing facilities. However, the outbound supply chains used to deliver the products to foreign buyers need to be improved to accommodate a greater variety of products, improve collaboration and synchronicity between logistics service providers, and minimize the exporter's commercial and financial risks. In addition, it will

be important to provide exporters with real-time information on the final demand and provide buyers with information regarding the characteristics and history of the products that are exported.

A switch to rail instead of air and road transport for export deliveries would provide an immediate boost to supply chain performance. Currently, air transport is used to minimize delivery times, increase the reliability of deliveries, and minimize the exporter's cash-to-cash cycle from when inputs are purchased to when payment is received from the buyer of the exports. Air transport is mainly used for shipments to Europe and, in some cases, East Asia. However, air transport is costly and not feasible for large export quantities. Road transport is used to ship medium-value exports to neighboring countries. The share of medium-high value goods transported by road can be increased, but this would require considerable improvement in performance in terms of both time and reliability. The substitution of rail transport for these two modes would reduce the delivered cost but require that transit times and reliability be improved.

Tripartite Mongolia-Russia-China Agreement

There is a need to further enhance the benefits of international transport agreements. Current agreements with Mongolia's immediate neighbors—China and Russia—could theoretically allow Mongolian transporters to carry goods by road between Mongolia and Eastern Europe and to arrange multimodal transport between China and the EU. However, Mongolian trucks, with minor exceptions, are not allowed to operate in China and in many of the European countries due to a lack of bilateral arrangements. Furthermore, thin volumes, long distances, and lack of backhaul on the Mongolia-EU corridor (through Russia) render this route unfeasible for Mongolian logistics firms for the time being.

There is also a need to enhance the Tripartite Agreement with Russia and China. A Tripartite Agreement is under negotiation between China, Mongolia, and Russia. These negotiations have been ongoing for more than a decade. The current statement of intent refers to facilitated transport mechanisms between all three markets. The Tripartite negotiations could be an entry point for discussions about facilitated market access for Mongolian transporters. To that end, there is a need to agree on a transit quota with China to allow Mongolian trucks to transport goods to and from China, based on a similar agreement with Russia.① Such a transit quota should be large enough to cover the volume of exports so that the truckers can carry cargo in both directions. There is also a need to consider technical and other regulations under the agreement that require Mongolian transporter to make capital investments and changes in procedures that increase their operating costs. Lastly, there is a need to ensure that the existing allowance for private block train operations is fully utilized, not only for shipments between Europe and China.②

Economic benefits of transit trade

The direct benefits from transit trade between China and Russia are likely to be limited, for several reasons.

---

① The agreement is needed even though, even in the best of circumstances, the role of Mongolian transporters would be limited to round trips carrying exports outbound and import inbound to avoid the high cost of empty backhauls—given that both China and Russia have large and more competitive truck fleets.

② That said, it is likely that other transit corridors will continue to carry most of the transit trade between Russia and China as well as between East Asia and Europe because of better access to different areas, as well as the efforts of the Russian and Chinese railways to maximize their own revenues.

- Since transit time by road or rail is relatively short (1−2 days), the logistics services used to support transit movements will be primarily roadside services for truck operators.
- The railroad has limited excess capacity and will require significant investments to expand its capacity, as set out in Ulaanbaatar Railways (UBTZ) 2030 development agenda strategy, which aims to expand railway links among Russia, China and Mongolia.①
- The road corridor requires additional investment to reduce bottlenecks, especially near Ulaanbaatar. This investment will be needed sooner if there is a significant increase in transit
- There is a limit on the transit fees that can be charged, and these are unlikely to cover the long-term marginal cost for additional capacity required on the road and rail network
- Opportunities for adding value to goods in transit are limited because Mongolia lacks comparative advantage in terms of labor productivity and unit costs for energy, land, and other inputs to production.
- For the same reasons, Mongolia will have difficulty developing economic zones near the border.

The CEC has been neglected during the decade-long commodities boom and remains under-utilized. The issues discussed in this chapter show that a critical lack of nonmineral export volumes, combined with Mongolia's landlocked status and the perverse incentives posed by high demand for Mongolia's commodities, have undermined Mongolia's ability to establish linkages into international value chains associated with nonmineral exports. As shall be discussed in more detail in forthcoming chapters, the agribusiness value chains in which Mongolia has a comparative advantage, such as cashmere-wool, meat, and leather, contribute minimally to international trade, partly because of the issues identified with respect to the CEC. Table 3 presents a series of recommendations for the improved functioning of the CEC, with the intention of improving the connectivity of producers and processors to buyers at home and abroad and increasing the competitiveness of their final products.

① See also ADB (2014).

Table 3. The Central Economic Corridor: Key Challenges and Corresponding Policy Recommendations

	Key challenges	Short-term recommendations	Medium-term recommendations
Trade facilitation	Corridor underdevelopment Difficult transit for Mongolian exports through China Limited access to finance Weak exchange of information within value chains .	Streamline and coordinate the procedures of all border agencies through the NTFC in line with Mongolia's TFA commitments. Promote BRI negotiations as a *quid pro quo* for transit agreements for Mongolian products through China (using also the rights conferred under the TFA). Promote the use of the Credit Guarantee Fund, SME credit lines, and the SME Fund to facilitate lending into the CEC-dependent industries.	Increase rail capacity as transit volume of Mongolian exports through China increases. Facilitate transfer of goods from Mongolia to Chinese ports on Mongolian trucks without transshipment.
		Facilitate information gathering through MNCCI between value chain participants, and act as a channel from policy makers to the government industry Organize a joint discussion session to establish a trilateral logistics company that could operate between China, Mongolia, and Russia.	Ensure full compliance with standards of potential customers in overseas markets, based on good international practice
Implementation gap	Weak implementation of agreements to facilitate cross-border trade flows that link Mongolia to international markets	Implement the "Framework Agreement on Cooperation in Development of Ports of Entry and Framework Agreement on Cooperation in Creating Favorable Conditions to Facilitate Trade Development" among China, Russia, and Mongolia, signed on July 9, 2015. Implement agreements between the Custom authorities of Russia, China, and Mongolia on mutual recognition of custom inspections of certain goods and on bolstering Phyto-sanitary customs inspections. Implement the 2015 joint declaration of Mongolia, Russia, and China on food security cooperation, and strengthen cross-border trade control on food products	Fully implement the WTO TFA. Promote efforts to upgrade Russian border checkpoints in Zabaikalsk, Pogranichny, Kraskino and Mondi; and Chinese border checkpoints in Manchuria, Suifenhe, Hunchun and Erenhot; and invest in Mongolian border checkpoints.

Source: World Bank

Note: BRI = Belt and Road Initiative; CEC = Central Economic Corridor; MNCCI = Mongolian National Chamber of Commerce and Industry; NTFC = National Trade Facilitation Committee; SME = small and medium enterprise; TFA = Trade Facilitation Agreement.

Chapter 2: Fragmented value chains undermine the development of an efficient Central Economic Corridor

An enabling trade environment is central to the growth of Mongolia's non-mining industry. Weak logistics performance, coupled with bottlenecks caused by gaps in infrastructure and services, limited storage facilities, and inefficient border clearance procedures, are some of the reasons for slow growth in non-mining exports, denying Mongolian producers the benefits of participation in international markets. Mongolia's time to import and export is also significantly longer than the East Asia and Pacific average. Moreover, lack of improvement in the distance-to-frontier indicator suggests that the government's efforts to improve the trade environment relative to other countries have yet to bear fruit. Finally, evidence from Bartley et al. (2018) suggests that trade is also undermined by excessive documentary requirements, opaque rules and regulations and their inconsistent application, and weak capacity of public administration capacity.

The government of Mongolia has committed to an economic diversification agenda. The agenda encompasses improvements to the investment environment, greater access to finance for small and medium enterprises (SMEs), more receptive investment policies, and development of the Central Economic Corridor (CEC), which is the key transportation network connecting China to Russia through Ulaanbaatar. The "Action Plan of the Government of Mongolia 2016−2020" lays out the vision to transform and modernize the country's exports, identifying obstacles confronting the development of Mongolia's industrial industry, including undeveloped trade and manufacturing at both the international trade zones and border port areas of the neighboring countries; inadequate preparation of the necessary road, rail, and industrial infrastructure; and unfavorable legal and business environment for export-oriented industry. A robust implementation of the Action Plan will be critical to balanced growth over the medium term. The government of Mongolia's commitment to the BRI, the WTO Trade Facilitation Agreement, and the Tripartite Agreement will also be important.

The government of Mongolia is now looking to revive existing industries that have historically shown export and developmental potential. Given Mongolia's natural environment, agribusiness is one of the industries where Mongolia seems to have the largest comparative advantage. Yet, despite rapidly rising demand for agribusiness products, especially from China, the share of agricultural products in total exports remains persistently low. For instance, while China's imports of beef and mutton meat increased more than sevenfold from 2011 to 2016 to more than $3 billion, Mongolian exports of red meat have hardly budged.

To leverage this developmental potential, this report focuses on the growth prospects of agribusiness, specifically on the cashmere-wool, meat, and leather industry. It diagnoses the challenges these industries face, identifies opportunities for the growth of these industry—leveraging the potential of the CEC—and shares policy recommendations on how to seize these opportunities.

Each industry examined in this report has specific characteristics and requirements. Meat exporters, for example, are part of a supply chain that requires speed and reliability within the context of a dedicated

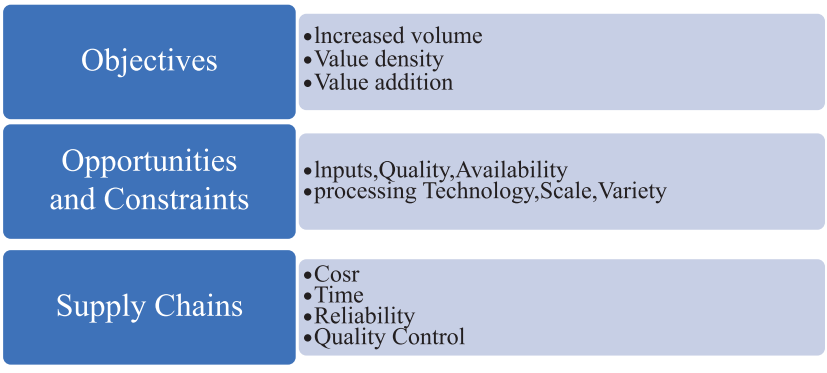
logistics infrastructure, including technologies to enhance traceability, refrigerated containers for transport, and appropriate storage facilities close to markets and borders. Cashmere-wool require access to finance, reliable information about supply, and adequate internal freight connections linking herders to markets, to processing facilities, and to markets abroad. The leather industry requires larger scale, better quality, and improved supply to stem the decline in its global market share.

The evaluation of the performance of these industries is based on the Trade and Transport Facilitation Assessment (TTFA) methodology. It examines the activities in the supply chains from principal inputs to the producers to the distribution channels used to export them. These activities include logistics services, financial transactions, and the transformation of goods and transfer of information among the participants in these supply chains. The report examines both the status of the goods in transit and the characteristics of the goods. The TTFA analysis build on earlier analytical work of the World Bank, including Rasmussen and Annor-Frempong (2015) and a TTFA analysis in Cambodia (World Bank 2014).

The analysis looks at the structure of the supply chains rather than specific quantitative measures. The information needed for the analysis was collected through face-to-face structured interviews with a selected sample of key firms in Mongolia in the selected industries to understand their business model, the extent of their involvement in their inbound and outbound supply chains, and the relationship between the structure of the supply chains and the quality and availability of the goods they export.

The objective of the TTFA analysis was to identify initiatives that would increase the value and volume of Mongolian exports. The problems faced in increasing the quality and availability of these exported goods is relatively well documented and specific solutions have been proposed in previous publications. This study breaks new ground and examines how the supply chains could be restructured to implement those solutions. This analysis considers both the general objectives and constraints in terms of quality, variety, availability, and scale (Figure 2).

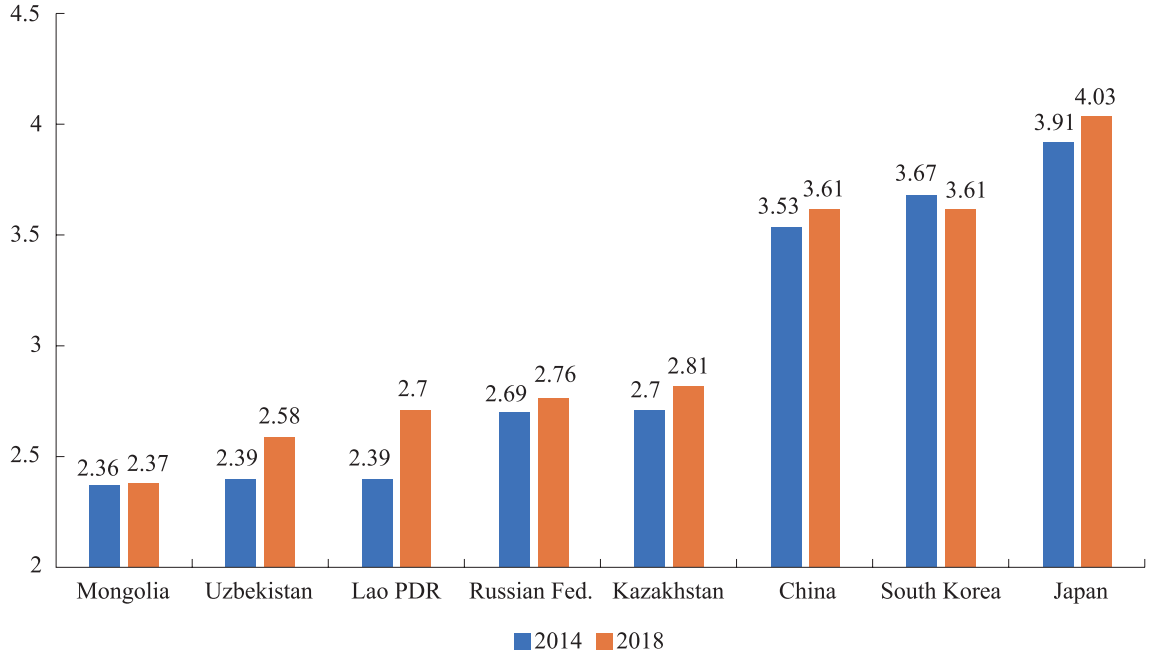
Figure 2: Developing Trade-Related Initiatives



Source: World Bank

Mongolia's trade facilitation performance is quite weak by global standards. In 2018, Mongolia was ranked in 130th position in the World Bank's Logistics Performance Index (LPI), down from a 108th position in 2016. It has the least developed logistics infrastructure among all regional peers, including other landlocked countries in the region such as Kazakhstan and Uzbekistan (Figure 3). To improve Mongolia's performance in non-mining exports, the government will have to adopt trade facilitation reforms at a national level, while also addressing the needs of its key export industries.

Figure 3: Performance of Mongolia's logistics industry relative to its peers, 2014 and 2018

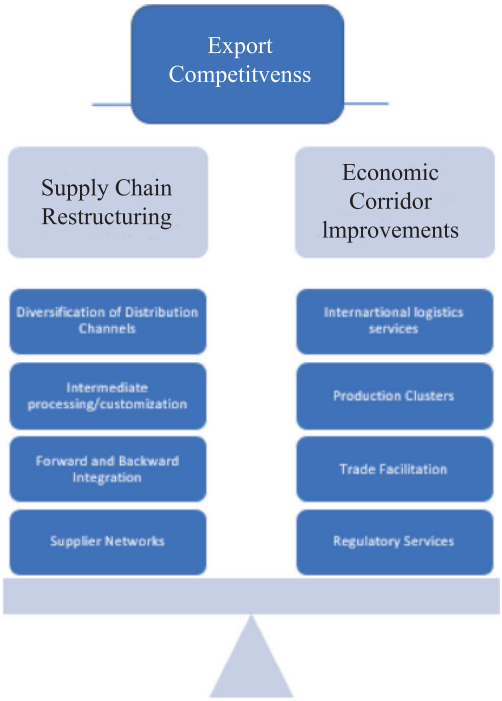


Source: World Bank based on https://lpi.worldbank.org/international/scorecard
Note: Countries are sorted from low to high according to the combined average Distance to Frontier measure in 2018.

The CEC is a key link between Mongolia's primary agricultural exports—cashmere-wool, meat, and leather—and international markets. The corridor extends from the Russian border crossing at Altanbulag/Khyagt to the Chinese border crossing at Zamyn Uud/Erenhot, passing through Ulaanbaatar. It functions as (i) the country's main road and rail transport corridor and major air transport gateway; (ii) the principal transit corridor for goods moving between China and Russia and through to Europe, as well as the primary trade route for Mongolia's foreign trade; and (iii) the geographical center of most of Mongolia's production activities and its major market clusters. The corridor enables the development of production clusters by providing connectivity to domestic and foreign markets through complementary logistics, regulatory and other support services.

Raising export competitiveness requires a two-pronged approach: restructuring supply chains and improving economic corridors. The most important limitation on increasing the value of agricultural exports is improving the supply of raw materials and semi-processed goods from the rural areas to the production zones located along the CEC. Additional challenges include upgrading the quality of processing activities and improved access to foreign markets. This report examines several aspects of the corridor by analyzing the performance of the inbound and outbound supply chains pertaining to cashmere-wool, meat, and leather to identify opportunities to improve the structure of each supply chains and assess the logistics services provided in the corridor. The relationship between them is represented in Figure 4.

Figure 4: The Role of Supply Chains in Improving Export Competitiveness



Source: World Bank

The CEC's Limited Impact on Value Chains

The results of the TTFA analysis produced for this report hold lessons that are common for all industries as well as many industry-specific findings. The latter include:

- The cashmere-wool industry is the most successful industry in Mongolia as its exports have the highest value per unit of weight (value density). The producers tend to be better organized in terms of their supply of inputs, value-added production, and distribution channels. They have more control over their inbound and outbound supply chains and are increasing their control over the production and supply of inputs. Their major challenge is to expand their distribution channels while continuing to increase the value of their products. Cashmere-wool producers are addressing these issues by increasing the scale and sophistication of their production and the information used for both design and marketing of their products.
- The producers of meat are less organized. Their exports are primarily intermediate goods with a relatively low value per unit of weight. Their distribution channels for exports are limited to nearby markets. They have problems ensuring the quality of inputs as well as backwards quality control over the collection, traceability, and processing of these inputs. Their production is seasonal, and the distribution of exports is primarily through individual orders rather than supply contacts. They are dependent on the domestic market for most of their business. Their major challenge is to increase their control over the supply of inputs. This will allow them not only to increase the quality but also ensure a regular supply so that they can transition to regular suppliers of higher-value products. This will require improvements in logistics and an improvement in distribution channels.

- The leather industry faces similar problems but is also constrained by its processing technology, a legacy from a time when output was centrally planned. The industry suffered from a collapse of the production of higher-value leather products during the transition to a market economy and during the commodities boom of the past decade. The producers have little control over their input supply chains or the quality of inputs. The industry is at an early stage of rebuilding not only its production capacity but also its inbound and outbound supply chains.

The Need for a New Business Model from the Private Industry

Significant growth in exports of nonmineral industries will require a new business model that focuses on producing higher-value goods at an increasing scale. This will entail greater control over both the supply of inputs and the distribution of products. Such a business model is already used by some of the larger firms in the cashmere-wool export industry. Further adoption of this model is expected to be accomplished primarily through mergers and joint ventures in the remaining industries.

The initiatives for improving the quality and availability of inputs and the value and diversity of outputs across all three industries would include:

- Aggregating the production of inputs and expanding production clusters to achieve scale but also to improve utilization of productive capacity through storage of inputs for year-round operation
- Coordinating logistics services by simplifying transactions and using of supply contracts to increase the reliability of supply
- Enhancing the connections between supply chain components to improve the performance and reliability of the logistics services.

Further increases in the competitiveness of both exports and associated logistics services should be implemented by restructuring of the inbound and outbound supply chain. The inbound supply chains need to be better integrated in terms of management but also in terms of the activities they incorporate, extending not only to quality control (including disease prevention and protection of livestock during winter) but also to semi-intensive production and supply contracts to ensure reliability of supply. The use of storage needs to be increased to sustain year-round production. The exchange of information for quality control and coordination among the supply chain participants also need to be improved.

The outbound supply chains need to be restructured to diversify distribution channels, including the use of electronic retailing and closer links with modern retailers. The reliability of supply needs to be strengthened through greater use of supply contacts, better management of inventory, and increase in the product information provided to buyers. Finally, improved border procedures and trade agreements are needed to facilitate trade, especially with neighboring countries.

The responsibility for most of these initiatives rests with the private industry. These initiatives will most likely be initially undertaken by the larger, better-financed firms, but they should also provide guidance on the establishment of joint ventures by medium-sized firms. Industry groups can act in concert to lobby for a more favorable regulatory environment and a reduction of border procedures related to exports; and to share information on industry best practices—a role that is filled only partially by the Mongolian National Chamber of Commerce and Industry (MNCCI).

Some of the initiatives are also within the purview of the government, most notably, the introduction and enforcement or broader measures for disease control and enforcement of hygienic

standards in the handling of meat products. While the use of subsidies to stimulate the development of domestic supply chains for cashmere-wool, meat and leather has also been successful, it should be phased out as improvements in these supply chains are introduced. Negotiation of better trade agreements with neighboring countries and improvements in border procedures are also necessary.

There is also need for joint public-private initiatives to develop the supply chains. The most obvious need is to develop financial instruments that would cater to the needs of supply chain intermediaries such as processors. Such instruments would have two components: (i) to supply working capital to allow the participants in the inbound supply chains to manage longer cash-to-cash cycles; and (ii) to increase inventories and the supply of trade finance to allow diversification of the distribution channels and extend the period of participation in these supply chains.

The proposed key improvements in the performance of the supply chains include the following:

- *For the inbound supply chains*. To improve collection, consolidation, and preliminary processing of the inputs and increase the exchange of information between producers and their suppliers
- *For the outbound supply chains*. To establish new distribution channels and improve the transfer of information to the buyers, especially for higher-value exports
- *For producers*. To increase their involvement in the logistics and quality control activities in their supply chains.

The principal factors limiting the growth in agricultural exports have been the value density of the cargo and the seasonality of production. The former limits the choice of mode and distance to foreign markets. The latter impedes the transition from seasonal production based on individual orders to annual production based on supply contracts and demand forecasts. Seasonality has led to low utilization of production equipment as well as additional storage costs.

The three industries face challenges to future growth in the volume and value of exports. For cashmere-wool, the major exporters have grown through a combination of adding value to their products, extending their span of control, merging with other market players, and diversifying their markets. The value density of their products is enough to allow the use of air cargo to reduce delivery time and, more importantly, to ensure reliability of delivery. Smaller firms have made less progress and the lower value density of their products limits their market to nearby countries. Large exporters of meat products have diversified their products, integrated their supply chains, and improved quality control, but relatively few of their products are exported and then only to selective markets. Despite the relatively low value density of meat exports, they use air freight or refrigerated containers to ensure reliability of delivery. For leather exports, the producers are all relatively small scale. They have had little success in improving either their supply chains or value-added processing. Their primary export is wet blue leather, which has low value density. They make small shipments to neighboring countries using land transport.

The role of the CEC in developing these exports is one of facilitation. It performs several basic functions in developing trade. First, it provides a location for the collection of inputs, concentration of production, and organization of a wide variety of logistics and other complementary services. Second, it provides a framework for developing transport and trade facilitation services. Third, it provides a physical link to international markets.

To date, the performance of the CEC has had little impact on the growth in agricultural exports. Most constraints to growth are associated with limitations on the quality and availability of inputs, value-added processing and the diversity and penetration of foreign markets. However, if current efforts to integrate input supply chains, introduce new processing technology, increase the scale of production

and expand into new markets are successful, it will become necessary to improve the performance of the CEC, including especially by expanding the railway and highway infrastructure and improving the quality and efficiency of border controls. Both the infrastructure investments and the efficiency of border controls will depend on further trade facilitation agreements with Mongolia's neighbors, China and Russia.

The recommendations presented here have been discussed in previous studies. These were related to value chains, trade facilitation, freight transport, and agricultural development. However, the recommendations provide an important new context for developing and improving the performance and diversity of the supply chains used to export agricultural products. The recommendations fall into two general categories: cluster development and improving logistics and trade facilitation services.

Cluster Development

Clusters are important for increasing both the scale and scope of production as well as complementary services including logistics. They provide a point of consolidation for inputs and encourages buildup of inventories to reduce the seasonality of outputs. Clusters evolve naturally, but their development can be accelerated through the formation of special purpose zones around Ulaanbaatar. These could include the following:

- Clusters for intensive livestock cattle farming to improve the quality of both meat and hides. This would complement ongoing efforts to modify traditional extensive farming practices for raising sheep and goats in the rural areas.
- A leather processing cluster with modern processing facilities and appropriate pollution control facilities, which would complement efforts to upgrade the processing technology.
- A modern rail-based intermodal cluster to replace the older, inefficient yards located within Ulaanbaatar. This would complement the development of unit train operations both to Europe and to the border crossing at Erlian.
- An air cargo cluster for international package delivery services to serve the smaller volumes involved in opening markets, and small-scale niche exporters, and to deliver higher value.

Improvements in Logistics and Trade Facilitation

The trade corridor provides not only physical connectivity but also logistics services, including:

- *Transport and storage.* The quality of these services is measured in terms of the time, cost and reliability for delivery of products to foreign markets.
- *Finance.* These services facilitate the transactions between the providers and users of the transport and storage services and between the buyers and sellers of the goods being transported.
- *Information.* The use of information to coordinate supply chain activities and to convey information on the characteristics of the goods moving through the corridor.

Trade Finance

One of the more important challenges for exporters of agricultural products is the carrying cost of inventory in both the inbound and outbound supply chains. Because the inputs are seasonal, it is important to maintain a significant inventory to achieve a reasonable level of utilization of the processing

equipment and to provide buyers with a regular supply throughout the year. Exporters also need to carry the costs of trade credit extended to international buyers, which includes the long time needed for shipments. This time will increase as trade with more distant markets and with distributors and retailers, rather than traders and wholesalers, will increase. This will require a change in the terms of shipment from Ex Works and the free carrier (FCA) to cost, insurance and freight (CIF) and free on board (FOB) shipments to East Asia and Europe and Delivered at Terminal/Delivered at Pace (DAT/DAP) shipments to Europe, resulting in a longer time before payment is received.①

The annual volume that a producer can export depends on the total cash-to-cash cycle from when inputs are purchased to when payment is received from the buyer of the exports. This is particularly important when the inputs represent a significant part of the final cost, as is the case for cashmere-wool, leather, and to a lesser extent meat.

There are many SME support systems already in place in Mongolia.② However, they tend not to be widely used by SMEs. As a result, exporters rely on their own funds or on foreign investors that provide financing from international sources. Efforts to educate SMEs about existing financial instruments will become increasingly important as the value of the goods shipped increase and as the producers extend their involvement in both supply of inputs and delivery of exports. The latter is especially important because it allows the exporter to develop products for specific markets and to sell them directly to retailers and their distributors. Improve access to finance by introducing targeted awareness campaign aimed at SMEs to increase use of funding mechanisms.

Financial instruments are also an essential component of e-commerce, which is expected to become increasingly important not only for organizing trade but also for reducing the cost for Mongolian exporters to enter new markets. It will be useful for the government and the private industry to work together to provide competitively priced financial instruments for implementing these transactions and make them accessible to smaller exporters and new entrants into the export markets. It is important that competitively priced financial instruments be available to implement these transactions and that these instruments be made accessible to smaller exporters and new entrants into the export markets. Government and donors, working with commercial banks, have established a number of credit facilities for the SME sector. Information about these credit facilities should be disseminated to the private sector.

Exchange of Information

Improved exchange of information is critical for integrating supply chains. Efficient exchange of information between the participants in the inbound and outbound supply chains is key to enhancing the reliability of supply, production, and delivery of exports. It is also essential to gather information about often rapidly changing prices, both domestically and internationally, and the availability of new demand.

A growing number of countries have introduced regulations that require product information to be provided to consumers as part of an enhanced quality infrastructure. Given that information about the product is an increasingly important component of the value of these products, this information can also

① Where "Ex Works" means direct from the factory; "Free carrier" arrangements dictate that the seller is responsible for the delivery of the goods; "Free on Board" means the seller carries the risk of loss until the goods reach the buyer; and DAP/DAT (delivered at place/delivered at transport) places goods at the disposal of the buyer on the arriving means of transportation without the seller taking responsibility for the unloading.

② These include the Credit Guarantee Fund (CGF) and SME Development Fund and SME credit lines from the World Bank Group and European Bank for Reconstruction and Development (EBRD), plus about 20 other donor-funded projects aimed at supporting SMEs.

be used to enhance the value of the exports. Both government regulations and industry incentives can be used to increase the amount of information gathered and transmitted from the source of inputs through the processing to the consumer.

There is need for information about the preferences of consumers in foreign markets. This specifically relates to the changing patterns of demand in terms of the characteristics of products and their inputs and processing. Although a significant amount of this information can be obtained from the internet, it is important to collect market-specific information from trade fairs and commercial data amassed by Mongolia's overseas embassies.

Connecting Farmers and Producers to Markets

The development of the CEC can facilitate export trade by simplifying the procedures for movement of goods in transit. This mainly applies to trade flows from the clusters around Ulaanbaatar to the land border and onward through China. The National Trade Facilitation Committee that is responsible for streamlining export procedures related to customs, internationally certified laboratories, and cargo consolidation facilities to allow movement in transit not only to the land borders but also to the international airport.

An agreement to allow China's transit traffic to move through Mongolia could help ease access to Chinese ports. Such an agreement could emanate from the ongoing tripartite negotiations, the implementation of the WTO TFA, and close participation in the BRI. Negotiations over the China-Mongolia-Russia tripartite mechanism create opportunities for Mongolia to negotiate a *quid pro quo* to expedite the movement of Mongolian cargo in transit between the border crossing at Erlian and the Port of Tianjin. This can be accomplished initially by ensuring enough scheduled rail capacity for this movement and/or permitting appropriately certified Mongolian trucks to transfer cargo to and from the port without interruption. Eventually, the volume should be enough to justify unit train operations. This recommendation has been part of the agenda in trade negotiations with China for some time. However, it will assume increasing importance with the growth in exports of medium-value agricultural products, which are more sensitive to transit time and reliability of delivery, especially for the markets in East Asia and Western Europe.

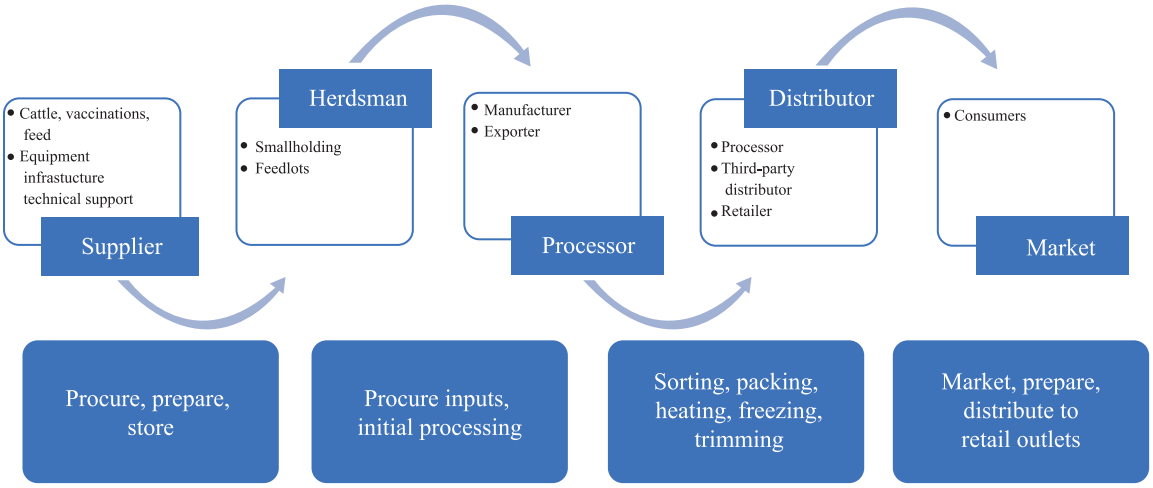
The BRI can enhance Mongolia's ability to reach new markets. As part of a global BRI initiative, Mongolia's opportunities for trade linkages are greater than they would be at a purely national level. Financing is also more accessible for BRI-related schemes. The government of China has supported several financing agencies, such as the Asian Infrastructure Investment Bank (AIIB), the New Development Bank, and the Shanghai Cooperation Development Bank. Development partners have also shown greater willingness to allocate finances based on BRI-related activities. The BRI presents a unique opportunity for Mongolia to negotiate improved access with trading partners and create new export markets. These approaches can be accelerated through the Tripartite Agreement and the recently ratified Trade Facilitation Agreement of the WTO.

Suppliers range from herdsman to small farmers. Each has different linkages to the CEC (or to the supply chain more generally), but all are characterized by relatively low volumes. The structure of the supply chain is presented in Figure 5. Transport infrastructure is substandard or nonexistent, creating frictions in terms of cost and time between each stage of the supply chain. In a typical transaction, the smallholder delivers the animal to the local market or the processor to be aggregated before processing. Where transport is available, local buying agents operate in local markets to aggregate the raw product and ship it to processors.

Suppliers, herdsmen, processors, and distributors face challenges in several areas:

- Establishing cooperatives and associations to increase the bargaining power of members
- Increasing the efficiency of land use practices.
- Managing risk (transferring or mitigating risk) through adherence to the Pastureland Risk Management Scheme, or the Emergency Fodder Reserve Fund.
- Education and training on market orientation, export readiness, and value chain improvements.

Figure 5: Structure of Agricultural Supply Chains for the Cashmere-wool, Meat, and Leather Industries



Source: World Bank

Mongolia's thinly spread value chains lack volume and economies of scale. The density of traffic along the CEC is insufficient to justify point-to-point transit systems, limiting Mongolia to traditional hub-and-spoke operations. Without cooperation between the government of Mongolia and trading partners on trade, Mongolian exporters will be saddled with high costs associated with transloading goods and replicating procedures as they cross borders. Infrastructure improvements are necessary aspect of corridor development, but they need to be supported by institutional strengthening and procedural streamlining.

Industry-specific Recommendations

Each of the three selected industries—cashmere-wool, meat, and leather—faces several challenges. The main solutions include the need to (i) improve collection, consolidation, and preliminary processing of the inputs and increase the exchange of information between producers and their suppliers; (ii) establish new distribution channels and improve the transfer of information to the buyers, especially for higher-value exports; and (iii) increase the producers' involvement in the logistics and quality control activities in their supply chains. Table 4 presents the key short- and medium-term policy recommendations.

Table 4: Cashmere-wool, Meat, and Leather Industries: Key Challenges and Corresponding Short-term and Medium-Term Policy Recommendations

Industry	Key challenges	Short-term recommendations	Medium-term recommendations
Cashmere and Wool	Underdeveloped distribution channels for final products Relatively low value added of final production	Expand awareness within the industry about financing availability for SMEs that could lead to investment in storage and sorting facilities. Industry associations can educate SMEs about the various instruments available for SME financing. These include the use of the CGF, SME credit lines, and the SME Fund to facilitate lending into the industry, as well as the IBRD and EBRD matching grants programs.	Facilitate the creation of cooperatives among herders to aggregate supply and work towards higher-quality cashmere-wool from a pure-bred Mongolian herd. Clarify regulations for customs and GASI border inspections and publish them on the forthcoming Trade Information Website.
Meat	Lack of compliance with international export standards Lack of information shared among market players Lack of vertical consolidation in the value chain Inability of the industry to "speak in one voice"	Take advantage of the special conditions that favor landlocked countries in the WTO Trade Facilitation Agreement to overcome market access obstacles. Introduce feedlot-raising pilot programs to increase access to veterinary services and enhance the quality of meat. Strengthen enforcement of animal slaughtering standards. Create special zones to produce meat in cold seasons to improve the reliability of input supply. Open the road transport industry to new investment and complete the China-Mongolia rail link.	Work with neighboring China and Russia to ensure mutual recognition of veterinary inspections at the border. Introduce regular third-party audits of cattle transportation, handling, and processing (on the farm and at processing facilities).
Leather	High frequency of defects in the hides, both handmade and natural High time and cost of exporting Lack of coordination among industry players, which prevents the development of standards and keeps individual market players stuck in a low-productivity trap	Expand education campaigns to farmers on how to promote animals' health and prepare hides for market. Provide clarity on the mayor's decision to relocate factories outside Ulaanbaatar city. Ensure that any consultations on this matter include industry groups. Provide advisory services to assist firms' business planning and investment decisions.	Create a Leather Training Institute to address scarcity of skilled labor and high wastage caused by poor processing techniques. Conduct an awareness campaign for herders, skinners, tanners, and butchers on appropriate flaying techniques. Encourage industry players to propose production standards with respect to environmental pollution and waste elimination.
Cluster development	Low consolidation of inputs Seasonality of supply	Initiate clusters for livestock cattle farming on feedlots around Ulaanbaatar. Set up a leather processing cluster around Ulaanbaatar to complement efforts to upgrade technology and reduce pollution.	Promote a rail-based cluster to assist with the development of unit train operations to Europe and Erlian. Create an air cargo cluster for package deliveries to facilitate smaller, high-value export shipments.

Source: World Bank*Note*: CGF = Credit Guarantee Fund; EBRD = European Bank for Reconstruction and Development; IBRD = International Bank for Reconstruction and Development; GASI = General Agency for Specialized Investigation; SMEs = small and medium enterprises; WTO = World Trade Organization.

Chapter 3: Multiple constraints slow the transition to higher-value exports of cashmere-wool

Mongolia's cashmere-wool industry has underperformed relative to the country's comparative advantage. As exports tilted in favor of mining and commodities over the past decade, the value chains supporting the cashmere-wool industries have failed to mature. An overhang of outdated legislation and institutional arrangements have exaggerated this trend. Economic corridors linking farmers to markets and international trade are unsophisticated.

Cashmere exports face several constraints that have become more urgent over the past decade. The first challenge is an excess of animals with respect to the available grazing land (estimated at 8 million excess head of goats per year over the available grazing land). Subsidies offered by the government of Mongolia to herdsmen create incentives for overgrazing, jeopardizing the quality of Mongolia's cashmere output. Mongolia's medium-term ability to increase the productivity and profitability of wool and cashmere will depend, in part, on its ability to increase the amount of usable fleece yielded per kilo of raw produce.

The quality of livestock has been declining. A succession of government subsidies has favored the quantity of wool over its quality. As a result, herdsmen have diluted pure-bred Mongolian livestock with inferior foreign breeds to maximize their annual output. The mixture of low- and high-quality fiber reduced the yield per kilogram, creating downward pressure on local market prices.

Livestock

The size of the animal herd has grown steadily despite losses during the intermittent severe winters (dzuds), as shown in Figure 6. The proportion of large ruminants (cattle, horses, and camels) has steadily declined, while the proportion of goats and sheep have increased, as shown in Figure 7. These changes in herd composition reflect market conditions. The impact of extreme weather conditions, which have the greatest impact on small ruminants, have been less significant over the past decade.

Figure 6: Size of Animal Herd

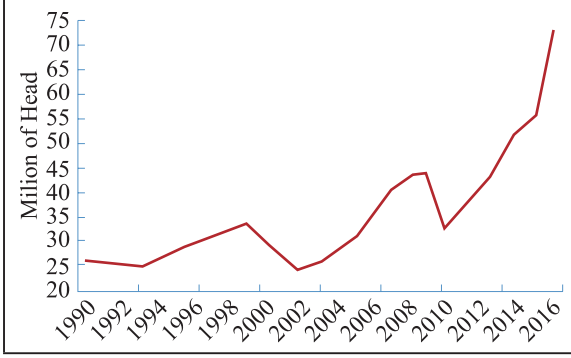
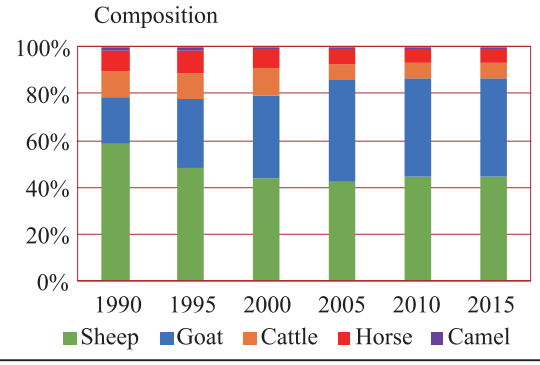


Figure 7: Composition of Animal Herd



Source: World Bank based on the data from the National Statistics Office of Mongolia.

The animals provide a variety of outputs and there is a trade-off in terms of their use. The trade-off is between their use for a continuous stream of earnings from products such as wool, leather, and milk and the sale of the animals for meat and leather (see Annex B in the full report). The Mongolian herders select the species of animals depending on both income requirements and the local environment. Sheep have been preferred because they provide both meat and wool while being able to survive harsh winters. Goats produce cashmere, which is more valuable, but they are more susceptible to extreme weather. Cattle provide dairy products, including *aarul* (curd cheese) in winter. Yak and camels provide high-value fibers in addition to milk.

The major constraint to increasing the production of cashmere-wool for export is the supply of raw materials. There is a need to improve the reliability of supply, enhance the quality control of inputs from dispersed sources, and mitigate seasonal volatility of production. Other factors also need to be addressed, as shown in Figure 8. Most of these can be addressed through improvements to the inbound supply chain.

Figure 8: Challenges Facing Livestock-related Inputs

Source: World Bank 2018

Supply of Inputs

Overgrazing has been a concern since the late 1990s and there is general agreement that the current size of the herd is unsustainable.[①] The carrying capacity of the land available for grazing is estimated at 62.5 million sheep forage units. The impact of the increased herd has been somewhat mitigated by the increasing proportion of goats, which are less demanding on the pastures. However, the deterioration of pastureland will further constrain the current practice of open grazing. This problem, combined with the demand for more reliable, higher-quality inputs, is expected to result in an increasing proportion of the livestock raised using semi-intensive farming, including by fencing pastureland, sheltering animals throughout the winter, and purchasing supplemental feed and fodder. The problem of severe weather is already being addressed through provision of forage and shelter for animals during the winter. The larger farms, especially those with processing facilities and those located near to production centers, have already

① Mongolia Submission to United Nations Framework Convention on Climate Change (UNFCC), 2010.

begun this transformation.

Current breeding and culling practices limit the quality of raw cashmere. Since Mongolia's competitive advantage is based on differentiating its products by the quality of its cashmere, these practices will eventually limit production of high-value cashmere products.[①] However, the differentiation of price for raw cashmere based on quality, as well as current efforts to integrate the inbound supply chains, are expected to limit the impact of these practices.

Processing of Cashmere

The production of raw (greasy) cashmere has increased with the size of the goat herd. Total production in 2017 was about 9,400 tons. Mongolia is the second largest producer of cashmere, with a global market share that is steadily expanding to 40 percent. This has led to an increase in herders' earnings (Table 5). The annual yield of greasy cashmere is about 240 grams per goat (see Annex D in the full report). The quality of the fiber has decreased somewhat due to cross-breeding and a higher proportion of male goats and older goats, but, so far, the supply of good-quality fiber has been enough to meet the demands of the domestic producers for cashmere products.

Table 5: Herder's Gross Annual Revenue from Raw Cashmere

Year	Billion MNT	US$, thousands	US$/herder household	US$/herder
2007	157	65,656	$385	$188
2008	87	36,382	$214	$104
2009	164	68,583	$403	$196
2010	276	115,421	$678	$330
2011	227	94,925	$558	$271
2012	318	132,979	$782	$380
2013	455	190,269	$1,119	$544
2014	595	248,814	$1,462	$711

Source: World Bank estimates based on information from MOFA; Census 2009 estimates of herder households; Invest Mongolia.

Note: US dollar at current exchange rates from xe.com. Second column – gross revenue of the entire sector in local currency, MNT; third column – gross revenue of the entire sector in US$; fourth column – gross revenue divided by the number of raw cashmere producing households, last column – gross revenue broken down by herder.

The export of raw cashmere is banned, and the government of Mongolia has also proposed banning the export of semi-processed (dehaired) cashmere. Despite this, about 5,500 tons of washed cashmere was exported to China in 2017 and about 500 tons of dehaired cashmere was exported to Italy.[②] Chinese import prices of greasy cashmere have grown steadily over the last decade. This is partly attributed to the activities of Chinese traders who buy directly from herders and ship the raw cashmere to washing stations

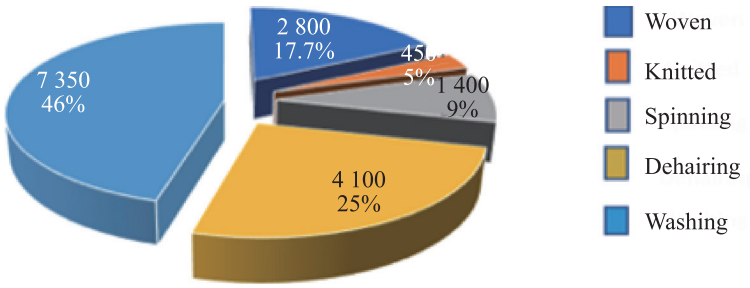
① Earlier expectations that the increase in the thickness of the cashmere threads would have a dramatic impact on the industry have not been realized.

② This is equivalent to about 7,400 tons of greasy cashmere, assuming yields from washing of 90 percent and for dehairing of 45 percent.

across the border, bypassing the CEC.[1] Nevertheless, the situation has gradually improved, largely through initiatives associated with the Auction Law and efforts by producers to improve their supply chains. Domestic producers have been able to increase their share of raw cashmere used in the formation of end- products.

Mongolia underutilizes its capacity to wash raw cashmere. The capacity for value-add is limited and under-utilized. Most cashmere is exported raw. Mongolia can wash 60 percent of its raw cashmere, but the utilization remains well below this limit. Domestic capacity for dehairing is about 4,100 tons; for spinning, 1,400 tons and for knitting, 2.8 million pieces. However, utilization is very low, at about 20 percent.

Figure 9: Mongolia's Cashmere Production Capacity, in tons

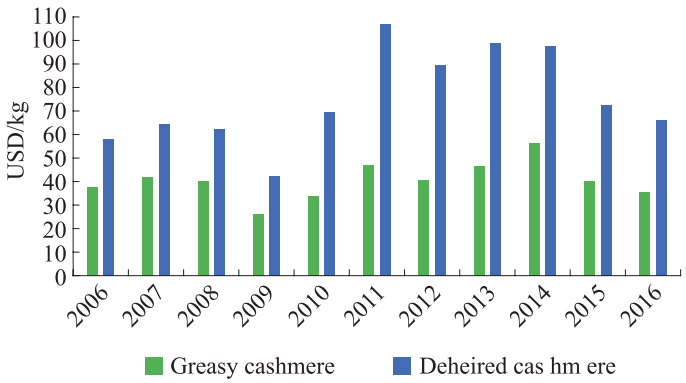


Source: World Bank estimates based on data from Customs and the National Statistics Office of Mongolia.

The current purchase price for raw and processed cashmere depends on quality, yield, and color, with the price set according to international market prices. The level of differentiation has increased over the last 15 years. Manufacturers have increasingly relied on trained buying agents rather than traders to make such assessments. Recently, the government of Mongolia has provided training for the herding cooperatives in sorting cashmere according to the fiber's characteristics.

Export prices have fluctuated substantially over the last few decades. Prices currently fluctuate around $65 per kilogram after reaching a peak of about $110 per kilogram in 2011 (Figure 10). Price fluctuations are absorbed into the price of the finished products. Given that the inputs comprise a significant amount of the final price, the impact of fluctuations in input prices on profits can be significant.

Figure 10: Average Export Price for Cashmere, 2006–16



Source: Mongolian Customs; Trade map.

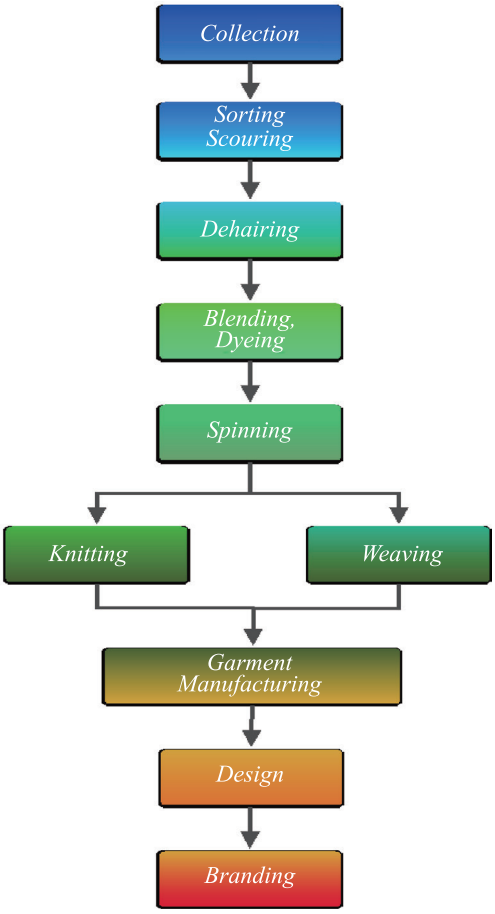
① The Mongolian wool processing supply chain is like its cashmere supply chains. A small portion of wool is used to produce carpet, while the rest is exported to China.

The output of cashmere products is constrained by the producer's cash flow. Raw cashmere is purchased between April and June, whereas most orders for export production are received from August through October to be available for the winter season. There is usually an advance payment made to the processor at the time of ordering, with the remainder paid on delivery. The result is a cash-to-cash cycle of four to six months, which poses a significant constraint for producers because they must borrow domestically at relatively high interest rates over short time periods with significant collateral requirements. While the volume of exports has grown, the proportion of domestic sales still accounts for a small majority of total sales.

Production of Cashmere Goods

Mongolia's cashmere garment industry has matured significantly over the last decade. This happened as producers have extended their involvement to the collection and processing of cashmere fiber (Figure 11). This includes increasing their control over suppliers, reducing the risk of supply shocks. The value chain has somewhat matured through investments in equipment for dehairing, spinning, and weaving. Producers have strengthened their design and marketing capabilities and established their own brands, achieving some diversification of both products and markets. This has allowed the largest companies in the industry to expand their sales (Table 6).

Figure 11: Cashmere Value Chain



Source: World Bank

Despite this progress, most companies do not produce final products. Over 82 percent of the companies involved in processing cashmere continue to produce intermediate rather than final products. Most intermediate products are exported, although an increasing proportion is supplied to domestic garment manufacturers. Such pattern of sales lowers the value added, given that value added is the largest at the end of the value chain, at the point of sale to the final client.

Table 6: Volume of Cashmere Sales, in US million

No.	Name of Company	2014	2015	2016	2017
1	Gobi LLC	12.2	15.50	26.10	28.5a
2	Goyo LLC	1.3	1.55	2.04	2.36a
3	Gobi-Erdene LLC	0.6	0.70	0.90	1.3

Source: World Bank.
a. Gobi and Goyo merged in 2018.

Most goods produced for export involve contract manufacturing undertaken on behalf of major brands and distributors. The principal distribution channels are managed through New York, Dusseldorf, Milan, and London. While most of the firms continue to rely on relatively few buyers, the larger firms and some of the new entrants are actively involved in developing branded products and the utilization of modern retail, including boutique chains and e-commerce, to increase the variety and control over their distribution channels.

All large processing firms are in Ulaanbaatar and Erdenet. While some washing centers are in rural areas, they tend to be smaller, less efficient entities. Since the yield of dehaired cashmere from raw cashmere is 50 percent, processing in the rural areas offers significant savings in transport cost that would otherwise involve journeys of up to 1,000 kilometers over poorly paved roads. The low density of raw cashmere production reduces the size and utilization of these processing facilities, offsetting the savings in transport costs. The distribution of products based on the extent of processing is shown in Table 7.

Table 7: Cashmere Processed in 2017

Processing	Tonnage	Exported
Raw	7,000	
Washed	7,000	85%
Dehaired	1,050	42%
Spun yarn	620	
Knitted garments	434	
Woven garments	186	

Source: World Bank, based on the Trade and Transport Facilitation Assessment (TTFA), 2018.

The processing industry has evolved steadily over the last few decades, with individual firms moving up the value chain. It has moved from washing and dehairing to spinning yarn and knitting fabric, to producing knitted and semi-woven garments. Larger factories such as Gobi and Erdenet produce more than 1,000 tons of cashmere each year, with Gobi producing more than 700,000 knitted pieces (see Table 8.) Most producers continue to rely on joint ventures to access markets and for outsourcing some of the

more technical processes. However, the industry has been able to increase the production of luxury goods taking advantage of the quality of local cashmere. At the same time, it has reduced its involvement in lower- quality and blended products, in which China has a competitive advantage.

Table 8: Capacity of Large Cashmere-wool Companies

Company	Washing	Knitted
	Tons	Thousand pieces
Gobi	1,200	700
Buyan	1,000	500
Erdenet	1,000	300
Goyo	500	250
Ulaanbaatar carpet (wool)	2,000	100
Mongol (wool)	1,000	30

Source: Mongolia's Cashmere Industrial Cluster Development.

Survey Results

The World Bank undertook a firm survey of the cashmere-wool, meat and leather industry based on the Trade and Transport Facilitation Assessment (TTFA) methodology (Box 1). This report presents the results of a series of interviews with firms that took place in Mongolia from November 2017 to January 2018. Details of the TTFA methodology can be found in Annex I.

Production and capacity utilization in the cashmere-wool industry vary according to fluctuations in demand and the availability of supply. Most production is generated to meet fixed orders. However, about half the companies maintain an inventory to meet additional projected demand or to smooth the supply of inputs over the year. In the most extreme cases, up to half of the production is maintained as inventory.

Most finished goods are produced under contract to buyers. They arrange the distribution through their own clothes label or that of their clients. The buyers include foreign buying agents, wholesalers, and retailers. Direct consumer sales are limited to consignment sales.

Firms focus on adding value to the products and improving supply chain integration and flexibility, in addition to upgrading the production technology. In terms of public initiatives, the focus is on capital investment in production facilities, setting standards for Mongolian-branded exports and continuing to encourage purchases of cashmere for domestic production. Developing brand and trade promotion were reported to be public-private initiatives, as were steps to provide instruments for financing working capital.

Summary and Recommendations

There is a significant untapped potential for expanding wool and cashmere exports. Given its unique natural environment, Mongolia is well suited to sustaining large herds of sheep and cashmere goats and producing high-quality wool and cashmere for the global markets. However, persistent challenges with the fragmentation of the supply chains, uneven quality of inputs, and—despite recent progress—low brand recognition in the international markets undermine the large growth potential. If these issues

were mitigated, Mongolia's exports could increase by tens of millions of dollars per year, while the environmental impact would be reduced.

Several policy measures could help leverage the large growth potential, including the following:

- Make use of existing instruments such as the Credit Guarantee Fund (CGF), SME credit lines, and the SME Fund to facilitate lending to the industry and reduce the cost of working capital sought by processors to buy raw material each season.
- Finance agricultural experts to advise on the optimal location of storage and refining facilities. Under a World Bank-financed grant matching program, companies can apply for training collectively or separately. EBRD is running a matching grants program for business development purposes.
- Focus on promoting Mongolia cashmere as a joint initiative by cashmere companies to grow brand awareness in international markets.
- Facilitate the creation of cooperatives among herders to aggregate supply and work toward higher- quality cashmere-wool from a pure-bred Mongolian herd.

Chapter 4: There is a significant untapped potential for expansion of meat exports

The size of Mongolia's livestock supports a comparative export advantage in meat. However, Mongolian meat exporters have yet to overcome the barriers imposed by frequent disease outbreaks, lack of compliance with international Phyto-sanitary standards (see Box 2 for the relevance of a standardized quality infrastructure), and poor connectivity in the value chain that is manifested both as poor information about market demand and difficulty in agglomerating supply. Furthermore, Russia has imposed a tariff rate quota on imports to encourage the growth of its own beef industry that restricts the ability of Mongolian exporters to trade in the Russian market (see Box 3).

Mongolia's meat exports are below potential. The economic corridor has failed to develop, storage facilities are inadequate or nonexistent, border procedures tend to be poorly understood and cumbersome, and access to finance is difficult. Mongolian meat sold overseas currently attracts low prices due to product safety risks, undermining the private industry's incentives to upgrade the value chain through additional investment.

The size of the Mongolian herd is approximately 70 million, representing a considerable potential source of exports. Livestock are raised in nomadic herds on collective pastureland where enclosed feedlots are uncommon. Disease outbreaks occur regularly and spread rapidly, interrupting meat exports when border controls are imposed to contain the disease. These interruptions have created a reputational disadvantage for Mongolian meat in foreign markets.

There is no mutual recognition of Phyto-sanitary standards between border agencies with Russia and China. Exchange of information across the border seems to be limited. Inspections are duplicated once the meat crosses into the neighboring territory. Cumbersome procedures, such as the need for a central agency to issue the laboratory certificate for border shipments, prolong the wait time at the border, where lack of adequate storage facilities reduce the quality of meat at its destination. The tariff rate quotas imposed by Russia to encourage the growth of its own beef industry limit the expansion of Mongolian beef exports to Russia (see Box 3).

Collecting Meat

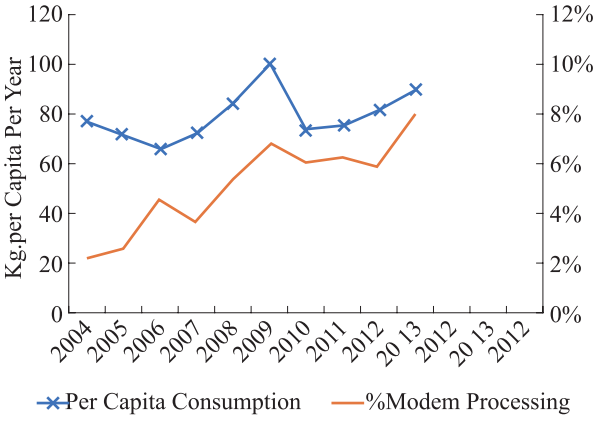
The procedure for collecting and processing meat remains crude. Herds are pastured according to a nomadic system lacking modern tracking and tracing technologies. Mongolia's herd is large by international standards, though Mongolia's access to international markets is limited by logistics and adherence to outdated standards. About 14.6 million animals were slaughtered in 2015, mostly using a traditional hand-cutting technique. The culled meat was predominantly sold for domestic household consumption through local wet markets (Figure 12).[①,②] Sheep and goats accounted for most of this

① Average domestic consumption is about 8 kilograms per capita per month.

② Nearly all meat is sold in wet markets, which sell fresh meat and produce, even in the urban areas. However, the demand for better quality meat and processed meat is increasing especially for modern retail, hotels, and food services.

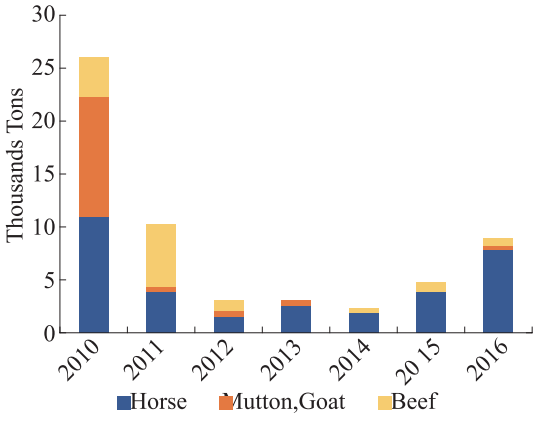
consumption. Although the total amount of meat produced has been increasing as the size of the herd has expanded, exports have only recently begun to recover from earlier declines (Figure 13). Even at its peak in 2010, exports were well below 5 percent of total production. This was due in large part to the problem with disease that has traditionally hindered Mongolia's access to international meat markets.

Figure 12:Amount of Modern Slaughtering



Source: Mongolian Statistics Yearbooks.

Figure 13:Amount of Meat Exported by Type



Source: NSO and Trade map

The peak selling season takes place between September and December. This is when the animals attain their maximum live weight, at which time families build savings buffers for the winter. Very few households sell livestock in the summer as animals attain their maximum weight and value toward the end of the year.

Most of the producers appoint buying representatives in amigas (local markets) where they purchase live animals at a price that is determined by weight. If the herders are in the same *amiga* as the processors, they may deliver the animals to the factory directly. Otherwise, deliveries are arranged by the buying representatives or traders. The cattle may travel as much as 1,000 kilometers to reach the factory, which is well below the global average distance traveled of 5,000 kilometers. Transport costs are absorbed by the factory. Processors have begun establishing partnerships with herders and herding groups, providing them with fodder and other needs and entering into supply contracts for which they pay cash on delivery. This nascent contract system is designed to develop a reliable source of animals, to improve the quality of animals, and to provide traceability. Contracting can be done through herder cooperatives, although the financial and marketing capacity of these organizations is limited; herders prefer to sell their animals directly to factory owners.

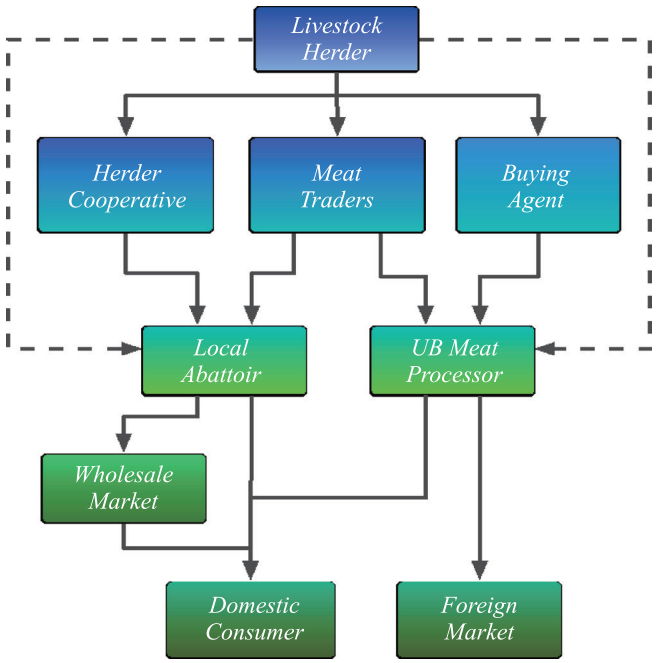
Animal slaughter is largely unmechanized, with most slaughter taking place on the farm. Informal abattoirs can be found in rural areas, but these facilities tend to lack veterinary capacity, facilities to properly wash meat, technology to track and trace the herd, dry or cool storage, or proper availability of information about their meat.

Formal abattoirs have recently grown in popularity to encompass up to 10 percent of processed meat. Formal abattoirs provide for cold storage of carcasses and their byproducts. These facilities operate one shift a day, with an average capacity of 6,100 large animals and 21,800 small animals. These abattoirs have storage facilities allowing them to supply meat beyond the high season when live animals are typically available for sale. In addition to uncut meat, abattoirs produce byproducts such as hides, skins, and blood primarily for sale in local markets.

In 2016, there were 48 formal abattoirs with modern processing capabilities, of which 20 were operational. The distribution of these formal facilities was as follows: 6 out of 17 in Western region; 4 out of 6 in Khangai region; 8 out of 16 in Central region; and 2 out of 5 in Eastern region.

Most abattoirs focus on the domestic market, and therefore are less concerned with international standards and certifications. The properly certified abattoirs capable of producing meat to international quality standards tend to be in Ulaanbaatar (see Figure 14 on the meat collection process flow).

Figure 14: Meat Collection Process Flow



Source: World Bank 2018.
Note: UB = Ulaanbaatar

Processing Meat

Of the 20 formal operational meat packing and processing plants, the larger ones are located near Ulaanbaatar, Edermet, and Zavikhan in western Mongolia. These plants produce cut and processed meat for sale in local and foreign markets. Their capacity is estimated to be 2,500 large animals and 11,800 small animals per shift, but annual utilization is only about 21 percent. The low levels of utilization are due not only to seasonal constraints on the supply of animals but also the difficulty of producers accessing working capital.

Box 3. Russian Import and Transit Standards for Beef Production

Russia has long tried to increase its domestic beef production but has been hampered by inefficiencies in its beef value chains. The scale of production and processing no longer match, given that most animals are now in the hands of smallholders, who only come to the market when they require cash. The dairy herd is also shrinking as that industry is restructuring. With sharply reduced livestock numbers and a feed base that diminished after the collapse of the Soviet Union because of shortages of sunflower and cottonseed cake, beef production has become a seasonal activity. Animals ready for slaughter are harvested in autumn; during the rest of the year, only poor-quality animals are slaughtered. Attempts have been made to reinstate feedlots, but the supply systems for animals and for fodder and feed are missing.

Russia aims to protect its domestic production through a tariff rate quota system. Table B3.1 provides an overview of past and expected quotas for imports of beef into Russia. However, these quotas have historically been systematically exceeded. Russia sets high standards of inspection, and at times goes beyond EU sanitary and Phyto-sanitary standards with its national standards (GOST). Russia restricted imports from certain Brazilian beef facilities in June 2011, and alternative suppliers are expected to benefit from the continued restrictions. One such supplier could be Belarus, which under a trade agreement with Russia can export 130,000 tons of beef to Russia, although, with border controls between the two countries removed in July 2011, actual trade flows may be even higher.

Source: FAO 2013.

Note: GOST = An Acronym for National Standard in Russia.

Exports

The export of meat products is limited by the difficulty in meeting health and safety standards. Also, Mongolia's dispersed, nomadic system of animal husbandry limits the availability of supply to meet foreign orders and increases transport costs. The type and quality of Mongolia's meat is not yet well suited to foreign demands.

China and Russia are the principal destinations for meat exports. In 2016, exports to China amounted to US$11.2 million and to Russia US$5.2 million. However, both countries have imposed import bans on Mongolian meat following outbreaks of foot-and-mouth disease (FMD). In 2016, Mongolia also exported small quantities of meat to Japan (US$64,000), Kazakhstan (US$12,000) and Qatar (US$5,000). Mongolian exports comprise less than 2 percent of the value of world meat exports, which were valued at US$112 billion. While the World Organization for Animal Health (OIE) has not given Mongolia FMD-free country status, there has been bilateral recognition of disease-free provinces and the approval of some meat processors to export frozen and heat-treated meat to China, Russia, and Vietnam as of late-2015.[①]

Chinese accreditation of the value chain has had a limited impact on exports. This is due to the recent outbreak of bovine rinderpest and continuing concerns among border agencies about the outbreak of foot-and-mouth disease. The principal end-destinations for exports are still China and Russia. Neither

① The Certification and Registration Department at the Quality Control Quarantine Authority in China granted licenses to export meat products to the Chinese market for a few Mongolian producers.

country allows meat shipments to transit through their borders.

Chinese firms are working with individual Mongolian producers to meet the necessary standards. Without a standardized approach to quality infrastructure (see Box 2.1), exporters must work directly with their buyers to ensure that their product meets foreign quality standards. For Mongolian meat exporters, this includes upgrading processing capabilities and, most importantly, passing Chinese veterinary inspections. Five meat processing facilities in Mongolia have been certified as abattoirs that meet Chinese consumer standards. However, the current trade protocol requires meat exports to cross into China at remote border locations that lack infrastructure on the Mongolian side, such as storage facilities and basic laboratories.

The primary demand for meat exports to China is for frozen boneless beef, with demand for quick-frozen, semi-prepared meat products, especially dumplings. Increasingly the emphasis is on quality and variety rather than price, especially in urban areas. The demand is driven by the shift to hypermarkets and, more recently, convenience stores and online services.

Managers report that they are pursuing several export strategies. These include setting up joint ventures, promoting brands, integrating the inbound supply chain, and improving their processing technology. Managers are less concerned about developing new products, new markets, and new distribution channels. The principal private initiatives to increase exports include identifying new overseas business partners, investing in the supply of inputs, and (to a limited extent) maintaining and expanding their production technology.

Mongolia's comparative advantage seems to reside in the unique taste and high quality of Mongolian meat and a low price. Mongolia cannot compete with companies from abroad in terms of timeliness and reliability of delivery, or agglomeration of supply to fulfill large orders. Given these constraints, managers focus on fulfilling orders as rapidly as possible, with little incentive to build inventories or invest in further processing. The current focus of the meat processing industry is to improve backward integration between producers and suppliers to increase the quality and reliability of inputs.

The problem of recurring diseases in the animal population has limited the meat production. A significant portion of these diseases, especially foot-and-mouth disease, are introduced by cross-border migration of animals. However, the inability to isolate these occurrences through effective quarantine has exacerbated the problem. ① Other causes include limitations on the quality and availability of veterinary services, limited use of these services by the herders, and an inability to deliver reliable vaccines.

Faced with similar constraints, the meat industry in Botswana adopted a series of reforms designed to improve quality standards and avoid frequent disease outbreaks. Botswana's Livestock Identification and Trace-back System (LITS) is described in Box 4. LITS was based on the creation of feedlots to control the supply chain, better channels of communication from the private industry to government, and the consolidation of industry groups to inform and improve the operations of even the smallest participants in the meat value chain.

① In 2016, Mongolia renewed territorial classifications including healthy zone, suspicious zone, and control zone classification and submitted request to the World Animal Protection Organization for consideration of central zone as healthy zone. This has yet to be approved.

Box 4. Botswana's Livestock Identification and Trace-back System (LITS)

Botswana's beef value chain can provide interesting parallels for Mongolia. In Botswana, greater involvement of the private industry, largely through public-private partnerships and new performance-driven institutions, provided the foundation for a collaboration for a stronger and more profitable beef value chain.

Botswana's experience suggests several initiatives Mongolia could pursue:

- *Establish a livestock identification and trace-back system.* A well-functioning traceback system is essential for accessing higher-priced, premium markets and for reentering the EU market.
- *Develop a Meat Council.* Reflecting another public-private partnership, but mostly driven by the private industry, such a council (or association or board) would provide a discussion platform and industry advocacy group and take on a few issues essential to the competitive performance of the beef value chain, such as market research and promotion, conducting performance benchmark studies, and developing a national beef standard.
- *Strengthen farmer groups at various levels.* Promote the organization of cattle owners into cattle management groups for each cattle post, with these groups being linked to regional and national apex organizations. These management groups could be based on the cooperative format and would facilitate links to program support and commercial services (such as finance, transport, and veterinary services); provide economies of scale and bargaining power in input procurement and marketing; integrate smallholder farmers into the shareholder structure; promote the use of contracts; advocate for smallholders (for example, in a Meat Council); and so on.

Source: FAO 2013.

There are additional constraints to the industry development. Managers believe that the government could help enhance the availability of veterinary and other health and safety services, support investment in new production technology, and reduce trade barriers at the border. They are less concerned about developing new products, new markets, and new distribution channels. Collaboration between the public and private industry is required to provide financial instruments for both capital investment and working capital and to improve the quality of logistics services.

Summary and Recommendations

Meat products could become an engine of exports. Given Mongolia's location at the border of the largest meat market in the world, China, there is an almost unlimited potential for growth of high-value meat exports. However, this potential has so far been grossly underutilized due to lack of compliance with international Phytosanitary standards, fragmented supply chains, and lack of storage facilities. Onerous border procedures and challenges related to the implementation of trade agreements with the main export markets have also been important.

A focused reform agenda is needed to leverage the growth potential. This could include the following policy actions:

- Establish a meat laboratory certified by both China and Mongolia to be operated in Mongolia.
- Develop enough quality veterinary services and broader choice of vaccines to prevent disease

outbreaks.

- Liberalize veterinary extension services to include foreign, private suppliers. Over the medium term, this will encourage investment in quality value chain infrastructure.
- Clarify the rules for customs and border inspections by the General Agency for Specialized Investigation (GASI) and publish them on the forthcoming Trade Information Website.
- Encourage the development of more sophisticated transport networks to improve the quality and durability and freshness of inbound and outbound shipments.
- Pilot initiative to create special feedlots to resist disease outbreaks and improve carcass weights, as in the successful Kazakhstan model, for instance.①
- Introduce formal controls over small abattoirs to proscribe unsanitary, unhygienic, and unsafe practices while encouraging the development of centralized slaughterhouses operated according to government-mandated standards.
- Use special conditions in favor of landlocked countries from the Trade Facilitation Agreement of the WTO to overcome market access obstacles imposed by some international trade partners.

① See, for instance, https://www.export.gov/article?id=Kazakhstan-Agricultural-Sector for more details on the Kazakh beef export model.

Chapter 5: The leather value chain needs a fundamental upgrade

Developing the leather value chain will require the evolution of market mechanisms to promote higher standards. Information asymmetries related to quality depress market prices, as buyers assume that one-third of their purchases will be unusable and factor that wastage into their pricing. The predominance of traditional slaughtering techniques, and lack of local storage, grading, and transport are primary factors affecting quality of the local leather industry.

Trade at local markets undermines quality. Herders tend to mix hides together, regardless of quality, and then sell them at *aimags* (local markets). This intermingling of raw product at the local markets discourages leather processors from offering higher prices for bulk consignments. Moving away from a cooperative system toward a market mechanism that provides transparency and rewards quality will lead to a more valuable leather industry.

Damage from insects is the main obstacle to increasing the scale and profitability. Pest damage to livestock is a major weakness in the supply chain because damaged hides are unusable in the production of final garments. Only two-thirds of the raw material is usable. The raw material is assessed based only on a visual assessment of quality. Increasing the quality of hides would benefit both the herder, who could command a higher price for the hide, and the processors, in terms of limiting waste during the production process.

Mongolia tends to export intermediate commodities rather than finished leather goods. The nomadic style of animal husbandry practiced in Mongolia limits the year-round availability of inputs and places an upper bound on the economic viability of more sophisticated manufacturing. A few processors deliver finished goods to local consumer markets in Mongolia. However, the quality and reliability of the Mongolian supply chain must be addressed to achieve exports to large international markets. Exports require laboratory examination and certification on both sides of the border. Discrepancies between the findings of the Mongolian and the Chinese laboratories cause shipment delays. During outbreaks of bovine disease such as foot-and-mouth disease, the Chinese and Russian authorities ban or restrict trade altogether.

Mongolia's leather industry constitutes a small fraction of global trade. Total export value is just over US$4 million. The formal export industry consists of only four firms. Mongolian exports are used as inputs into processed leather products that are exported to destinations such as Ethiopia, Italy, and Vietnam. However, Mongolia has not achieved a major market share of leather for any of these importing countries.[①]

Mongolian leather is typically derived from goats (kid), bovines, and sheep. The skins are purchased on a seasonal basis and typically freighted by truck to China's Tianjin Port and then by ship to their

① According to World Integrated Trade Solution (WITS) data, although Italy is currently Mongolia's largest bovine leather importer, Mongolian leather constitutes only 0.15 percent of Italy's sourced bovine leather. Mongolia similarly provides a tiny 0.13 percent of the bovine leather used in China's leather exports. The total worldwide export market for bovine leather in 2016 was valued at $2.95 billion, whereas the value of Mongolia's bovine leather exports amounted to only $3 million in that year, or a miniscule share of the global trade.

destination. The price is calculated per square meter of skin, ranging US$0.05 to US$0.12 per meter depending on the type of leather purchased (see Annex Table E.2 in the full report).

There is increasing cooperation between herders, cooperatives, and processing factories that could be fostered through a shared interest in quality improvements that could lead to higher prices. Incentives (such as improved pasture management and collective action institutions) for herders who sell skin and hides are available only to members of the cooperatives, which has strengthened the role of cooperatives in the value chain.

There are few high-quality leather processing centers. There are thirty-four leather processing factories in Mongolia, of which sixteen carry out final processing, two of which produce final leather products while the remainder engage in semi-final solutions. All but two are in Ulaanbaatar. There are also a larger constellation of smaller processors and family businesses. Most factories only process up to the wet blue stage. About 20 percent produce processed leather but this percentage is decreasing due to quality issues linked to resilience, odor and skin damage.

Factories use specialized agents and appointed representatives. They work based on contracts, paying a flat rate for hides and skins delivered by traders. The results of the TTFA survey conducted for this report indicate that:

- Fifty-five percent of the skins and 3.5 percent of the hides are exported, mainly in the form of 'wet blue' hides.
- The demand for sheepskin coats and garments is diminishing due to global warming (according to the survey respondents), whereas market demand for leather garments and other bags has increased.
- Local factories compete against Chinese-owned factories.
- The principal export destinations for goat skins and hides are China, Spain, and Vietnam. For cattle hide, the main destinations are China and Italy.
- The price paid for Mongolian leather exports is about one-third the international price.

Opportunities, Threats, and Policy Options

Mongolian leather producers are more concerned about consolidation of the supply chain than opening of new export markets. Upstream integration can offer leather producers the opportunity to agglomerate supply, reduce wastage, and add more value to the items produced in Mongolia. The leather industry can create export opportunities by applying international standards to the processing, storage, and supply of raw produce. Once international quality standards are met, Mongolia's brand presence can be enhanced, building a foundation for export sales.

The Chinese market seems to offer immediate opportunities for export growth. Mongolian leather currently comprises only 0.13 percent of Chinese bovine leather inputs. The producers expect the Chinese market to exhibit the largest growth in future.

The leather industry has a negative public image in Mongolia. The industry is often identified with generating air, soil, and water pollution. The Ulaanbaatar mayor's office has announced its intention to move factories out of the city in consideration of hygiene and local environmental pollution, though neither a timeline nor modality for this relocation is publicly available. Uncertainty regarding the legality of existing facilities limits the medium-term viability of further investing in production, pending clarification of the final rezoning decision from the mayor's office. The industry may wish to work with the mayor's office to agree on nonpolluting production methods.

Availability of professional skilled labor is limited. Training of such workers could be organized in consultation and with the cooperation of all industry players through the establishment of a Leather Training Institute, based, for instance, on the example of the Ethiopian Leather Industry Development Institute.① The institute could disseminate better handling and preservation techniques to industry players through the training of workers, farmers, and processors.

Summary and Policy Recommendations

The leather industry needs a fundamental upgrade. While the potential for the overall value of leather exports is more limited than that for meat and cashmere, Mongolia's access to the Chinese market represents an attractive opportunity. Unfortunately, low quality of products, lack of local storage, poor access to finance, and undeveloped distribution channels stymie efforts of leather entrepreneurs to turn the leather market around.

Several policy actions could quick results. This could include the following:

- Carry out an awareness campaign for herders, skinners, tanners, and butchers on appropriate flaying techniques.
- Introduce minimum standards for slaughterhouses and promote centralized slaughtering in upgraded facilities that accord with international best practice.
- Seek accreditation of slaughter facilities from veterinary authorities in China and Russia.
- Establish better backward and forward linkages as part of a longer-term strategy for the leather industry.
- Propose production standards with respect to the quality hides and waste elimination.
- Create a Leather Training Institute to deal with the scarcity of professional skilled labor and high wastage from unsatisfactory processing techniques.

① See more on http://elidi.org/

Chapter 6: Summary and Conclusions

Enhanced efficiency of the CEC is vital to improving Mongolia's trade competitiveness and diversifying exports. Mongolia has a comparative advantage in agribusiness, especially in livestock products. Yet its share in worldwide exports of agribusiness commodities is insignificant. This is primarily because the CEC is underutilized and underdeveloped. Understanding why a large, low-cost producer of agribusiness commodities currently occupies such a minor position in the global market is critical to designing a reform strategy to increase Mongolia's exports through an efficient economic corridor.

The report finds that better infrastructure, a stronger regulatory framework, and efficient implementation of existing trade agreements will be key to fully utilizing the CEC's economic potential. The CEC analysis raised questions as to the feasibility of the existing transport infrastructure to support increases in the volume of transport services. Many of the issues to be addressed relate to implementation of existing trade facilitation agreements such as the TFA and the BRI, as well as negotiations over the Tripartite Mechanism. Mongolia will need to agree on transit arrangements for its products, formalize the capacity and procedures related to transshipments on the border with China, negotiate and implement bilateral transport agreements with existing and potential trade partners, disseminate information on the procedures related to border inspections and other routines, and introduce competitive transit fees.

The report also assesses the performance gap of the CEC through an examination of three industries. The three industries—cashmere-wool, meat, and leather—highlight the major challenges that Mongolian producers face in a world where agribusiness depends on a demanding retail industry characterized by tight delivery schedules and high-quality standards, which are more important than tariffs. The analysis shows that Mongolia's comparative advantage has been significantly diluted by weaknesses associated with its economic corridors. Weak growth of agricultural exports has in turn undermined the economic benefits of economic corridors—which grow larger as trade volumes that they channel also enlarge. This vicious circle thwarts Mongolia's development.

The value chains of three industries examined in this report are hampered by multiple problems. They arise, among other reasons, from livestock herding practices that are based on a traditional, low density, open pasture systems, outdated technologies, and information constraints. While the current practices have the advantage of being relatively low cost in terms of inputs, there is an opportunity cost in terms of export opportunities foregone and unutilized capacity. The system fails to provide effective quality control, is subject to losses during periods of extreme weather, and has a very limited period during which the output is available. Lastly, current practices fail to address recurrent problems of disease and overgrazing, with limited governance to improve the quality of inputs.

Cashmere has the advantage of having high value both as an input and in terms of the garments produced from cashmere. This has allowed some of the larger producers to extend their involvement to focus on value-added processing and to diversify their distribution in terms of markets and distribution channels. Recent horizontal consolidation in the industry through the merger of Gobi and Goyo will help establish a brand presence. However, most of the firms have not made these adjustments and produce basic products for sale in the local market or for export to a limited number of markets. To be successful

exporters, these firms must have enough scale as well as quality control and value-added processing. Extending involvement further down the supply chain including customization of products for smaller markets, electronic retailing and new distribution channels for branded products will also key.

Meat supply chains have begun to change through a growing involvement in the transport of animals from the rural area to the factory and in semi-intensive systems for raising animals. However, the outbound supply chains remain the same, with distribution of large orders through a few foreign wholesalers and meat processors. This may be appropriate for the low value density and limited variety of exported goods but will have to change for the meat producers to increase the value and profitability of their products. They will have to be able to handle a wider variety of products, maintain an inventory for year-round productions, and provide more detailed information on the origin and characteristics of their products. To the extent that they also extend their period of processing to increase utilization of their factory, they will require additional storage and lengthen their cash-to-cash cycle, requiring additional working capital.

Other challenges will also need to be resolved. Recurring foot-and-mouth disease and other animal diseases have restricted the availability of products that can be exported. Seasonal availability has limited most firms to processing individual orders rather than longer-term supply contracts. Other firms have incurred the additional cost of maintaining inventory in cold storage for extended periods. The low density of production of animals and the distance from the major markets introduces higher logistics costs for the transport of live animals because rural processing cannot provide the quality of meat needed. In addition, so far, the industry has produced products with relatively low value density and limited profitability. This continues to limit the opportunities for exports. However, there is a growing effort to enhance supply chains based on semi-intensive practices that not only extend the period of availability and allow for better control over animal health but also simplify the logistics and improve overall quality control. Eventually, secondary production clusters will be established nearer to the areas where livestock are currently located, but this will require the development of new corridors that will facilitate distribution of their output.

The leather industry is highly constrained by supply, quality, market, skilled manpower, and finance constraints. The leather supply chain is a nonintegrated chain in the sense that all participants operate independently, and most transactions are arms-length and cash-based. Prices fail to reflect premiums for superior quality inputs. No cross or joint investment exists. Participants seem to be stuck in a low-productivity trap. Technological innovation is minimal, capital equipment is dated or inappropriate, industry restructuring has not occurred, and capacity utilization is low. Any effort to increase the value and profitability of exports will require the development of a more integrated supply chain to increase the quality of the inputs and create economic incentives for production of higher value goods.

The key constraints to the industry are linked to processing and distribution. The technology for basic processing inputs is traditional and the scope for value added processing is limited. As a result, Mongolia's exports tend to be intermediate (rather than finished) goods with a low value density. The production of leather products in Mongolia is limited and focuses on lower-value mass-market goods. It will be necessary to restructure the supply chains to support any effort to increase the value of the leather goods. However, this will also require a significant investment in processing technology.

Overall, efforts to increase agricultural exports should involve several measures. These include changes in the modality of value chain transactions with procurement of the raw materials arranged through contract farming, initial processing arranged through contracts or an integrated firm, and production of products based on many contracts and market sales. This will reduce the amount of wastage in the system, allow veterinary services to be allocated efficiently, and reduce the information asymmetries that reduce the prices paid for raw material from Mongolia.

Annex I. TTFA Concepts and Methodology

This Annex introduces the methodology of the Trade and Transport Facilitation Assessment (TTFA). The TTFA methodology was used in the survey developed as part of this report to analyze the performance of the cashmere, meat and leather industries' value chains. The Annex defines the TTFA methodology, explains the details of the implemented survey and discusses the concept of supply chains.

The Trade and Transport Facilitation Assessment (TTFA) is a tool developed by the World Bank to evaluate the competitiveness of a country's trade and the quality of logistics services used for specific trades. The tool has two components (World Bank, 2010): the first focuses on public policy that affects trade and logistics, while the second examines the performance of supply chains used by importers and exporters. Both components utilize background research and interviews to identify constraints and opportunities related to improving competitiveness and quality of service. The first part of the research employs a series of interviews with key decision makers and associations involved in trade. The second part surveys participants in supply chains for selected trades, including logistics service providers.

The TTFA analysis provides a snapshot of a country's trading environment viewed through the perspective of key industries with future or current export potential. In Mongolia, the selected industries were cashmere-wool, meat and leather. This report parses each industry by its inputs and outputs, analyzes each step of the production process from the production of the raw materials to the transformation into a product that is then exported abroad. The report examines each step of the value chain and provides policy recommendations.

The structure of the survey used in this report was based on a modified TTFA format. Whereas the TTFA is designed primarily to evaluate the quality of logistic services in the supply chains, the survey used in this report focused on the structure of the supply chains and the involvement of the producers in these supply chains.

Within each supply chain, the activities of herders, brokers, shippers and processors were analyzed to determine their impact on the competitiveness of the final traded goods. The analysis focused on the following issues:

- The performance of the supply chains in terms of time, cost and reliability of end-to-end movements.
- The uncertainties associated with individual activities in the supply chain
- The flexibility and transparency of these supply chains
- The transactions generated by these activities and the transfer of risk from these transactions.

The survey explored some of the opportunities for enhancing trade competitiveness. These included:

- Improvements in the organization and control of both inbound and outbound supply chains;
- Increased coordination among supply chain participants;
- Improvements in the performance of logistics services;
- Introduction of value-addition logistics in the supply chains;

- Increased use of ICT to enhance supply chain performance.

The types of initiatives that could be used to support the development of more streamlined and lucrative value chains include:

- Technical assistance from development partners or NGOs
- Standards and contractual relationships with herders and processors
- Financial instruments tailored to specific requirements
- Regulatory reform
- ICT platforms
- Investments in infrastructure

Organization of the Survey

The TTFA survey was conducted in four steps over a six-month period in late 2017 and early 2018. The first step was to review the issues facing the logistics industry and identify commodity specific trades to be surveyed. Four trades were selected based on their size and contribution to the country, both now and in the future. These were:

- Cashmere-wool – a large non-mining industry in which Mongolia has a competitive advantage,
- Leather – a largely diffuse industry with some formal sector exports,
- Meat – the largest agricultural products of Mongolia, operating far below potential.

The second step involved the preparation of survey instruments, mobilization of a survey team, pre-testing and arrangement of field logistics. These were substantially modified to reflect the local country situation as well as the survey objectives. The largest adjustment was to give greater emphasis to interviews with the firms that organize the supply chains and less to the firms that provide the logistics services used in the supply chains.

The survey involved a relatively small stratified sample of firms selected based on the advice of the relevant industry associations. The stratification was based both on the size of the firms and on their success, or lack thereof, in expanding their exports. Semi-structured interviews were conducted with the general manager, financial manager and persons responsible for the supply chain activities in these firms. Structured interviews were also conducted with freight forwarders and customs officials to provide additional insights regarding the challenges of the cross-border movement of exports.

Firms to be interviewed were selected based on their size, market, supply chain structure, track record and accessibility. For each commodity, firms were selected to provide an overview of SMEs active in different segments of the market, in various categories of product and with different levels of integration of their supply chains.

The survey collected data on the basic components of the supply chains, logistic services, financial transactions and exchange of information. These data were used to assess:

- supply chains performance in terms of cost, time reliability,
- demand for logistics services in terms of scale and frequency of shipments
- value and diversity of the goods being shipped, and
- fluctuation in demand and their shelf life.

Data was also collected on the business model used by the producers. Specifically, this included:

- the strategy for achieving competitive advantage,
- the extent of control over the supply of inputs and the sale of products, and
- the transactions involved in organizing their inbound and outbound supply,
- their involvement in the supply chain activities.

Survey's team members were selected according to their familiarity with the commodity-specific trades as well as with trade logistics. A separate team was selected to conduct export interviews for transport and freight-forwarding/customs clearance. The teams participated in a three-day training course that covered the analysis of different aspects of trade logistics and the structure of the survey instruments. The instruments and the interview techniques were pre-tested with a firm not included in the final sample. Although the members of the team were proficient in English, the questionnaires were translated into Mongolian to ensure consistency in the interviews. The survey team was split with each assigned two sectors.

The fieldwork was conducted in two stages. The interviewers were sent on a preliminary interview to ensure a broad understanding of each firm's activities. Three interviews were conducted with each firm, comprising an initial meeting with the general manager to understand the firm's business model, a meeting with the company's logistics manager to discuss the organization of the supply chains. A final meeting with the head of finance provided information about cash flows and financing of the firm's export activities, where relevant. Additional interviews were held with the firm's principal suppliers and buyers. Between the two phases, meetings were held to discuss the preliminary findings and the survey team finalized their notes and prepared preliminary essays to document their findings.

The expert interviews were conducted also with firms providing clearing and forwarding services, transport companies and banks involved in trade finance. This included:

- A consolidated form listing the responses of the firms
- Essays describing problems and possible initiatives for improving performance
- Flowcharts for the supply chains of some of the firms, and
- Cash flows for some of the firms.

The survey findings were combined with earlier efforts to map out the characteristics of each trade. These included the different business models applied, the various configurations of inbound and outbound supply chains, the level of control over the operation of the supply chains exercised by individual firms, the cash-to-cash cycle and financing requirements for different business models, and the availability and performance characteristics of the logistics services used in these supply chains. Based on the results, policy recommendations were developed for both the private and public sector. Preliminary findings were presented at industry workshops followed by a more detailed discussion with the associations representing each of the trades.

The Concept of Supply Chains

The analysis of the supply chains for wool and cashmere, leather and meats are organized around two key concepts. The supply chain (also known as a 'trade') is defined as an inbound supply chain linking production of raw materials with the processing of those materials and an outbound supply chain linking processing with the delivery of products to domestic or foreign markets. The activities in these chains are limited to those controlled by entities in Mongolia. For each trade, the organizing principals (the lead players or firms in each supply chain) were identified. These enterprises connected the inbound

supply chain delivering inputs and the outbound supply chain for the shipment of the products. In most cases, these entities were involved in some transformation of the inputs. The activities of the organizing principal were categorized according to their business model and span of control over both inbound and outbound logistics.

The business model refers to both the transformation performed on the inputs and the characteristics of the outputs produced. The *span of control* refers to their involvement in the activities of the inbound and outbound supply chains. Separate business models were used for manufactured goods and agricultural products. For the manufactured goods, the standard delineation is based on value addition, as shown in Table A.1. This includes not only value addition in physical terms but also in terms of design and marketing of the product. For agricultural products, a similar method is applied where value-added includes the extent of processing. Hence, it distinguishes between traders, suppliers, and distributors, as shown in Table A.2.

Table A. 1: Business models for the manufacturing sector

	Title	Assemble	Produce Components	Procure inputs	Design outputs	Distribute Outputs	Branded products	Buyer
VF	Vendor Factory	√	√					Parent Company
CM	Contact manufacturer	√	√					Buying agent, manufacturer wholesale
OEA	Original Equipment Assembler	√					√	Brand manufacturer, retailer, distributor
OEM	Original Equipment manufacturer	√	√	√			√	
ODM	Own design Manufacturer	√	√	√	√		√	Distributor, Brand Manufacturer
OBM	Brand manufacturer	√	√	√	√	√	√	Distributor Retailer

Source: World Bank 2010

Table A. 2: Business models for the agricultural sector

Category	Trader	Supplier	Distributor
Input	Wool and fiber, minimal processing	Wool and fiber, some processing	Wool and fiber, some processing
Output	Agricultural commodities	Commodities and unbranded food products	Branded and unbranded food products
Processing	Sorting, basic processing, packing	Additional processing and quality control	Industrial processing and packaging
Contracts	Spot	Time, standing orders	P.O
Shipments	Single	Multiple	Continuous
Activity	Seasonal	At least half the year	Year round*
Inventory	Minimum storage for inputs	Storage of input for continuous processing	Storage of input for continuous processing and of output for uninterrupted supply

续表

Category	Trader	Supplier	Distributor
Backward integration		Contracting of inputs. Collection facilities.	Production of inputs.
Forward integration		Distribution and storage	Retail products and food services
Transport	Charter	Charter and scheduled	Scheduled

Source: World Bank

For each of the trades studied, there are a mix of business models and, in most cases, a gradual evolution towards higher value-added. The analysis therefore examines the initiatives required to encourage this evolution. By focusing on the span of control, this study addresses the organization of both the inbound and outbound supply chains. Specifically, it considers the extent of control of the organizing principal over the activities that fall within the supply chains. This will usually increase as the business model evolves to ensure a more regular, reliable flow of goods through the supply chain; improve the quality of inputs; and provide distribution channels for specific markets.

The span of control has two dimensions. First, it focuses on how far the involvement extends upstream in the activities of inbound supply chains and downstream in the activities of outbound supply chains; and second, it analyzes the mechanism used to control these activities. Generally, there are a range of mechanisms ranging from direct involvement through investment and operational control to restructuring the transactions with the providers of these activities. The latter mechanism includes among others how to simplify the transactions, improve the enforcement of contracts, and provide more flexible financial terms to ensure reasonable distribution of the benefits among the participants in the supply chains.

Supply Chains, Span of Control, Transactions

Initiatives to improve the production and export of agricultural products can be separated into three elements. These include individual efforts to improve the production of inputs, the processing of these inputs and their delivery to the final market. However, their impact is best understood by considering the effect on the interaction between the activities and how the supply chain can be restructured to improve both the quality of delivered products and their distribution to different markets.①

The coordination of the activities in the supply chain is accomplished through the transactions between the parties involved. These transactions have both financial and informational components. The form of transaction determines the extent of control the buyer has over these activities.

Supply chain structure

The general structure of a supply chain is shown in Figure 5 in the main report. The center line connects the physical components of the supply chain. These include the assets and services used for collection and distribution of goods as well as for intermediate processing and storage. The upper-end lower lines represent the financial flows and exchange of information between the participants in the

① While a more common approach is to examine the value chain, the supply chain provides a better understanding of the effects of improvements in time and reliability on product value as well as the method of implementing these improvements

supply chain. The financial flows are primarily upstream (right to left) from the buyers of the services and goods to the supplier. However, there may also be downstream flows of credit. The exchange of information is bidirectional with buyers informing suppliers of requirements in terms of quantity, quality, timing and price and suppliers informing buyers of the characteristics, condition and quantity of the goods delivered.

The supply chain framework becomes more complex as the number of suppliers of inputs and buyers of products increases. It also becomes more elaborate as the processing activity is divided into sequential and parallel activities performed in different locations. In the case of Mongolia's agricultural exports, the processing activities are relatively concentrated and the buyers of its products rather limited, but the supply of inputs involves several different parties. Concentrating the supply of inputs will lead to efficiencies that would lead to process improvements and an expanded number of buyers.

Supply Chains

The design of the supply chains evolves along with the production activity and is strongly linked to increasing value of the final product. Modifications of inbound supply chains are made to increase reliability in terms of availability and quality control while modifications in outbound supply chains are made to increase not only the scale and variety of goods that can be supplied but also to accommodate different distribution channels and market segments. In both cases, the producers will increase their involvement in the activities in the supply chain. They have already increased their involvement through the use of buyer's representatives, supply contracts and prices based on quality as well as quantity and collection of information on the origin and condition of the animals. Table A. 3 shows the relative importance of factors affecting the supply chains of the three selected industries.

Table A. 3: Relative Importance of the Factors Affecting the Design of Supply Chains

	Meat	Cashmere Wool	Leather
Value density	L	H	L
Potential for product diversification	M	H	M
Perishability of inputs	•••		
Shelf life of products	•••		•
Seasonality of supply of inputs	•••	••	••
Seasonality of demand for products		••	•
Volatility of price of inputs due to supply	•••	••	
Volatility of price of products due to competition	••	•	
Price as a function of quality of inputs		••	••
Price as a function of added processing	•••	•••	•••
Importance of certification	•••	••	
Importance of location of production	•••	•••	
Importance of branding	••	•••	•
Potential to capture downstream processing	•••	••	•••
Potential for customization	•••	•••	
Importance of delivery time	•••	•	•
Importance of order fulfilment	••	••	•

Source: World Bank 2017

The economic corridor supports the development of the facilities for agricultural exports. It provides good access to the land borders and air transport gateways. It also provides a favorable environment for production including public services, a wider variety of logistics and related services, better access to market information, and more options for financial transactions. The corridor supports the formation of production clusters by serving as a nexus for the aggregation of inputs and distribution of goods produced.

These clusters provide the scale necessary to compete in international markets. Most of the production clusters for cashmere, meat and leather products are located in the area around Ulaanbaatar, however there are some other clusters in close proximity to the corridor such as Darkhan and Erdenet. The high cost of delivery from the rural areas creates an incentive to locate in areas that enjoy good road access to the corridor.

Transactions and Organization

There are three basic modalities for organizing the transactions used to manage the physical flows in the supply chain and the complementary flows of finance and information. The first is to utilize market intermediaries for arranging the transactions between buyers and sellers. The second is to negotiate contracts directly between the buyers and sellers. The third is by incorporating both the buyer and seller into a single organization, either a firm or the subsidiaries of a firm. The choice among these alternatives depends on the predictability of the supplied inputs and the demand for products. If demand is uncertain but the supply of inputs is relatively reliable, then the transaction will be done through the market. However, if the demand is relatively certain but the supplier of inputs is unreliable, then the transactions will be done through contracts or through an integration of the buyer and seller into a single entity.

A second factor relates to the resources required for each transaction. If they are special-purpose resources, e.g. specific technical skills, customized equipment, etc. that have few alternative uses, then transactions will be done by contract or intra-firm integration. A third factor is the frequency of transactions. If there are many transactions, there will be a tendency to use contracts to minimize the costs of individual transaction. However, this factor becomes less important when these transactions are implemented electronically.

For agricultural exports, the uncertainty of demand has undermined the performance of supply chains. The transactions for procurement of raw wool, cashmere and animals are done through local markets called *aimags,* slaughtering of animals, removal of the skin/hides, and preparation of cashmere/wool fibers take place physically in the market, and production for exports are primarily based on a few large contracts. This cumbersome and largely unregulated process implies that markets are unable to meet the demands of sophisticated buyers in China and Russia and that therefore that Mongolian producers are unable to extract the most profit from their sales.

Efforts to increase agricultural exports should involve improved procurement mechanisms. The improvements should focus on the procurement of the raw materials through contract farming, initial processing arranged through contracts or an integrated firm, and production of products based on a large number of contracts and market sales. This will reduce the amount of wastage in the system, allow veterinary services to be allocated efficiently and reduce the information asymmetries that reduce the prices paid for raw material from Mongolia.

Most current production of commodities is based on fixed orders. Without adequate storage or adequate access to finance, processors buy and sell the raw commodities based on existing orders. The producers have no savings buffer that would allow them to increase the transformation that takes place

in their facilities, nor to store goods between seasons. This finance and lack of capacity exaggerates the seasonality of agribusiness, rendering the local market vulnerable to external shocks. A more robust supply chain would feature an increasing proportion of orders placed in inventory based on projected demand and sold through distributors and e-markets.

Span of control

In the case of manufactured goods there is an opportunity to extend input to upstream and downstream value-added activities to increase value add. The end point of processing is the vendor factory, which provides production services for its clients. The maximum participation encompasses the design of the products and procurement of the inputs as well as the brand name products within the remit of those distribution channels. In the case of Mongolia's agricultural exports, the most important decision regarding span of control is how far upstream should the span of control be extended to ensure the quality and availability of inputs.

For higher value goods, it is important to capture the maximum value add in final goods. In contrast, there is less incentive for expanding the span of control for production of intermediate goods. The span of control can be increased by replacing intermediaries with direct contract arrangements and direct involvement of the purchasing firm in the production process.

Bibliography

ADB (Asian Development Bank). 2006. Trade Facilitation and Logistics Development Strategy Report, Project Number: TA-6058 (REG), December.

---------. 2008a. Evaluation Study: Transport and Trade Facilitation–Potential for Better Synergies in Mongolia. SAP: MON 2008-26, July.

---------. 2008b. "Transport and Trade Facilitation–Potential for Better Synergies in Mongolia." July.

---------. 2010a. Concept Paper, Project 41192: Proposed Regional Logistics Development Project, October.

---------. 2010b. "Regional Logistics Development Project—Component 2 Zamyn Uud Logistics Center." Project Number: TA 7110-MON, December. Economic Analysis: Regional Logistics Development Project (RRP MON 41192-01).

---------. 2011. Feasibility Study of UBLC, Ver. 3.1, December.

---------. 2012. Cluster Development Study: Meat, Cashmere-wool, Sea Buckthorn, and Tourism.

---------. 2014. Rail Infrastructure Tariffs. Enabling Private Sector Development in Mongolia's Railway Sector.

Arnold, John. 2011. "Report on Proposed Multimodal Terminal in Ulaanbaatar." Prepared for Asian Development Bank, September.

Arvis, Jean-François, Monica Alina Mustra, Lauri Ojala, Ben Shepherd, and Daniel Saslavsky. 2010. Connecting to Compete 2010: Trade Logistics in the Global Economy: The Logistics Performance Index and its Indicators. Washington DC: World Bank.

Bartley Johns, Marcus; Clarke, Julian Latimer; Kerswell, Clay; Mclinden, Gerard. 2018. Trade Facilitation Challenges and Reform Priorities for Maximizing the Impact of the Belt and Road Initiative (English). MTI discussion paper; No. 4. Washington, D.C.: World Bank Group.

Campi, Alicia. 2014. "Transforming Mongolia-Russia-China Relations: The Dushanbe Trilateral Summit." *The Asia-Pacific Journal*, November 3.

CAREC (Central Asia Regional Economic Cooperation Trade Facilitation). 2015. "Corridor Performance Measurement Monitoring: Annual Report 2015."

Davydenko, I., Maxta I. Landa, R. Martens, N. Nesterova, T. Wark, R. Behrens, A. Burgess, M. Roggenkamp, Crollius A. Roest, and N. Wagener. 2012. "Potential for Eurasia Land Bridge Corridors & Logistics Developments along the Corridors." EU Commission Retrack Project. Dugerjav, G. 2012. "Cross-Border Trade and Transport Infrastructure Development in NEA." Powerpoint presentation.

FAO (Food and Agricultural Organization). 2013. Botswana Agri-food Value Chain Project: Beef Value Chain Study. FAO and Ministry of Agriculture, Botswana.

---------. 2017. "Enhancing Meat Exports for Mongolia." Prepared under the Standards and Trade Development Facility (STDF). Project No. STDF/PPG/534.

IBRD (International Bank for Reconstruction and Development). 2009. "Mongolia Trade and Transport Facilitation Action Plan." Draft, January 20.

JICA (Japan International Cooperation Agency). 2015. "Data Collection Survey on the Regional

Comprehensive Development in Mongolia." September.

Mitra, Sabyasachi, Rana Hasan, Manoj Sharma, Hoe Yun Jeong, Manish Sharma, and Arindam Guha. 2016. *Scaling New Heights. Vizag-Chennai Industrial Corridor. India's First Coastal Corridor*. Asian Development Bank.

MRTCUD (Ministry of Roads, Transportation, Construction and Urban Development), Mongolia. 2009. "Road, Transport Industry of Mongolia."

Munguntuya, Kh. 2012. "Development of Zamyn-Uud as the Freight Logistics Multimodal Terminal." MRTCUD, PowerPoint presentation.

Northern Railways Group. 2015. "A Strategic Rail Infrastructure Company Creating an Important Rail Link Between China and Russia." December.

Raj Jain. S. 2014. Regional meeting for Cooperation on Facilitation of International Railway Transport. Economic and Social Commission for Asia and Pacific, Bangkok, Thailand.

Racine, Jean-Louis. 2011. Harnessing Quality for Global Competitiveness in Eastern Europe and Central Asia. World Bank. World Bank.

Rasmussen, Debra and Charles Annor-Frempongs. 2015. "Mongolia Agricultural Productivity and Marketing". World Bank, Washington, DC.

Roberts, Mark, Martin Melecky, Theophile Bougna, and Yan Xu. 2018. "Transport Corridors and Their Wider Economic Benefits. A Critical Review of the Literature." Policy Research Working Paper 8302, World Bank, Washington, DC.

Sequeira, Sandra, Olivier Hartmann, and Charles Kunaka. 2014. *Reviving Trade Routes: Evidence from the Maputo Corridor*. Discussion Paper 14, World Bank, Washington, DC. November.

Unitra Consulting LLC. 2007. "Ulaanbaatar Terminal Project."

USAID (United States Agency for International Development). 2008. "Pre-Feasibility Analysis to Establish Logistics Facilities in Zamyn Uud, Mongolia." April.

World Bank. 2010. "Trade and Transport Facilitation Assessment: A Practical Toolkit for Country Implementation." World Bank, Washington, DC.

---------. 2014. "Improving Trade Competitiveness in Cambodia: An Analysis Using a Trade and Transport Facilitation Assessment (TTFA)." World Bank Group, Washington, DC.

---------. 2018. "Mongolia Economic Corridor Assessment". The World Bank, background paper.

World Bank and NMI. 2018. "Ensuring Quality to Access Global Markets: A Reform Toolkit". The World Bank and National Metrology Institute of Germany. From: http://www.worldbank.org/en/topic/competitiveness/brief/qi

WTO (World Trade Organization). 2015. *World Trade Report*. Geneva: WTO.

Cashmere-wool

Shelley, Barry. 2011. "Case Study on Potential for Scaling Up: 'Value Chain Development for Textile Projects' in Mongolia." World Bank, October.

Lee, Yueh-Hua, Lo Hui-Chiung and Enkhgerel Enkhtuvshin. 2010. "A Study of Value Delivery System in Mongolian Cashmere Industry: From Brand Equity Perspective." *International Journal of Reliability and Quality Performance* 2 (2, July−December): 107−118.

USAID (United States Agency for International Development). 2005. "A Value Chain Analysis of ohe Mongolian Cashmere Industry." May.

UNIFEM (United Nations Development Fund for Women). 2004. "Cashmere Value Chain: Participation of Women and Men."

World Bank. 2002. "Mongolia Cashmere Trade Policy." World Bank, October.

Livestock, Meat

Artangeral, Khulan. 2014. "Mongolia's Meat Supply Chain Management: Benchmarking with Australian Meat Supply Chain." School of Management and Economics, a PowerPoint presentation.

Ganbat, Bilguun. 2011. "Meat Industry Literature Study—Mongolia." July, https://prezi.com/xw7ax_qkcltx/meat-industry-literature-study-mongolia/?webgl=0.

Grams, J., and D. Roland-Holst. 2014. "Report on Ruminant Supply Chains in Mongolia: A Preliminary Assessment of Strategies for Improving Returns, Risk Management, and Productivity" Food and Agricultural Organization (FAO).

IFAD (International Fund for Agricultural Development). 2016. "Mongolia: Project for Market and Pasture Management Development (PMPMD)." July. SDC (Spell out). 2015. "Final Report on the Study of Value Chains for Live Animals/Meat and Hides/Skins in Mongolia." July.

World Bank. 2009a. "Clusters for Competitiveness: A Practical Guide & Policy Implications for Developing Cluster Initiatives."

---------. 2009b. "Mongolia: Livestock Industry Study." Vol. 1, September.

---------. 2017. "Mongolia's Red Meat Value Chain: Towards Increasing Exports to China and Other Key Markets." Policy Note, February.

FAPRI-ISU (Food and Agricultural Policy Research Institute). 2011. World Agricultural Outlook, Re: Meat. Retrieved from: http://www.fapri.iastate.edu/outlook/2011/tables/6_livestock.pdf


WORLD BANK GROUP