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Developing an Export Roadmap for Mongolian Dairy Products: A Time–Cost Analysis

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Abstract

Dairy production within herder communities engaged in Mongolian pastoral livestock husbandry constitutes a pivotal aspect of the overall livestock production system. Nevertheless, despite its significance, dairy production has been comparatively underemphasized, particularly in light of the rapid increase of livestock population, following the meat and fiber production in recent years. The purpose of the study is to develop an export roadmap and identify opportunities and ways to further improve it based on a time and cost analysis of the cost of exporting value-added products from Mongolia to foreign markets. Within the framework of the research, a roadmap for the export of dairy products was developed. The timing and cost of the shipping and payment process were estimated and the export roadmap was illustrated using the As-Is analysis methodology. The To BE analysis was conducted by developing ways to facilitate and simplify the export process for dairy product, with the basis of the feedback from the survey stakeholders and the research results. The exporters spend a total of 216 hours and MNT 638,200 on dealing with 9 public and private organizations interacting 12 times during export documentation, customs inspections and other relevant laboratory tests. Due to the lack of integrated information technology policy, management and human resources in Mongolia, as well as the lack of coordination and integration of systems used by government agencies, insufficient level of use.

Keywords: Export process, time-cost tradeoff, AS-IS analysis, custom, milk, cost

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Introduction

World milk production has increased by 187% from 507.7 million tons in 1993 to 950 tons in 2023, which is important for improving child nutrition and supporting livelihoods of the herders and farmers especially in developing countries (Phelan, 1994; FAO, 2023).

There are 206 dairy factories and workshops (seasonal), and 77 refrigeration centers have been operated in Mongolia as of 2021, employing around 1,680 people; and the annual installed

capacity of the milk processing industry is 400 thousand tons per year, however, only 51% of its capacity is utilized according to the Ministry of Food, Agriculture, and Light Industry of Mongolia (MOFALI, 2023).

Exports of liquid milk, sour cream, condensed milk and whey are unsustainable. However, the export of butter, cheese and curd has increased in the last 5 years. In 2020, 199.3 tons of yogurt, dairy products and 42.1 tons of cheese and curd were exported, accounting for 99.9 percent of total exports of milk and dairy products according to statistics of Mongolian Customs General Administration (MCGA, 2024).

In 2020, Mongolia earned 227.2 thousand USD by exporting cheese, curd, USD 119.5 thousand from the export of yogurt, dairy products, and USD 2.4 thousand from butter export (MCGA, 2024). At present, the number and variety of Mongolia's dairy exports are small. In order to produce and export a mixture of cheese, curd and fruit and dairy products in the future, it is necessary to study the potential foreign markets (MCGA, 2024).

Annex to the Resolution No. 304 of the Government of Mongolia of 2011 "Technical regulations for milk production and trade" MNTR 2: 2011 fully reflects the requirements for milk and dairy products and their production.

Within the framework of the "Technical Regulations for Production and Trade of Dairy Products", a comprehensive set of technical requirements for transportation, storage and processing of milk and dairy products, industrial buildings and types of dairy products has been developed.

There are no additional documents required by the Mongolian side beyond the requirements of foreign countries, but the import requirements and permitting procedures of some countries are different from those of Mongolia.

The purpose of the study is to develop an export roadmap and identify opportunities and ways to further improve it based on a time and cost analysis of the cost of exporting value-added products from Mongolia to foreign markets. Within the framework of the research, a roadmap for the export of dairy products was developed in case of "Global Nomadic Products" LLC.

The hypothesis of the research is that dairy product exporting companies face many barriers in the process of exporting their products.

Globally, gravity-type variables of trade such as level of development (Fugazza & Molina, 2016), distance and income (Sun & Zhang, 2018), evidence concerning the pattern of New Zealand dairy exports duration and survival from 1989 to 2017 (Luo & Bano, 2020) and The incidence and duration of import relationships are consistent with a search model of international trade (Besedeš, 2008).

In case of Mongolia, recent studies focuses on economics, management, and marketing in the field of dairy sector (Dagiimaa, 2020; Dorjsuren, 2016; Otgonsuren & Munkhbayasgalan, 2015). However, there is no scientific article on the export process of dairy products.

The Mongolian National Chamber of Commerce and Industry (MNCCI) and Industry and EU TRAM Project team conducted a survey for exploring of Mongolian Export Roadmap in 2019 (MNCCI, 2019). Their survey result indicated that it is required to obtain 11 documents to export from Mongolia while OECD countries require 4 documents for export, which weakens Mongolian exporters' competitiveness (MNCCI, 2019).

There have been surveys done on export roadmaps by the World Bank and MNCCI, but there is no coordinated research on dairy product export roadmaps by importing countries' standards and requirements.

This research is intended to carry out a practical study to support the activities of dairy products exporting enterprise and thus increase the income from value added products' export of Mongolia. For this reason, a time and cost estimation was carried out at each of the three levels of the export process: the documentation process, the process at the border, and the process of receiving payment.

By examining the current process of the export and identifying the problems and barriers, a new export roadmap and process model is proposed to facilitate the export process in the future in case of dairy products.

Based on the results of the research work, this paper was completed with an abstract, introduction, research methodology, materials, research results, discussion, conclusion, and bibliography.

Methods

Two hypotheses were proposed in the study. First, the multiple steps and documentation in the export process are burdensome for exporters. Second, Mongolia's export process differs from that of importing countries, requiring more documentation than importers want.

In order to determine the current situation and barriers of the export process, in addition desk review of the laws, rules and regulations documents from official sources, and using the research methods of follow-up studies, tracking, observation and interview in the process of exporting dairy products of "Global Nomadic Products" LLC.

The accuracy of the data was verified by collecting source data from as many participants as possible and comparing the data by triangulation (UNAIDS, 2010). The structuring method (content analysis) was used to analyze the nature and dynamics of the process and procedure. The observation method was used to perform a qualitative analysis of the export of dairy products.

In first quarter of 2025, comparing to last year, import increased by 2.9 percent whereas export decreased by 18.0 percent. The output of agricultural products such as milk, flour, cashmere, and hides/skins has decreased (MED, 2025).

A dynamic study on the export of dairy products was conducted for the period of 2006-2020. A list of documents required for obtaining export certificates and permits to export dairy products is prepared, and the time and cost of these documents compliance preparation are estimated, as well as border compliance and customs procedures. The timing and cost of the shipping and payment process were estimated and the export roadmap was illustrated using the As-Is analysis methodology (Cheung & Bal, 1998; Ramasamy, 2010). Process analysis (As-Is) or current state analysis is a process management analysis that identifies and evaluates current business processes (Rintamäki, 2013).

The To BE analysis was conducted by developing ways to facilitate and simplify the export process for dairy product of the target sectors, with the basis of the feedback from the survey stakeholders and the research results (Ramasamy, 2010). Future process mapping identifies solutions to the problems identified in the analysis. When developing a new process map, the

cost-effective and economically efficient option is chosen. The feature of this method is to propose solutions to facilitate the export process after determining the current situation and problems based on the results of As-Is analysis. The TO BE analysis estimates potential time and cost savings to facilitate the export process of dairy products, and offers proposals to eliminate duplication of documentation.

The research object, "Global Nomadic Products" LLC, processes yak milk in a factory that meets international hygiene and quality standards, and produces butter and ghee for the world market. Also, successfully exporting yak butter in cooperation with Gold Nugget Ghee in the United States. The research is focused on the following types of export products. Herein: Butter, Dried cheese and Whey protein.

Results

Export documentary compliance process

Product samples will be analyzed in the country of export, as well as for domestic approval and certification. After all the documents are submitted, an inspector will be appointed by the Ministry of Food, Agriculture and Light Industry (MOFALI) (it used to be Mongolian State Inspection Agency–MSIA). Inspections shall be conducted jointly by a customs inspector and a professional inspector. Once the export product has been sealed, shipment from inland customs will begin.

Table 1. Time and cost of paperwork for exporting milk and dairy products

Steps	Responsible body*	Duration of work (Hours)							Cost (MNT)
		24	48	72	96	120	144	168	
Sales contract	Exporter	+							
Invoice	Exporter	+							
List of packaging	Exporter	+							
Request a sample to be tested	MOFALI		+						
Sample analysis	SCVLM		+	+	+	+			124,000
Domestic veterinary certificate	LPVU					+	+		12,500
International veterinary certificate	GAVS						+		12,500
Certificate of conformity	MASM						+ (2hrs)		79,000
Certificate of origin	MNCCI						+ (2hrs)		40,000
Veterinary, sanitary and export certificate	MCGA						+	+	12,500
Reigister amount of export in custom's database	MCGA							+	
Transportation documents	Logistics company							+	320,000
TOTAL COST									**600,500**

Source: Authors' estimation based on a case study of "Global Nomadic Products " LLC

Note: *MOFALI- Ministry of Food, Agriculture and Light Industry; SCVL-State Central Veterinary Laboratory of Mongolia; LPVU-local primary veterinary units; GAVS-General Authority for Veterinary Services; MASM-Mongolian Agency for Standardization and Metrology; and MNCCI-Mongolian National Chamber of Commerce and Industry;

168 hours and 600,500₮ are spent on the preparation of export documents for milk and dairy products. Following the completion of this study, the customs documentation system transitioned to an electronic system. Electronic single-window systems can reduce procedural and documentary trade frictions and improve trade performance. Cross-country evidence from 176 countries over 1995–2017 shows that functioning single-window systems are associated with an estimated 37% increase in total trade between partner countries, of which 23 percentage points correspond to exports and 14 percentage points to imports (Martínez-Zarzoso & Chelala, 2020).

Border and customs compliance process

The process at the border for the export of milk and dairy products are consist of following process: to order the carrier to prepare the goods for shipment, to prepare the transport documents, to declare to the customs, to enter the customs zone by the authorized carrier, to inspect the goods and means of transport, to check the customs documents, to impose taxes and

fees, payment of customs and other taxes and fees, verification and confirmation of paid taxes and fees, inspection and sealing of goods and means of transport by the Customs and Border Inspection Service, issuance of export notification by the Border Inspection Service and permission to cross the Customs border.

Table 2. Processes at the border and customs of milk and dairy products

Steps	Responsible body	Duration of work (Hours)			Cost (MNT)
		24	48	72	
Declare to customs	Customs broker	+			0
Customs clearance: Assessment, document review, pay taxes, get the R number	Customs	+			22,500
Customs physical inspection: Participate in a real exam, Obtaining an export permit	Customs	+	+		8,200
Customs inspection	Authorities other than customs			+	7,000
TOTAL COST					**37,700**

Source: Authors, based on a case study of "Global Nomadic Products " LLC

An average of 48 hours and MNT 37,700 are spent on the customs process of exporting dairy products. The cost of documentation (168 hours, MNT 600,500) and border inspection (48 hours, MNT 37,700), for a total of 216 hours and MNT 638,200.

Shipping and payment process

Dairy products are considered perishable products. There are norms for transporting this type of cargo. It is necessary to create suitable temperature conditions for transportation, to comply with storage, packaging and hygiene requirements, and to be guided by the requirements of veterinary and sanitary organizations. After delivery, the container must be thoroughly cleaned.

In exporting dairy products, all types of vehicles are used for export, such as road, air and sea transportation. These transportation costs are analyzed for each country and for each type of vehicle and included. Payment transfer fees vary from country to country, but on average it takes 24-96 hours (1-4 days) to pay 4.76%, while the Interbank fee is USD 20-35. It takes 244 hours in Japan, MNT 13,458,700 in the United States, 244 hours, and MNT 16,307,700 to reach yard of a foreign importer.

The cost of exporting dairy products to Mongolia does not differ from country to country, but is the same, and the cost per ton is calculated by adding the costs of foreign and

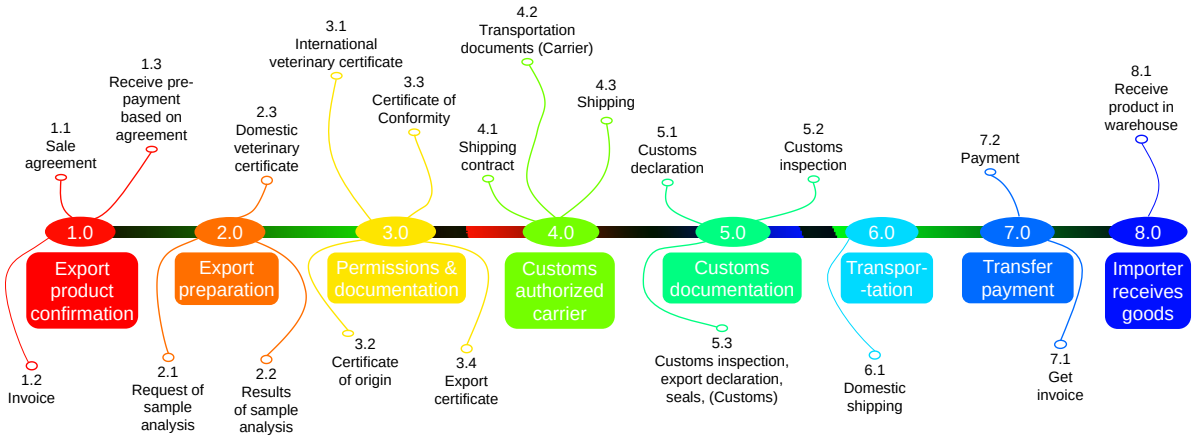
domestic transportation and meeting the import requirements of foreign countries. When calculating the average cost of a commonly used vehicle, the average cost of exporting a ton of dairy products is MNT 8.2 millions for exports to the United States and MNT 1.3 millions for exports to Japan.

Export roadmap

Exporting goods to international markets is a wide-ranging and multi-faceted process that requires a wide range of laws and regulations to be applied to or used by a country or international trade entity in the first instance. After careful study of procedures, conventions and agreements, exports through transport and logistics organizations appear to be more efficient and less risky. Although the world is globalizing, each country has its own export requirements and criteria, which in some cases have a negative impact on exports. There is a high risk of default, so it is important to be familiar with the terms of international payments, such as letters of credit.

The figure summarizes the process of obtaining an export certificate and permit, as well as the steps of customs inspection, transportation and payment.

Figure 1. Roadmap for the export of milk and dairy products



Source: Authors, based on a case study of "Global Nomadic Products " LLC

Table 3. Estimation of costs in the process of export of milk and dairy products

Countries to export from Mongolia to	Cost of export process in Mongolia (MNT)	Transportation cost (MNT)	Total cost (MNT)
to USA	638,200	15,669,500 (2 tons)	16,307,700
to Japan	638,200	12,820,500 (10 tons)	13,458,700

Source: Authors, based on a case study of "Global Nomadic Products " LLC

638.2 thousand MNT is spent for 10 days in the process of exporting dairy products. However, there is no increase in costs in line with foreign requirements.

In order to become an “E-nation”, Mongolia has defined its digital transition policy and established the “E-Mongolia” unified portal to digitalize public services in the first place. By making the e-transition as fast as possible and digitalizing public services, we will be able to deliver transparent and open public services.

Table 4. Duplicate documents required for export certificates and permits for dairy products

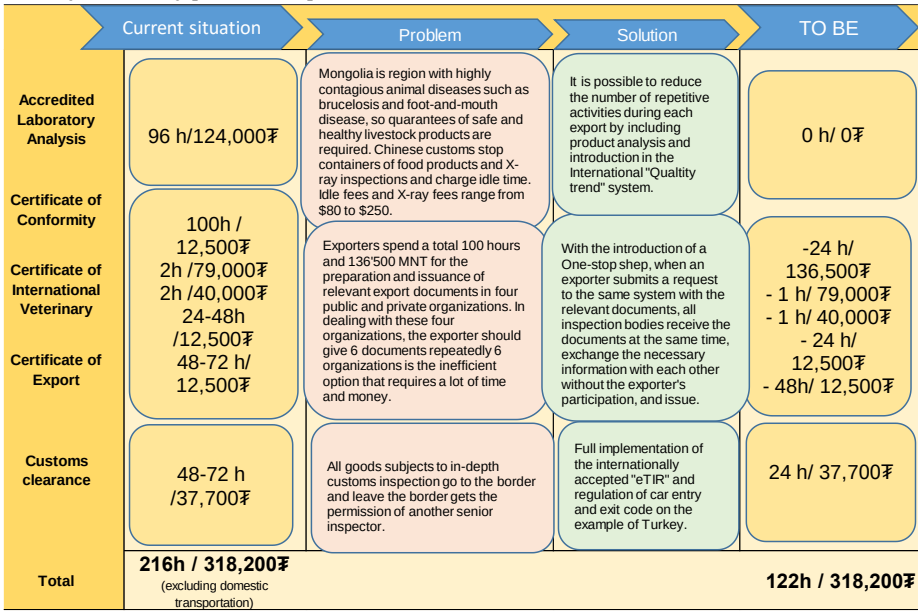
№	List of documents	MASM (Certificate of Conformity-7 documents)	MNCCI (Certificate of origin-5 documents)	GAVS (International veterinary certificate-6 documents)	MSIA (Export certificate-9 documents)	Duplication
1	Factory profile / Number, name, address and location of the processing industry			+		2
2	Trade agreement / Foreign trade agreement / Sale agreement	+	+	+	+	5
3	State Certificate of Registration	+ Notary	+	+	+	4
4	Application	+	+			2
5	Product quantity and price declaration / Price invoice, packaging list /	+	+		+	3
6	Results of accredited laboratory tests of products / Veterinary laboratory conclusions of animals, their raw materials and products	+		+		2
7	License issued by a professional organization (if required) / Copy of license, quality and hygiene certificate for the product	+	+			2
8	Information on types, quantities, processing, packaging, labeling and safety of animals and their raw materials			+		1
9	Types of vehicles transporting livestock, their raw materials and products, route, name and date of border crossing			+		1
10	Strategic food export permits and export quantities				+	1
11	State inspector's record of sampling				+	1
12	International veterinary certificate				+	1
13	A copy of the registration of the product in the country of export				+	1
14	Receipt of state stamp duty payment / copy of service payment receipt	+			+	2

Source: Authors, based on MASM, MNCCI, GAVS and SIA’s rules and procedure of dairy products’ export

In order to reduce business risks, small and medium-sized domestic companies are proposing to work together rather than one-on-one, to introduce a national one-stop shop for e-commerce in the near future, and to create a legal environment to regulate stakeholder rights, e-process steps and relationships.

The proposal to facilitate the export process of dairy products by the To Be analysis methodology is shown in the following figure.

Figure 2. "To Be" analysis of dairy products export



Source: Authors
Note: ₮ means MNT, Mongolian National Tugrik currency

By making certain improvements in the export documentation and customs control of dairy products, it is possible to reduce the total time spent on exports from 216 hours to 122 hours.

Discussion

"Mongolian Export Roadmap" survey was previously published by Mongolian National Chamber of Commerce and Industry and EU TRAM Project team in 2019. The handbook indicated that it is required to obtain 11 documents to export from Mongolia while OECD countries require 4 documents for export, which weakens Mongolian exporters' competitiveness (MNCCI, 2019).

The survey estimates that in order to obtain 11 documents, exporters spend approximately 168 hours and reportedly face obstacles of bureacracies at each stage from government agencies that are involved in the processes (MNCCI, 2019).

However, in the case of a DAP agreement with Asian countries, the exporter is responsible for the insurance and transportation costs of the goods, and the importer transfers the payment to the exporter after receiving the goods. Due to its proximity to China, transportation and payment transfer times are shorter than in other countries (World Bank, 2020). The transition to an electronic single window system for foreign trade has no significant improvement in reducing time spent on imports, but it will save time that was not considered in the World Bank's methodology. For example, in UB, it is estimated that it takes at least 4 hours to travel from the production area to the customs office to declare import customs due to traffic congestion. With that taken into account, the digital transitioning process has significant importance for the system as a whole (Policy Solutions NGO, 2021).

Conclusions

The exporters spend a total of 216 hours and MNT 638,200 (including domestic transportation documents) on dealing with 9 public and private organizations interacting 12 times during export documentation, customs inspections and other relevant laboratory tests. It an be concluded that when dealing with these nine organizations, the repetitive process of requiring 5-6 same documents by 5-6 organizations is an inefficient option that wastes huge amount of time and cost not only for the exporter but also for the entire system.

The control phase takes place on only 2 inspectors, but the request transfer phase goes by 8 processes through hands of 6 individuals. Also, the (approved) decision is passed to the exporter after 5 steps through the hands of 3 individuals. The legally allowed deadline for the process is 14 days, but for experienced exporters it takes 3-5 days, according to the study. However, about 20-25 percent of the total time is spent on actual inspections and decision-making, and the remaining 75-80 percent is of little importance in decisions such as requests and decisions handling, transferring, documentation, registration, and appointments.

Due to the lack of integrated information technology policy, management and human resources in Mongolia, as well as the lack of coordination and integration of systems used by Government agencies, insufficient level of use, poor planning of user requirements from the beginning, no on-going software development affects the overall inefficiency and inefficiency, which also affects the development of foreign trade.

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