THE ROLE OF SOCIAL ENTERPRISE IN THE COMPETITIVENESS OF AGRICULTURE IN MONGOLIA: A HONEY INDUSTRY CASE STUDY

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By

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ABSTRACT

The agricultural sector plays a significant role in the Mongolian economy, both in revenue generation and employment. High level of poverty in rural area, low access to financial products, underdeveloped infrastructure and low competitiveness are the main constraints to the development of agriculture sector of Mongolia. In order to address those problems, the Government of Mongolia has been increasingly implementing various steps and measures for its promotion purposes. This paper argues that creation of social enterprises based on value chain approach can partially playing an important role to address those problems. Since agriculture sector largely interconnects with environmental and social impact, it is required to develop in a sustainable way. In that sense, everyone in each chain must be with social-mission.

To support that argument, author provides analysis of selected competitiveness theories of agriculture, RCA index calculation of Mongolian honey industry competitiveness, value chain analysis on honey industry of Mongolia which was defined as export – oriented agricultural product for the purpose of identifying main actors and constraints inside of industry along with the value chain approach method and an examination of international experience on agriculture development approaches based on innovation and enterprenuership. Additionally, the author presents a case study of Saranagoods LLC, a Mongolian social enterprise for-profit working to offer solutions in post-harvest part of honey production value chain and support employment of rural communities. In 21st century, cross-sectoral collarotaed the social enterprises with social mission along

with value chain vertical integration would be the competitive and positive impact makers both in economic growth and strategy of sustainability.

BIOGRAPHICAL SKETCH

Naranzul Lkhagvasuren is a momprenuer and investment officer with over eleven years' experiences persuing financial and social outcomes through impact investment in non-mining small and medium enterprises in Mongolia.

Naranzul was motivated to pursue her Cornell University Masters of Professional Studies in International Development because of her strong desire to contribute to a more sustainable and inclusive agrifood system affected by her personal involvement as a founder of honey business and supporting cooperative market in Mongolia.

Before beginning her academic journey at Cornell, Naranzul Lkhagvasuren was Chief Operational Officer at the Pterovis Venture Capital which was the first impact investment firm in Mongolia, where she evaluated the operational and social performance of a portfolio in non-mining sectors. At the same time, she had managed her invested Saranagoods LLC which is social enterprise in honey industry of Mongolia.

Naranzul started her career in UNFAO "Partcipatory Forest Management" project in Mongolia where she has learned and motivated to work with rural communities for their income generation and holds bachelor degree in International Economic Relations

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DEDICATION

To my lovely grandma, parents and lovely family, for all of your endless love!

To all honeybees in the world for your gifted service to humankind.

Thank you.

ACKNOWLEDGEMENTS

I thank my lovely family, especially my parents, siblings and three members who are part of my life for encouraging me to undertake this great journey at Cornell University. This year was never forgetable in my life because the amazing academic environment and sleepless nights have been learned me how I could continue my next journey into the right direction with positive impact.

Also, I would like to express my gratitude to Lori and Terry for their great warm welcomes and timely consultants. You were both my academic parents.

At the end, special thanks to my warm-hearted, insightful and cheerful advisor Prof.Christry Raplh who never failed in this encouragement.

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1. INTRODUCTION

Keywords: Social entrepreneurship ecosystem in the agri-food industry, the honey industry, social innovation

I. Context

Agriculture sector of Mongolia directly replies on small-scale and household-based small farmers and herders in rural areas. Over the past 30 years after economic transition, development of agriculture has been reintroduced successfully by those of smallholders. However, they all face tough challenges to their productivity, growth and sustainability due to the lack of access to financial products, limited knowledge and information flow, low use of technology and market data and limited market linkage.

To close those gaps and support small-scale herder and farmers, social enterprises are introducing new and innovative solution in the agriculture sector through cross-sectoral collaboration along with value chain. Social enterprise can be formed as private for-profit, non-profit and/or hybrid organization that use entrepreneurship methods to implement their social mission.

The purpose of this research is to identify what is the main constraints and opportunities in honey industry of Mongolian for its market growth and to showcase the market – based solutions by social enterprise for-profit that have proven effective at enhancing smallholders in rural area.

a. Methods—describe data collection & methods of analysis

This paper primarily draws on secondary data for the identification of constraints in the agriculture sector. Telephone interviews conducted using the snow-ball sampling method will be used for an in-depth value chain analysis of the honey industry of Mongolia. In addition, value chain tools in the honey industry will be shown by the case of Saranagoods LLC, a honey processing agribusiness for all participants in the chain and for new social enterprises and investors.

b. Scope/organization of paper

A brief analysis of competitive advantage theories in Chapter 2 will define context of the Mongolian agriculture sector, its main challenges and competitive advantages (based on secondary data). In addition to that, honey industry of Mongolia is considered in accordance with RCA index for purpose of identifying its competitiveness in the International market. Chapter 3 the author details the honey industry through value-chain approach analysis to find constraints and alternative solutions to social and economic development. In Chapter 4, the author analyzes the International trend on agricultural development and its prospective to identify the lesson-learned for Mongolian agriculture development. In Chapter 5 the author shows a social enterprise which is the existing business model that contributed to the effectiveness of supporting smallholder's integration in the formal agriculture value chain through the case study of Saranagoods LLC, that increases Post-Harvest Value in the honey industry of Mongolia. In the final Chapter 6, the author discusses policy implications and lessons learned from the literature review and case study.

II. Background

Agriculture is considered an extraordinary industry when compared with other sectors in terms of its direct positive impacts on social and economic development. If it develops in a sustainable way to the market growth, it would apparently bring direct positive results in the following social and economic development areas including food security issues, employment creation, income generation of rural communities, and sustainable land use. Some literature revealed that the growth of the agriculture field has been playing a crucial role for the sake of poverty alleviation in comparison with other sectors, particularly prevalent sectors such as mining. (Joe Dewbre, Dalila Cervantes-Gody, Silvia Sorescu, 2011).

The Agriculture sector contributed $ 1.34 billion to Mongolia's Gross Domestic Product (GDP) in 2018, 10.8% percent of Mongolia's GDP. It takes a witty position within the agricultural sector in terms of its inputs into economy, employment, and export income and GDP production. It produces approximately 89% of overall agricultural products while the remaining 11% belong to crop production and fishery, bee, and forest sectors. In terms of employment, agriculture accounts for 27% of the total employment of Mongolia, followed by the mining sector.

Raw materials from the agriculture sector encompass the light industries responsible for the processing, storing, and marketing of agricultural products. By product category in the light industry, 52% of total sales revenue (output) was earned from agri-food production such as meat, milk and beverages and textile industry including wool and

cashmere production. The price downturn of mining products on the global market over the past few years resulted in a sharp slowdown of Mongolian economic growth, raising concerns about economic diversification of Mongolia. In response to this issue, the Government of Mongolia has drawn significant importance to the competitive advantage of the agriculture sector and its light industry development.

Over the past 28 years, the Government of Mongolia has taken significant and timely measures, bringing new development into the agriculture sector, which totally collapsed during the market transition in 1990. That action has started from the "Atar-3" campaign in 2008 (the 1st campaign to bring virgin lands under cultivation in 1959, the 2nd campaign in 1976) to support crop production such as wheat, potato, and vegetables; this resulted in full capacity of supplying ¼ items to domestic food consumption by 2018. In addition, thanks to the successful implementation of import-substitution and export-supporting programs initiated by the Government, the export of agriculture products largely weighted on cashmere, wool, meat, leader, rapeseed honey and sea-buckthorn had grown constantly over the past 10 years, reaching almost 10% of total export income worth $7.2 billion.

III. Problem statement

As a traditional economic development sector of Mongolia, the prioritized industry of cashmere, wool and leather in the animal husbandry sector has developed through market mechanisms over the past 30 years. Unfortunately, unemployment, limited access to capital, poor connection to markets, food insecurity, climate change issues such as soil

degradation, harsh winter and animal foot and mouth diseases are determined as the main constraints that influence economic growth and social development due to the majority of suppliers being small-household farmers in rural areas.

According to the statistics of 2019, more than 33% of total Mongolian households are living in rural areas, highlighting the proportion of household income in rural areas that fully rely on agriculture sector competitiveness. Note that many quantitative-based studies proved that there was correlation between the growth of agriculture and poverty (Irz et al,. 2001).

In 2019, Mongolia's stock of livestock was almost 70.1 million livestock, the number which doubled in 10 years, or at a rate of 23 per person, according to statistics from the National Statistics Office of Mongolia (NSO).

In terms of crop production, since 2008, restructuring policy has been implemented successfully throughout Mongolia. In an effort to address food security issues within the country, crop production and other agri-food industries rejuvenated at a certain level. Nevertheless, central problems of application of greenhouse development, vulnerable access to capital and market, improvement of inspection systems on imported food products, policy support for local agri-food production and unemployment issues persist.

Likewise, there are a number of problems existing in the agriculture sector, but it is important to place prioritization. Agriculture development heavily relies on innovation and its infrastructure. (Rajalahti, 2011) Innovation is the key source to bringing economic

growth, improving competitiveness and productivity both in developed and developing countries, resulting in social development to combat poverty, create income generation and employment opportunities.

When the productivity of Mongolian agriculture is compared to that of other countries, its ranking was far below in accordance with the Competitiveness of Mongolian Agriculture Report. (Mongolbank, 2015) It illustrates that Mongolian agriculture is required to apply innovation for soil and water management, technology, greenhouse, fertilization and productivity in multiple and potential ways.

Within the framework of creating innovation infrastructure, it would be worthwhile if key problems in the value-chain prioritized agricultural products can be given attention to. Regarding animal husbandry products, value chain in-depth analysis has been conducted by USAID and other donor organizations over the past years. (EPRC, 2005) Unfortunately, there is a lack of available value chain research and analysis for other newly developing sectors such as honey, fruit, crop production, and the forest and fishery industries of Mongolian agriculture for social entrepreneurs, impact investors and policy makers. Thus, the author's aim of this study is to make in-depth value-chain research on the honey industry which was named as an export-advantage and new agriculture product of Mongolia based on available multiple-sourced research and evaluation reports to find the main constraints within the agriculture sector for the long-term social and economic growth development.

This paper, using a case study as a best practice, will provide all stakeholders in the value chain of the honey industry, including farmers, start-ups, impact investors, academic researchers and policy makers with insight into implementation tools of value-chain based approach in the honey industry of Mongolia. Apart from this, through concrete examples, the author presents real needs of the business models in the value chains, and serves as a resource for practitioners, planners and program implementers who work closely with value-chain participants who want to improve the productivity of Mongolian agriculture.

IV. Conceptual Frameworks (or Theories).

The conceptual framework of traditional development policy within the agriculture sector has focused on market creation for surplus agricultural products remaining after subsistence of small farmers and herders. To date, this pattern has changed the agriculture market with broad scope, focusing on growth of income generation for all stakeholders in the sector through market mechanisms and leverages. If there is a high demand for agricultural products in the market, it would greatly contribute to the creativity of suppliers which, in turn, makes a direct impact on leverage of high productivity, investment and revenue. Not only application of technology, inputs and financial and other technical support to small-farms are required but also constant market demand is going to be main factors contributing to the sustainable growth and competitiveness of the agriculture sector. In that sense, agricultural development policy

is required to consider either agriculture production or various sub-issues in the process of value-chain and innovation.

There are many overlapping concepts, including productive chain, value chain, supply chain, filieres, marketing chain or distribution chain existing in the commodity industry, but they all strive to identify opportunities for and constraints against increasing productivity. (C.Martin Webber and Patrick Labaste, 2010).

The term value chain is inclusive and incorporates supply logistics, value-addition, transactions and market linkage. "Value chain" describes the full range of value-adding activities required to bring a product or service through the different phases of production, including procurements of raw materials and other inputs, assembly, physical transformation, acquisition of required services such as transport or cooling, and ultimately response to consumer demand. (Kaplinsky and Morris 2002).

Value-chain approach provides users with actionable insights and tools to design initiatives and investments that reinforce productivity and performance of agriculture. In addition, there is increased awareness that procedures within the agribusiness might make an impact on its competitiveness unless other businesses adopt similar or linked practices. In this regard, technological developments that permit high levels of information sharing have reinforced business' capacity to upgrade value chain productivity and supply chain efficiencies.

More recently, Governments and donor organizations realized that upgrading agribusiness performance can be best achieved in the context of market-based rewards

for performance improvement, which shows its high interest in value chain analysis and implementation. Moreover, value chain analysis has been used to examine constraints in the enabling environment in which the chains operate because of tools for SME development, with new methods of linking SME suppliers and services providers to the value chains of lead processors or markets.

One of the attractive parts of value chain analysis is to focus on the size of the agribusiness participating in each link, how they are participating with which method in the chain and opportunity to facilitate or improve those linkages. This is particularly crucial in agriculture, where governments and aid agencies are confronted with the challenges of including small farmers in the modern value chain so that they benefit from the globalization of markets. The value chain concert is therefore not only relevant to dealing with growth, but also with the equity dimensions of the modernization of agri-food systems. (C.Martin Webber and Patrick Labaste, 2010).

All agents within the agribusiness of Mongolia should be social entrepreneurs because it is a special industry which can have a high impact on the social sector in terms of employment capacity and natural resource supply.

In that sense, social entrepreneurs are not driven by markets. Any definition of social entrepreneurship should reflect the need for a substitute for the market discipline that works for business entrepreneurs. We cannot assume that market discipline will automatically weed out social ventures that are not effectively and efficiently utilizing resources. The following definition combines an emphasis on discipline and

accountability with the notions of value creation taken from Say, innovation, and change agents from Schumpeter, pursuit of opportunity from Drucker, and resourcefulness from Stevenson. In brief definition is described as follows:

Social entrepreneurs play the role of change agents in the social sector by:

- Adopting a mission to create and sustain social value
- Recognizing and relentlessly pursuing new opportunities to serve that mission
- Engaging in a process of continuous innovation, adaptation and learning
- Acting boldly without being limited by resources currently in hand,
- Exhibiting heightened accountability to the constituencies served and for the outcomes created.

(J.Gregory Dees, 2001).

As an effective change agent, social entrepreneurs are an essential part of innovation in agriculture which is one of the largest sectors supporting social positive impacts. Unfortunately, the market does not work perfectly to support the value of social improvements, public goods and harms and benefits to people who are able to pay.

The idea of what it means to be a social entrepreneur is changing quickly in Mongolia. After the transition from centrally planned economic development to free market democracy, the country lacked even basic economic infrastructure. In Mongolian, the

word entrepreneur translates to the same pronunciation; In that sense, it is a new term and a new idea for Mongolian business environment.

V. Case Study— Honey Industry (Chapter 5)

The author examines "Saranagoods LLC" (2017), a local honey processing social enterprise, to address the main constraints within the honey industry for sustainable growth.

VI. Conclusion (Chapter 6)

Agricultural development of Mongolia is required to develop through a "market mechanism" based on innovation. Innovation will be applied through inclusive actions and mindsets of social entrepreneurs over the value chain.

2. THE CURRENT SITUATION OF MONGOLIAN AGRICULTURE SECTOR AND ITS COMPETITIVENESS

2.1 Country context

Mongolia is a unique country with extreme features. It has a population of 3.2 million people residing in a large landmass with 1.5M square kilometers-the most sparsely populated country in the world. In 1990, its economic structure transitioned to an open economy under the adoption of the democratic process. It is landlocked between two giant economies in the world, Russian Federation and China. A largely mining-dependent economy, Mongolia is blessed with key asset and natural resources: world-class mineral deposits (coking coal, copper and gold), a large based of grass-fed livestock assets, pastureland and pristine nature, proximity to the second-largest economy in the world, (China) and an educated population. Mongolian is located on a high plateau area with an extreme continental of climate with long winters and short summers. In that sense, climate change is seen as a major risk to the country, as it would result in lower agricultural/livestock productivity. In terms of social and economic development, Mongolia quickly became a low-middle income country with cross domestic products

(GDP) per capita of US$3’663 in 2018 from US$330 in 1995. However, nearly (28.4%) of the population lived under poverty in 2018, and rapid urbanization resulted in more than half of the population living in the capital, Ulaanbaatar. (World Bank Report, 2018)

2.2 Current situation of Mongolia agriculture and its competitiveness

Latruffe (2010) viewed competitiveness as the ability to sell products and services that meet demand (price, quality, quantity) while maintaining profit over time for long-term sustainable agribusiness. The distinction of a country or enterprise with high competitiveness is to produce low cost or better-quality products with the same cost.

In general, the competitiveness of any country is directly dependent on resources, technology, fiscal policy and exchange rate. For example, it is determined as a competitive economy when the main factors such as income tax on enterprise, bank interest and exchange rate are higher than others. In contrast, in competitive markets the cost of labor, land and capital are lower, while the technology development and productivity factors are well-developed. The standard measurement of competitiveness can be made by the comparison of above-mentioned factors such as cost of input, price, quality and productivity which is generally agreed to be part of competitiveness. In the agriculture sector, the measurement of competitiveness should take into account two more crucial factors: market structural change and resilience capability of agribusiness to climate change.

In reality, measuring the competitiveness of agricultural products is not easy, requiring analysis not only on sub-sectors such as husbandry, crop production and vegetable planting but also on different types of production in various locations in an integrated way (Janet Dwyer et al, 2012).

Sustainable competitiveness in the agriculture sector is affected by these two major factors. First. agribusinesses have limited power in the market because its suppliers and customers are centralized. Although there are a large number of processing manufactures operating in the sector, most of the input suppliers such as fertilizer, seed, equipment, livestock' healthy supplements, agribusiness loans are centralized. In other words, agribusiness is vulnerable to effects on price setting, leading to weak competitiveness because they work with input suppliers whose offering prices are not determined by perfect competition; and supply its end products to oligopoly customers. Secondly, agribusiness is seasonal and easily affected by permanent price and market fluctuations (Janet Dwyer et al, 2012).

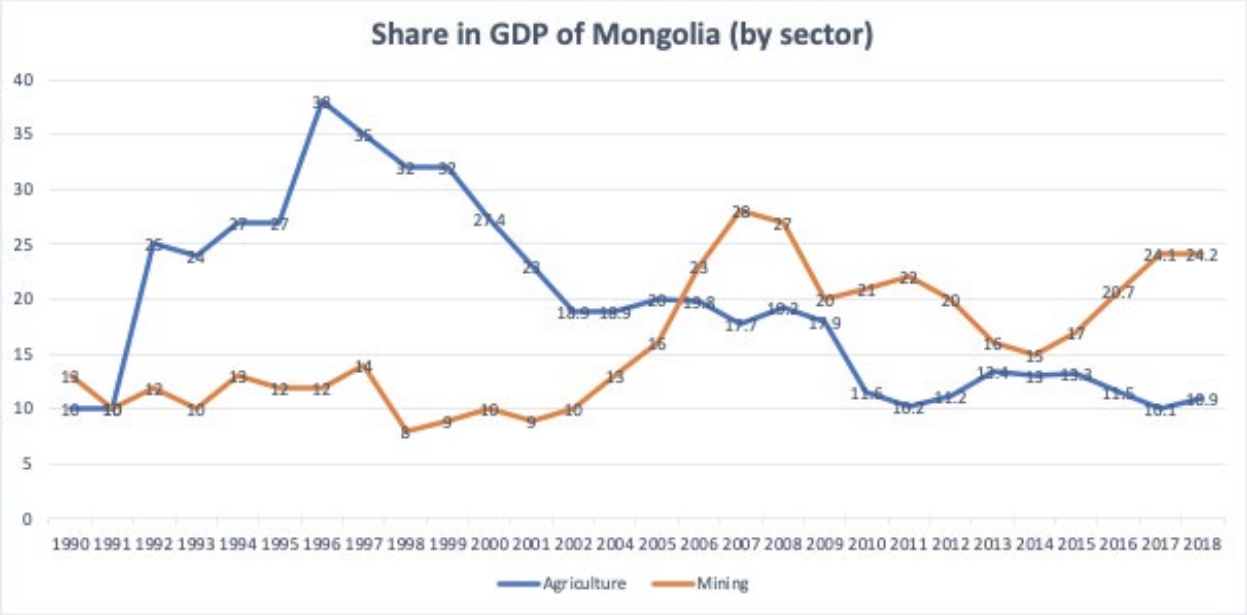
Increasing productivity and profitability through innovation is the key solution to overcome these problems to maintain sustainable competitiveness in the agriculture sector. Although the innovation was referred to as technology and management change, it turned out to be institutional and policy innovation that drive high-impact and sustainable initiatives focused on improving productivity, competitiveness, social entrepreneurship, and the growth of small and medium enterprises (SME) (C.Martin Webber, Patrick Labaste, 2010).

2.2.1 Agricultural sector of Mongolia

Agriculture, particularly livestock, has played a major role in the Mongolian economy in the past, and it remains the largest source of employment. The contribution of the agriculture sector to GDP declined to 10.9 percent in 2019, yet it absorbs about a third of the total employment. Agricultural products are the second-largest source of export revenue after mining products, accounting for 7 percent of the total value in 2019. Meat and milk are the primary products of the livestock sector, contributing to 63 percent of livestock output and 7 percent of the country's GDP. (World Bank report, 2018-2019).

In 1990, the share of agriculture in GDP was 12%. In spite of a large number of industries having collapsed during the economic transition to market economy in 1990 and slow redevelopment during the transition period of time, only the agriculture sector's share in GDP remained sustainable and soared to 38% in 1996. This trend has declined in recent years to 10.9% in GDP (2018) due to the mining industry boom and a huge depletion of livestock during the dzud occurred in 2000-2002 and 2010s. (See table 1)

Table 1. Agriculture's share in GDP dropped.



Source: National Statistics Office of Mongolia (2019)

In recent years, the Mongolian Government's response was anchored in the Economic Recovery Program (ERP), which has been supported by a multi-donor support package including the International Monetary Fund and the World Bank. The objective of the ERP has been to mitigate the impact of the economic crisis and restore fiscal sustainability while pursuing structural reforms aimed at regaining the confidence of foreign investors and diversifying the economy. The ERP was adequate and timely and economic recovery has been stronger than anticipated. Recently, poverty declined by only 1.2 percentage points between 2016 and 2018. Interestingly, rural poverty decreased by about 4 percentage points while urban poverty remained almost unchanged over this period. The Government agrees that economic diversification beyond mining is a priority. Agriculture is a promising sector in that regard. (World Bank report, 2018).

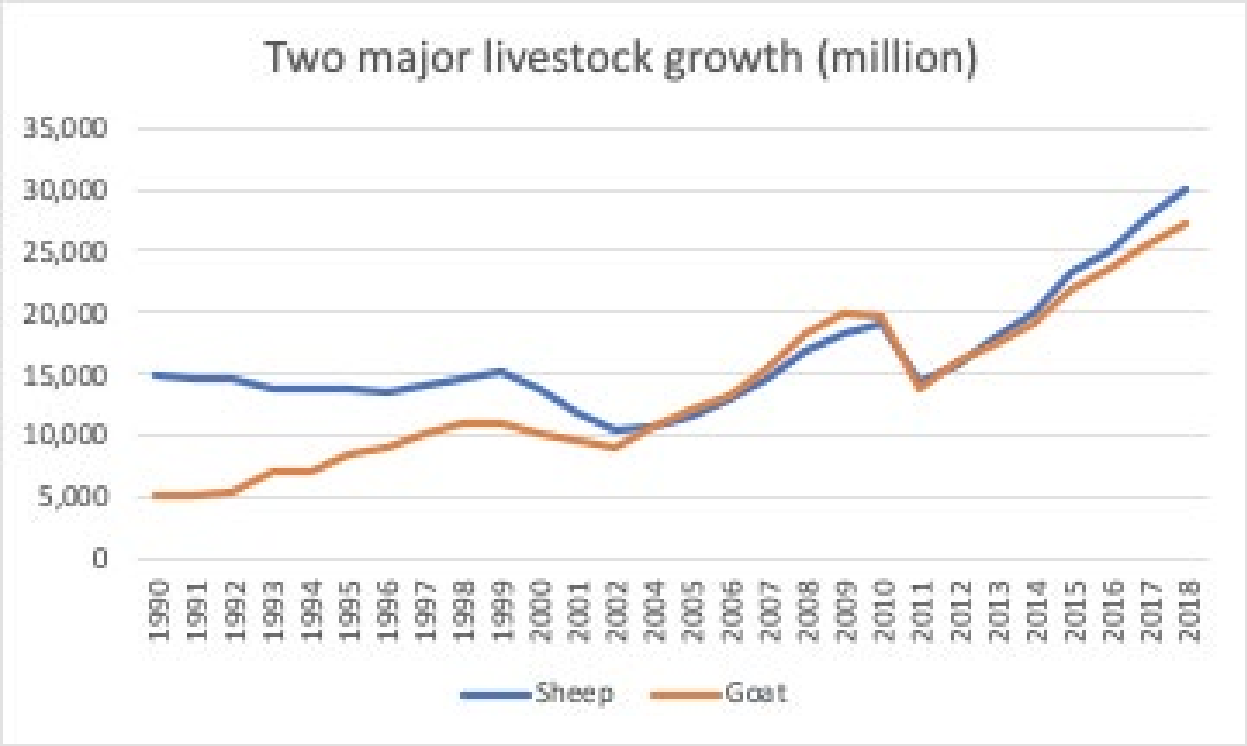
Livestock industry of Mongolia

Over the past 28 years, Mongolian economic growth has been 4.5% in which 1.5% accounts for the livestock sector while other sectors growth was 5.4% respectively. In other words, the livestock sector has been in high fluctuation and its growth in GDP has been lower in comparison with other sectors. As a result of dzud[1] in winters between 2000 and 2002, livestock had reduced by 11 million which represented 30% of the total livestock population. In light of high loss of livestock, the agricultural sector has dropped in the following years by 16%, 19% and 11% respectively. The second notable dzud happened in 2010 again and livestock was reduced by 10 million which resulted in a 17% drop in agriculture production. (NSOM, 2019)

Mongolia's pastoral livestock production system gives the country a huge advantage of the large quantity of organically bred and fed livestock. However, the quality of pasture has suffered from severe land degradation (with an average overstocking of 1.5 times above the current carrying capacity) (Purev.B, 2019). Although traditional livestock production is directly related to weather conditions, dependence on other sectors is comparatively low. For example, the growth of all sectors except for agriculture has declined by 2.4% due to the world financial recession in 2008 while the agriculture sector had recorded growth of 3.6%. (NSOM, 2019)

[1] Dzud – It refers a severe winter in Mongolian

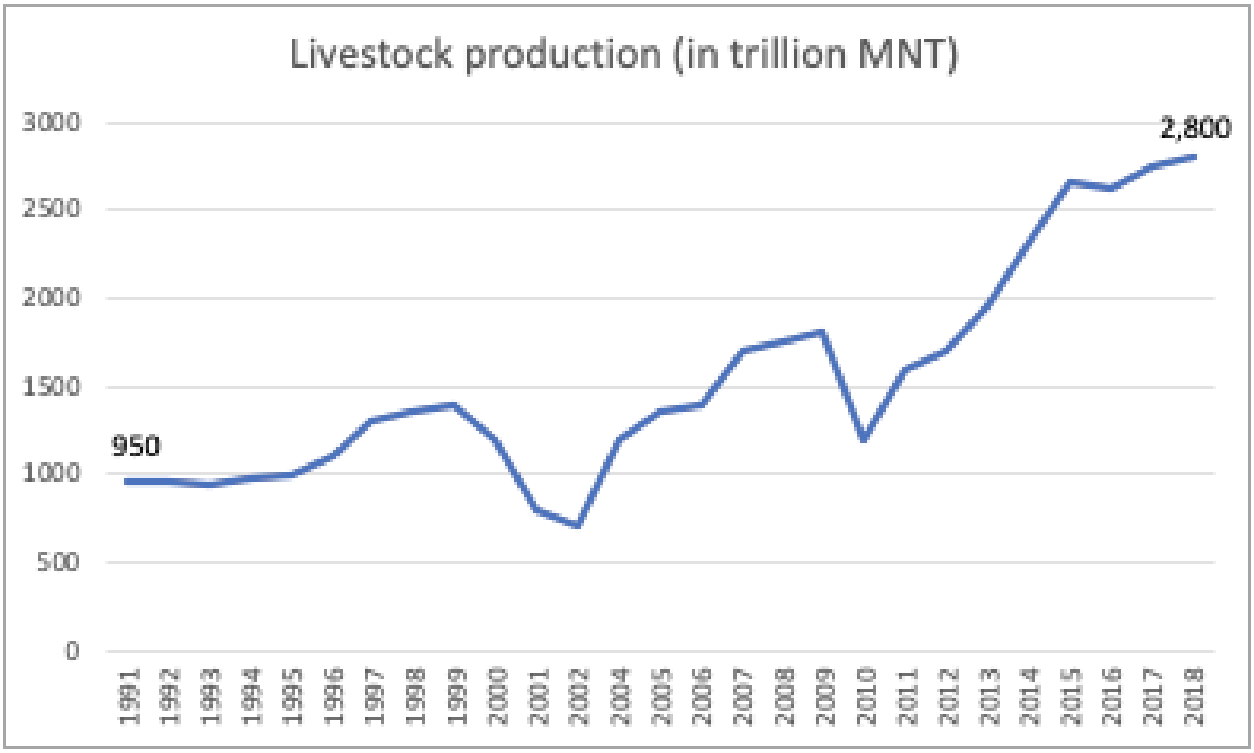
Table 2. Rapid growth of goats and sheep



Source: National Statistics Office of Mongolia (2019)

Livestock production from 1991 to 2018 increased by 2.1 times, reaching $1 billion. The number of livestock heads reached 70.2 million in 2019 and it tripled in size since 1990 due to the privatization. About 20 percent of the total households in 2019 are herding households. The increase of sheep (32 million) and goat (27.3 million) is directly linked to its market growth due to the free market economy that brought Mongolians the opportunity to export cashmere and wool to the global market with competitive prices. In addition to the main two livestock, 3.9 million heads of horse (ranked 5th in global), and 4.4 million head of cattle (ranked at 57th in global) were counted in 2019.

Table 3. Livestock production is not stable



Source: National Statistics Office of Mongolia (2019)

In 2018, the livestock industry produced meat in 515.2 thousand tons, 902.4 million liters of milk, 33 thousand tons of wool, 10.9 thousand tons of cashmere, 2 thousand tons of camel wool and 17.4 million pieces of leader. Other productions in this sector include egg and honey production that were recorded as 151 million pieces and 225 million tons respectively in 2018.

Crop production of Mongolia

The development of crop production has stimulated since 1950 in which the tenure of virgin land and machinery had been introduced to crop production of Mongolia. By the end of 1980, Mongolia had self-sufficient wheat and vegetable supplies and an opportunity to generate revenue from exports of those products to global markets. In addition, planting fertilizers created a favorable condition for sustainable livestock growth by reducing its dependence on natural disasters. Unfortunately, major agro-industries and state-owned enterprises were privatized beginning in 1991, followed by the disappearance of repairing and machinery shops of agriculture. All of the above-mentioned events affected the collapse of the agriculture sector, which lasted until 2000 (Gungaadorj, 2009).

Even though human and financial capital has scattered in crop production long-term, re-development has been done in light of the campaign for the year of "Food security and safety" in 2008 by the Government of Mongolia (People Party, NGO, 2008). Within the framework of the campaign, the "Atar-III" program offered partial financial support to farmers and it was implemented successfully in 2008 - 2011 at the National Level with the purpose of self-sufficient wheat, potato and other vegetable production. As a result, the production of potatoes and wheat were tripled resulting in farmers self-sufficiency while vegetable production supplies 45% of total domestic consumption under the support of "National Vegetable Production" program starting from 2017.

Constraints

Over the past 10 years, the Government of Mongolia has paid more attention to the agriculture sector, resulting in actively developing policy and legal documents for the agriculture sector of Mongolia. Note that it is important to evaluate its implementation on the ground in terms of its harmonization with legal framework and localization of international best practices. In other words, the monitoring and evaluation of policy implementation in this process is still unclear.

Foreign direct investment (FDI) to agriculture has been lower due to its capacity building and transparent and favorable legal framework for investors. Its FDI ranged from $4-$4.5 million in recent years (NSOM, 2019). In addition to that, domestic investment to the agriculture sector in 2012-2013 in support of Chinggis and Samurai bonds amounted at $200 million (MNT587 billion), which was the largest investment amount over the past years. The growth of investment seemed to be worthy but its sustainability is currently too vulnerable.

There is no infrastructure to support value-chain and innovation systems created yet due to poor research, information technology and infrastructure development. The agriculture sector of Mongolia mostly consists of smallholder subsistence farmers. In that sense, competitiveness of agriproducts has been weak in terms of productivity, financial and governance resources.

2.2.2 Competitiveness of Mongolian agriculture

To see the above production development of the Mongolian agriculture sector, the number of livestock has soared but its productivity has not been performed well. For example, no significant difference exists between the cost of goods per livestock in 1989 and 2018. The cost was $15 when livestock production cost was calculated based on price performance in 2010. In terms of crop production, harvested yield per ha had risen by approximately 40%. Based on the price of 2010, value-added cost in hectare was estimated at $253 in 1989 while it increased to $365 in 2018. (Tuvshintugs.B, Bumchmeg.G, Erdenebulgan.D,. 2015).

The direct investment and re-development of machinery and equipment in crop production resulted in high productivity growth though it has been difficult to enhance productivity and improve investment in livestock industry because the majority of livestock production is based on household base.

Agricultural productivity comparison between Mongolia and global markets

Agriculture productivity is measured as a ratio of agricultural outputs to agricultural inputs. (3). The offtake and yield of beef, cattle, sheep, and goat perform poorly against global comparators. Raising sheep for meat takes 20-30 months and 36-46 months for cattle in Mongolia while it takes 6-8 months for sheep and 14 months for cattle at an international standard. Yield per ha in Mongolia has been increasing year by year but it is lower 40-70% than global markets. (Kh.Zoljargal, 2014). (Table 4).

Table 4. Productivity of Agricultural production

Livestock		Mongolia	Global	Ratio
Loss of younger animals	%	30	5	6.0
LAMB		Mongolia	Australia	Ratio
Percentage of slaughter per group	%	46	60	0.8
Age for meat	month	20-30	6-8	2.5-5
Slaughtering weight	Kg	45	50	0.9
Carcass weight	kg	16	23	0.7
BEEF		Mongolia	Canada	Ratio
Percentage of slaughter per group	%	18	30	0.6
Age for meat	month	36-46	14	2.5-3.3
Slaughtering weight	Kg	315	590	0.5
Carcasses weight	kg	118	371	0.3
4Crop production		Mongolia	Canada	Ratio

Wheat yield	tn/ha	1.6	2.7	0.6
Potato yield	tn/ha	15	49	0.3
Vegetable yield	tn/ha	12.5	37	0.3

Source: Kh.Zolhjargal. (2014). Presentation of Agricultural policy framework by the Government of Mongolia.

Export of Mongolia

Over the years, Mongolia has traded goods with 143 countries, amounting to $7.6 billion in total, out of which exports comprised approximately $4.1 billion. Although the size of trade turnover has increased year after year, there was not a significant change in trade turnover of non-mining or agriculture products and its average share was 10.6% in total export. For example, meat export rose by 3.2 times in 2017 compared with previous years, reaching to 30'000 tons but accounting for 15% of total capacity.

Our key trade partners in cashmere, wool and textile goods are Japan, USA, Canada and EU countries while trade in meat and leather goods are primarily with China and Russia, which are Mongolian neighbors.

In an effort to enhance Mongolia's agricultural value chains and make exports more diverse and competitive for non-mining goods at the global market, the Government of Mongolia approved the "Ensuring an economic sustainable growth" policy. Within the framework of this policy, the income tax exemption offered to economic entities whose export of non-mining products exceed over 50% of total production and identified the

following 6 items including seabucktorn, honey, wool, cashmere, leather and meat as an export-advantage and potential ecological goods of Mongolia.

Real exchange rate and purchasing power

The Real Exchange Rate (REP) is a measure of international competitiveness. George L.Brinkman (1987) explains that where the demand for the currency of a competitive country is high, the currency's exchange rate is strengthened.

Since 2000, Mongolian currency gain has increased due to the rise of foreign currency inflow through export growth and Foreign Direct Investment (FDI) in the mining industry.

A Mongolian currency exchange gain makes a price increase of export-oriented products and price drops of imported products particularly processing and agricultural products. This process makes the country less competitive. Likewise, yield and imported volume of wheat which was one of the main agricultural products of Mongolia had declined simultaneously in 2000-2008. As a result of the timely and right investment into crop production re-development in 2008 by the Government of Mongolia against currency exchange gain, the stimulation of development in crop production succeeded.

For livestock production, the price rise of domestic meat and currency exchange gain was affected by the growth of imports in pork and chicken in recent years. In addition, Mongolian meat export has stagnated at less than 10 percent of its potential. Less than 10 percent of the meat and dairy production is processed by slaughterhouses and dairy

processing factories. (Indeed, 97 percent of meat slaughtered by herders). A few processing businesses in the country could meet with food safety and health standards to receive export permission, but high domestic consumption and domestic high price of meat are the main factors to the export price of meat in the International market. In contrast, the export price of cashmere, one of the main agricultural products of Mongolia, is not dependent on the foreign currency rate because its price is set by foreign currency and lower domestic consumption.

It is recognized that the competitiveness of the Mongolian agriculture sector was indicated as vulnerable/ weak in the competitiveness analysis on sectoral productivity, real exchange rate, and performance.

In conclusion, the Mongolian agriculture sector has an advantage to enhance organic agri-food production based on its pasture land livestock which is highly resilient to climate change but the reason for poor productivity is linked to the lack of infrastructure of value chain development. In crop production, there has been growth observed in recent years, it is required to introduce value-addition and innovation into agricultural production through proper investment. (Tuvshintugs.B, Bumchmeg.G, Erdenebulgan.D. .2015).

2.3 Export-advantage agricultural products of Mongolia: RCA index

Mongolian export-advantaged agricultural products were listed down on the "Mongolian Export" program approved by the Government of Mongolia in 2018. There

are 6 products included in this list and 2 of them can be seen as new agricultural products such as honey and seabuckthorn.

In this section, the export-advantage and new products will be estimated by the RCA index to show the minimum requirement for the export of goods with comparative advantage to the global markets. In some literature reviews, the RCA index was conducted on other livestock sourced products of Mongolia, resulting in cashmere & wool and horse and cattle meat being the most competitive export-advantage products of Mongolia. (Tuvshintugs.B, Bumchmeg.G, Erdenebulgan.D,.2015).

In accordance with the R.Kaplan, D.Norton (2008), the theory of competitiveness replied on comparative advantage; these are interconnected notions. The main idea of comparative advantage is to export potential products which are made at lower cost and to import products which are in need of higher cost if they are produced locally. Theory of comparative advantage and its traditional approach address opportunity cost and labor diversifications.

Adam Smith (Smith, 1776) and Mill (Mill, 1848) formulated the absolute advantage theory, which states that a country should specialize in goods for which have an absolute advantage in order to exchange with other countries effectively. Later on, D. Ricardo (Ricardo, 1815) studied the understanding of comparative advantage and concluded that even if the country does not have absolute advantage, it can often rely on the production of the product which has a lower relative price and uses all resources properly. In this case, a country can import goods which can be produced locally at less cost as well. The

theory developed by Heckscher and Ohlin (E.Leamer, 1995) brought new elements such as economy of scale and national factor endowment to the positive-sum game of international trade in the 21st century. They explained that the country should export goods for which local abundant resources to be used. For example, if the country has abundant resources in mining, they should focus on the production of minerals and exchange them with others.

Even though traditional international trade theories were powerful, sometimes it is challenging to explain the reality of trade and empiric study because comparative advantage requires considering many other variables that are not visible in the real economic situation. In this response, the Revealed Comparative Advantage (RCA) index was formulated to measure comparative advantage empirically (Bela, 1965). The RCA index shows the degree of comparative advantage of selected products and services based on its foreign trade flow in which includes all influential factors such as the legal framework, economic condition, processing factor endowments, cost, quality, tariff, and pricing. (Tuvshintugs.B, Bumchmeg.G, Erdenebulgan.D, 2015).

When looking at the Mongolian export structure between 2009-2018, mineral products account for 82% while the remaining 9% goes to the agriculture sector. The RCA index has been conducted on Mongolian livestock-based products such as cashmere, leather wool, meat, and milk in order to find its degree of comparative advantage in international trade. Based on the result, policy regulation and donor organizations' technical supports

are approaching comprehensive agriculture development through value chain development.

In this section, the author uses the RCA formula to find the comparative exporting volume of Mongolian pure wildflower honey to compete in global markets once it was named as a potential exporting product of Mongolia by the Government.

Even though the honey industry is developing in its infancy in Mongolia, the estimation of RCA could provide all stakeholders in the honey industry to clearly see where they are and how they can make an improvement to achieve competitiveness in the global market.

The formula of RCA index is:

$$RCAij = (EXij/EXi) / (EXnj/EXn)$$

EXij is "j" goods export of "i" country and EXi is the total export of the country. EXnj is the total world export volume of "j" goods /EXn is the total export volume in the world.

Briefly, if the score is RCA > 1, the goods can be the export-advantaged products while if the score is RCA < 1, it refers to reverse. (G. Tasevska and E.Rabinowicwicz, 2014).

The following statistical data on honey export and production are used for.

EXij - Mongolian honey export - X

EXi - Mongolian total export (2019) - $7.6 billion (NSOM, 2019)

EXnj - World total honey export (2019) - $1.99 billion (Daniel Workman, 2020)

EXn - World total export (2019) - $19.5 trillion (International Trade Organization, 2019)

Estimation revealed that the export volume of Mongolian organic honey would be 155’718 tons per year which amounted to $776 million if it is considered as a comparative advantage product in the global market. A study on honey plant resources of Mongolia (1960) estimated that it has a capacity of 2 million hives. Based on this resource, Mongolia can supply 60’000 tons of honey annually.

To see the top exporters of organic honey in the world, the value of natural honey exports fell by an average -14.4% for all exporting countries since 2015 when natural honey shipments were valued at $2.3 billion. Among top exports, China is ranked at the 1st place and its supply value of organic honey was $237 million, followed by New Zealand, Argentina, Germany and Brazil.

Among the top exporters, the fastest-growing natural honey exporters since 2015 were: Ukraine (up 34.9%), Poland (up 33.6%), New Zealand (up 14.4%) and Hungary (up 10%). Those countries that posted declines in their exported natural honey sales were led by: Mexico (down -64.3%), Vietnam (down -44.2%), Belgium (down -24.2%), Canada (down -20.8%) and China (down -18.5%).

With the decline of organic honey supply in recent years due to the shortage of honey and other factors, new suppliers in the global market are welcomed to competition with favorable conditions. The Mongolian organic honey sector can have a competitive advantage if its production is developed and supported in a sustainable way. In the next chapter, the author details the development of the honey industry in Mongolia along with

the value chain approaches to examine the its readiness and capacity to be met with the above-estimated volume of export.

3. INFORMED STRATEGY ACROSS THE VALUE CHAIN OF THE MONGOLIAN HONEY INDUSTRY

As discussed in the previous chapter, the role of the agriculture sector in the Mongolian economy has become increasingly associated with economic diversification over the past years, but it confirmed that it has not been competitive yet. The main challenges to this are exporting agricultural products without a value-addition process and importing value-added final agri-food products to the Mongolian market. More dependence on importing agri-food products leads to all participants in the value chain of Mongolian agricultural production losing opportunities to make value-addition to compete with the

international market without any protection. Much literature defines that symptoms of these problems were linked to value chain issues such as a lack of information and technology, ineffective production capacity, poor access to investment and finance, unmet quality of raw material, the under-development of traceability systems for origin of goods and raw material production.

In this chapter, the author will do an in-depth value chain analysis of Mongolian pure honey in accordance with the value chain productivity framework developed by J.E.Auston for use in formulating development strategies across the value chain and examining the current capacity to the future competitiveness. Competitiveness is determined by the productivity (for value per unit of input) with which a firm or value chain uses its human, capital, and natural resources. Productivity depends on the value, uniqueness, and quality of a product, in addition to the efficiency with which it is produced. In other words, productivity can be strategic, as well as operational, in nature. In this analysis, drivers of competitiveness will be analyzed, along with strategic productivity, operational productivity, supply chain management, human capital, and the business environment. It is only possible at this level of assessment to make investments and actions required to increase the performance of the value chain. (C.Martin Webber and Patrick Labaste, 2010).

3.1 Historical path of Mongolian honey

Western honey bees, Apis mellifera, are not native to Mongolia. Therefore, there is not a long history of beekeeping in the country, despite some historical records that suggest

beekeeping occurred in the region during the Chinggis Khaan (Genghis Khan) period. During the Mongolian empire dynasty, honey was used as food, but not widely.

In the middle of the twentieth century, Mongolia started a broad strategy of intensification of its national agrarian industry by prioritizing fruit and beekeeping sciences. (Khaliunaa Tsevegmid, Selenge Dooshin, Samuel Ramsey, and Panuwan Chantawannakul, 2018). Since 1960, apiculture has been developing in Mongolia as an agricultural product based on its rich bee forage resources. In 1974, the Mongolian government decided to develop local beekeeping with a scientific basis, and to support the bee product industry. This resulted in the formation of the Bee Breeding Research Unit (BBRU), which started to conduct bee studies in Mongolia. As BBRU determined that 545 species of plants are used for honey, plants used by honey bees occur in Mongolia; 23 of these are tree species and 72 are bushes (Ochirbat, 1994).

The foundation of the honey industry development in Mongolia was built in 1959 by localizing 20 hives from Russia to Shaamar sum of Selenge province, Mongolia [1] relying on fruit plantations. After the social transition to a market economy in 1990, beekeeping became inactive.

However, honey bee colonies have been recently imported from abroad and became active from 2002. In 2005, approximately 800 honey bee colonies were managed in Mongolia (MBM report 2013). This number had increased to 1676 by 2008, 2707 by 2012, and 9276 by 2016 (AHS 2016). This increase may be partly due to a World Vision

Organisation two-stage project aimed at improving the livelihoods of communities in the Khentii, Selenge, and Tuv provinces of Mongolia. As part of this work, approximately 800 honey bee colonies were imported into Mongolia and distributed to rural people; this signified the start of modern honey industry development (WVIO 2011).

3.2 Strategic productivity of apiculture sector of Mongolia

Strategic apiculture product

There are 9 primary raw materials that can be sourced from bee farming to make products for health treatment, organic sweetener as a food supplement, cosmetics and medicine purposes. Managed honey bees are the most valuable pollinators in terms of agricultural economics. These hyper-efficient insects can provide pollination services to virtually any crops such as fruits and vegetables for its yield increase.

The best-known primary products of beekeeping are honey and wax, but pollen, propolis, royal jelly, venom, queens, bees and their larvae are also marketable primary bee products. While most of these products can be consumed or used in the state in which they were produced by the bees, there are many additional uses where these products form only a part of all the ingredients of another product. (R.Krell, 1996)

Table 5. Primary products from per beehive in Mongolia

By product	Honey	Beeswax	Pollen	Propolis	Royal Jelly	Venom
Volume/beehive	15-30kg	450g	10kg/year	50-100g	500g	2.5-3.8mg

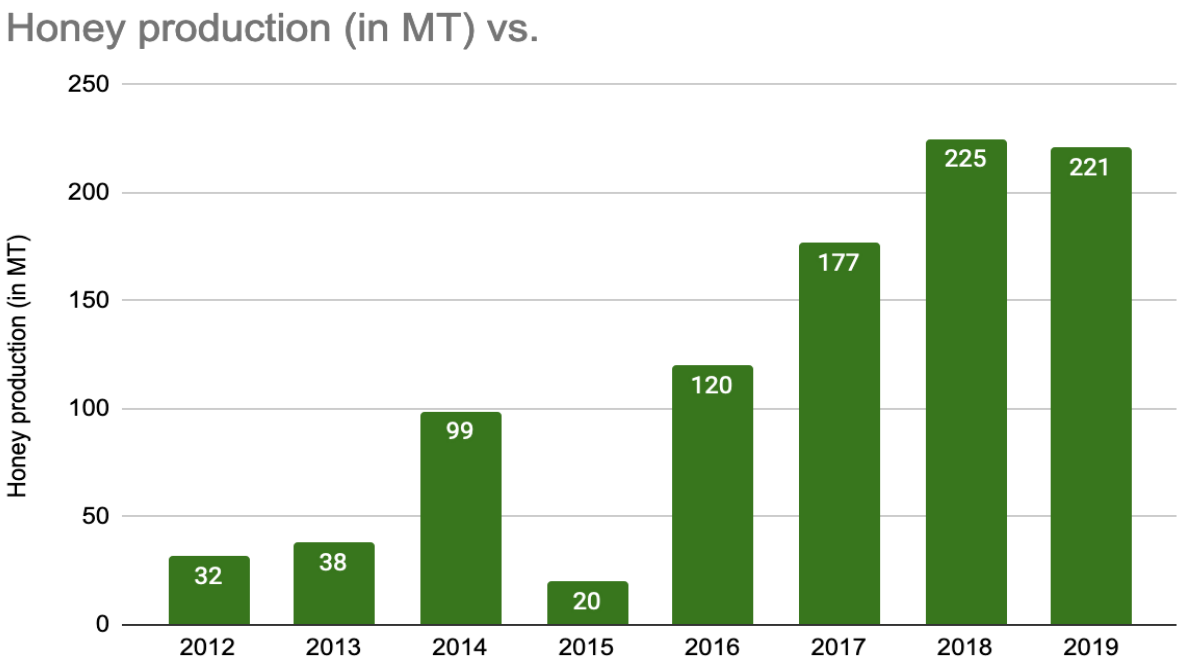
Source: (Ganzorig.G, Enkhamgalan et al., 2018)

Mongolian production capacity was estimated to produce 20 kg honey, 4.5 tons beeswax, 100 tons pollen, 1 ton of royal jelly in 2019 based on its available honey beehives.

In 2018, there were a total 54 enterprises and 450 small and medium sized households with professional and amateur 1000 beekeepers in the territory of Mongolia. Each bee farm has approximately 30-50 beehives individually. About 47% of the total labor force were women while the age classification of 55% of the total labor force ranged between 31-50. (Ganzorig.G, Enkhamgalan et al., 2018).

To date, there are 10,800 beehives counted at the national level with the capacity of producing 221 MT annum (valued at $1.2 million). This is double the production when compared with production rates in 2015. Supplying 221 MT to the domestic market despite slight export volume showed improvements, however the domestic consumption has been still dependent on imports which account for 45% (valued at $1 million) of total consumption. (Customs Office of Mongolia, 2019). The reason for import existence has been linked to higher price of local honey, quality issue and value addition process.

Table 6. A surge of Mongolian honey production over the past 5 years.



In the next 3 years, the growth of honey consumption in Mongolia is expected to reach 589 MT by 2022 if the current growth rate continues to rise at the same level. If this projection keeps happening, the shares of domestic suppliers in terms of total consumption are projected to rise by 73% while imports are anticipated to decline up to 27% (Saranagoods research, 2020). By 2022, Mongolian domestic production is required to produce 450 MT honey annually. In addition to that, there is a need to export surplus pure honey to Japan and China in accordance with the commitment of the bilateral trade agreement in the coming years.

Today, there were 2.3 million MT natural honey (valued at $2.01billion) produced by 143 countries in the world. Only 10 countries supplied individually around 70% of total production which was 1.6 million MT. By 2019, Mongolia was ranked at 116 out of 143 countries. Actually, Mongolia can be ranked as one of the top ten producers in terms of honeybee plant resources. To see the structure of global trade on natural honey, there were 164 countries that imported natural honey with a minimum order over 1000 MT. The first 15 countries in the top importer range purchased 87.2 % of natural honey imported in 2019.

All of those 15 countries have established the bilateral trade agreements with Mongolia. A total of 54 exporter countries of organic honey in the world in which the top 17 countries sold 87.6 percent of total exported honey in 2019. The list of top exporters is led by China, Argentina, India, Mexico, Spain and Ukraine. (Daniel Workman, 2020). All of those countries, except for China, are located far from Mongolia so those are not competitive in terms of geographic feature. In addition, China has a high interest in importing Mongolian pure honey from Mongolia because of good quality with lower transportation cost. Based on this advantage, Mongolia has a high opportunity to export natural honey in the global market.

In 2017, honey valued at $23’000 was exported in bulk by local honey processors to Japan under the Economic Partnership Agreement for Mongolian pure honey introduction purposes. According to the UNFAO value chain development project analysis, it confirmed that the Mongolian honey features with its organic content with higher

antioxidant than other organic honey in the world. Export price was $9/kg while its importing price was $6/kg in 2015. (Ganzorig.G, Enkhamgalan et al., 2018).

Apiary by-products and pollination services are underdeveloped due to the limited crop/fruit production development, medical treatment, furniture factory, veterinary and cosmetic production. Thus, there is no statistics available on volume of by-products. Thus, wildflower honey can be the Mongolian strategic potential product to be developed. Scientists in Mongolia estimated that Mongolian is rich in forage plants that are able to supply nectar up to 2 million hives. To date, we are using only 1% of total capacity in terms of natural resources (Zandaakhuu, 2020).

Honey production and its capacity

It is assumed that Mongolia can produce 450 MT annually by 2022 if the trained beekeepers will have increased by 1036. In addition to that Mongolia is able to export 4000MT organic honey if trained beekeepers will be reached 20'000. Producing 4000 MT honey is only 10% of the total forage capacity.

The potential honey plant forage resource was estimated to be 34.2 million ha. However, we use 85.9 thousand ha for bee forage production which results in soil degradation and desertification. In order words, Mongolia does not use 500'000 m2 land area which is □ of total land where beekeeping would be projected to grow intensively by 2040s (Zandaakhuu, 2020).

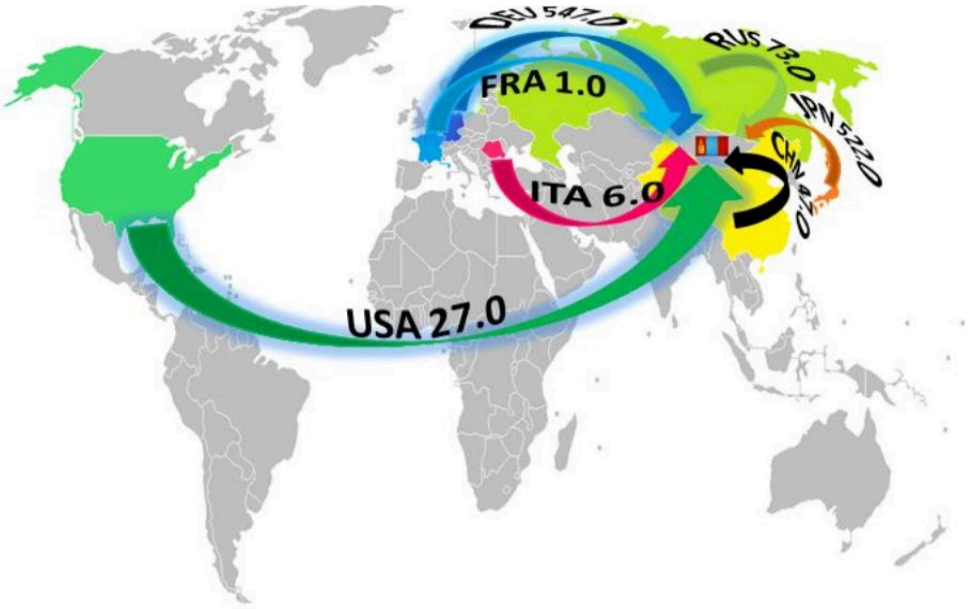
Table 7. Honey production projection based on forage capacity

	Current situation	Projection - Domestic Production	Capacity share (out of 100%)	
	2019	2022	10%	30%
Beekeeper number	1000	2036	20000	55,556
Beekeeping households number	400	814	8000	22,222
Bee hive number	10,800	21,990	216,000	600,000
Production by MT	221	450	4,420	12,278
Volume per hive	20	20	20	20

Source: NSOM (2019) based estimation

As mentioned above, approximately 45% (200MT) of total domestic consumption has been imported. To see the statistics of imported agri-food products, the honey was imported from the following countries USA (27%), Germany (45%), China (11%), France (1%), Japan (42.7) and Russia (7.3%) and Italy (6%) respectively. Imposing import tax increase on honey in 2014 by the government had contributed to the growth of domestic domestic production which doubled its shares in the market up to 46% in 2015. In 2019, it was recorded that the total imported honey was valued at $1 million, contributing 45% of global honey consumption.

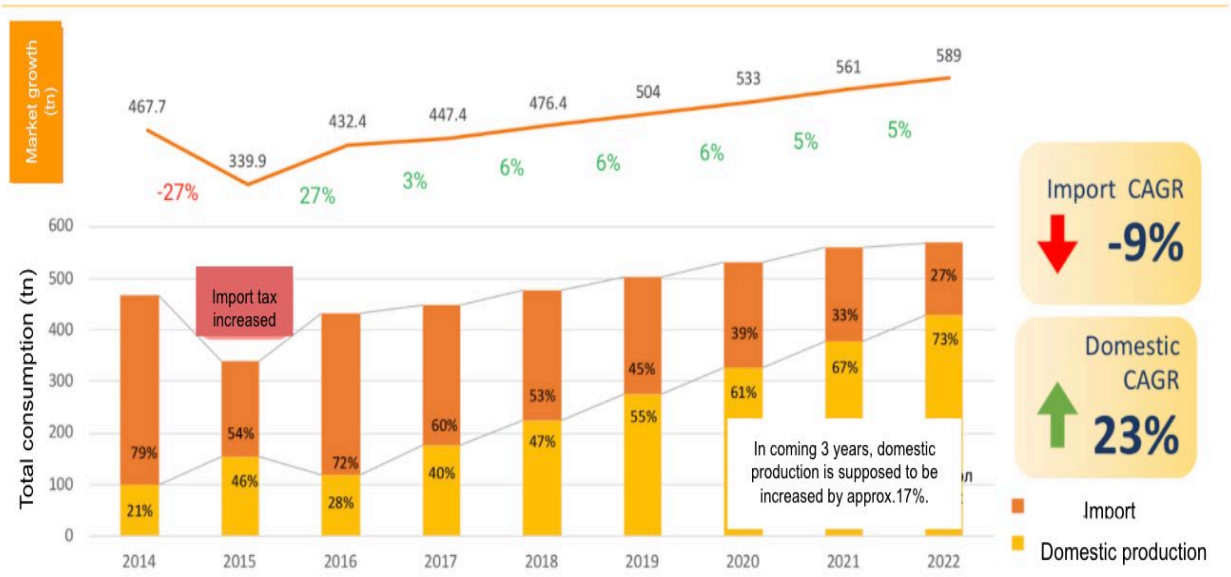
Table 8. Honey Import to Mongolia



Source: World Trade Organization and Ministry of Agriculture of Mongolia (2018).

Increased growth of organic cosmetic brands in Mongolia brought an opportunity for beeswax production that could be used for product-segments in Mongolia. Unfortunately, Mongolia has been importing its required artificial and original beeswax of 78.1 tons from China due to the poor processing and quality of Mongolian beeswax (Customs office of Mongolia, 2015).

Table 9. Domestic production of honey is reached to 73% of total consumption by 2022.



Source: NSOM (2019) based estimation

Markets of honey

All companies in the value-chain of Mongolian apiculture can be divided into 3 markets such as food ingredients production, cosmetics and B2B (bakery/restaurants and gift package industry) in domestic production. Exporting honey has been used for food ingredients (Mihachi Brand, 2018).

There were 14 companies operating as product developers of the food ingredient market; these accounted for 28% of the total market, while the 27% belonged to farmer's local honey. According to the supermarket sales data research in 2019, imported honey contributed to 45% of total retail consumption, which consisted of a hybrid of blended and honey syrups. The second market is the cosmetic industry, which has been actively developed under the cluster approach. There is a total of 11 organic cosmetic medium and large producers whose annual consumption of honey is increasing dramatically. All of them have interests in purchasing Mongolian wild flower honey to be used for soap

and lip balm ingredients. Some of the challenging issues of Mongolian wildflowers in cosmetics production are quality control, rules of origin and detailed laboratory testing on its forage species. (Helen brand, 2020).

The third market is B2B, which contains bakeries/restaurants and gift packages. Premium bakery and restaurants are highly interested in using organic honey in their organic products for medium and premium customers. They prefer to source their organic honey from product developers rather than farmers directly because of quality control and corporate governance. Mainstream bakeries prefer to use syrup and artificial honey in their daily bakery items. Gift package segments become more popular and grown in recent years, aligning with Mongolian' exchange gift hospitality during the big holidays in the year and the tourism industry that welcomes over 400k tourists a year.

In recent years, it has become popular to choose local products as a gift for holiday and celebration.

High-value product of apiculture

The high-value products segment is definitely Mongolian wildflower honey which sources from rich medical herbs. Around 80% of the total harvested honey in Mongolia is wildflower honey.

Quality of the beeswax could be improved if participants in the value chain invest in the processing stage. In this stage, the Saranagoods LLC, a social enterprise in the honey

industry, has invested in beeswax processing for its innovative new product "Beeswax crayon" for kids. That was the best practice of how social enterprise can participate in high-value product segment development.

Pollination using managed bees is a worldwide practice (Gill 1991, Naumkin et al. 2004) to improve harvest (Breeze et al.2014) and seed quality (Chuluunbaatar, 1996). This is important to Mongolians as we are historically well linked to land conservation. Despite this, overgrazing livestock has destroyed vegetation cover (GG, 2015) and therefore limited forage availability for honey bees. To help restore vegetation cover, some herders invite honey bee apiaries to their land where they make a hay. This is because farmers observed that good hay production comes from the area where honey bees are present due to the effects of pollination. (Bulgan per. Comm.).

Positive externalities of Mongolian apiculture are no doubt beneficial for other industries such as fruit vegetables, fodder and forest regeneration. In order to have an in-depth understanding of pollination productivity, the comprehensive study on the possibility of pollination service and value chain analysis should be conducted by professionals and scientists and economists.

3.3 Operational productivity

It is hard to make a cost estimation on all by-materials that come from bee farming due to the scarcity of available statistical data. No processing company that diversifies on each apiary by-products production so all costs of by-products are included in the process of

honey production cost. This is because the scope of the value chain has been limited by "honey" products in the latest literature reviews. Over the past 3 years, the growth of the small-sized processing and diversified businesses has been rising, which contributes to the value chain analysis of Mongolian Honey industry. It stated that the highest profitable market is retail honey to be sold for food ingredients and daily use for culinary flavor and drinks.

Cost of honey value chain

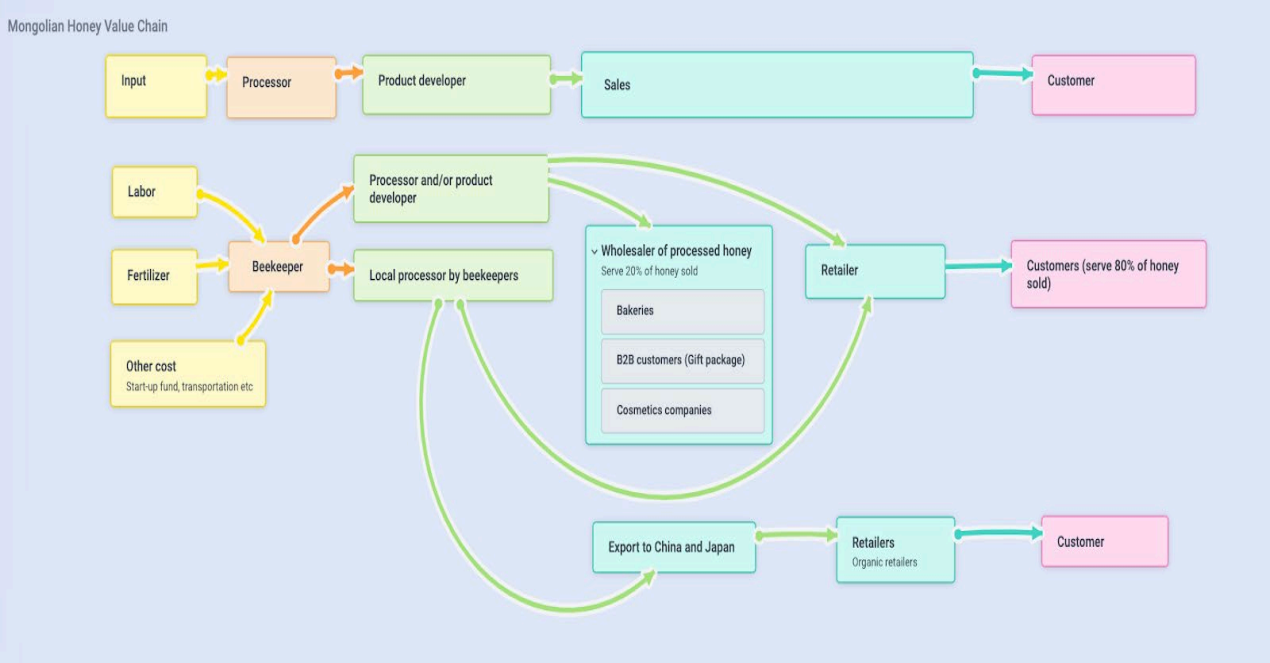
In accordance with cost estimation of honey production, it is revealed that the running cost of 1 hive is approx. $31 including $5.3 for labor, $20 for fertilization and $5.7 for others respectively. (Ganzorig.G, Enkhamgalan et al., 2018).

Based on the running cost, the cost of 1 kg honey production was valued at $1.5-2 while the approximate volume of honey production per hive was between 15-20 kg. After harvest, the bulk price per kg of honey was $7.1 without any package and filter to processing companies while the retail price was 7.6$ with minimal packages to end-users at the farmers' markets and temporarily organized expo. High bulk-price at farm-gate is creating difficulty to make value-addition by processor and product developers to compete with imported honey. In this case, the honey production industry needs to be developed under a cluster system in which beekeeper and honey processing start-ups may work together to come up with a sustainable, resilient and inclusive ecosystem based on shared value and responsible consumption.

It is important to note that local processing by beekeepers does not have marketing and label costs. The sum of value-added cost and profits was estimated at $5/per kg in total, while the export price of Mongolian pure honey was $9 per kg to China and Japan under the bilateral trade agreements. (Customs Office of Mongolia, 2018). A USDA National Honey Report said that the average bulk price of organic honey was $4/per kg. With that in consideration, Mongolia cannot be competitive in the global honey market in terms of bulk price at current market rates.

With the strong growth of processing and product developer enterprises of honey over the past 4 years, the consumption of Mongolian pure honey increased dramatically along with customer education. As one of the key players in the value chain, the processor or product developer enterprises have been trying to add value in honey through package distinction and additional ingredients to be mixed with honey products. The value-addition cost of 1kg honey at the processing stage was estimated as $7 including profit and all related costs at all. It means that the final price to the end user becomes $15-16 per kg. The import price in labeled honey was between $10.6-$20/kg depending on its blend and purification. Lacking honey education regarding honey quality, Mongolians main choice has been artificial and blended labeled honey.

Table 10. Mongolian Honey Value Chain



Source: Author mapping based on secondary data and interview with key participants in the value chain

Key players in the value chain

To see the value chain map on cost estimation, beekeepers are key players in the value chain because they set a farm-gate price, own local processors and control over 40% of total product cost to the end-user. In addition to that, they do not understand the meaning of value chain approach.

The following key player is processing and product developer enterprises that have a high role in value creation. Compared with local processors, the majority of them consist of young agri-entrepreneurs creating new markets through innovative product segments over the 4 years. Having expensive honey sourcing from the beekeepers limits their competitiveness against imported products and value creation as well.

There are trade-offs between cost of production and quality of products. In general, Mongolia commonly harvests 3 different types of honey: wildflower, buckwheat and

rapeseed honey, based on the available crop production. Collecting nectar from wild flowers has a need of mobile harvesting technology along with forested areas and fields where floral forage resources grow. In contrast, planted honey plants are required to be static in the field so it does not need additional cost for transportation to move forward with hives.

Creating tax favorable conditions for all participants within the value chain and protecting them from importing products with tariff increases are some of the most effective methods to cost reduction of farm-gate price without compromising quality.

In addition, the number of trained beekeepers needs to increase among herders and crop producers. Local governor's offices should offer extension services or training to beekeepers among rural citizens with the support of donor organizations or universities for income generation and economic development.

3.4 Quality of supply chain management

Honey as "goods" flow chain

As indicated in the value chain map, honey is primary sold at the farm to local processor (around 80%) to local processors owned by beekeepers and to product developers in the city center of Ulaanbaatar. Traditionally, beekeepers bottled and labeled honey themselves at the farm and sold them through markets at local and city centers. It is worth noting that, in the major production area, product developer enterprises in the city center are increasingly buying honey directly from beekeepers with higher prices, including transportation cost, thus cutting out the flow to local processors. A new trend in the

industry is that the local processors are becoming product developers and sharing branded products in the retail markets due to the customer preferences.

At the retail level there is a significant price difference between product developer and local processor. In response to that, the capital investment has been introduced to bee-farming for its expansion by product developers, in turn, it might be the driver of some changes in the supply chain in the near future. It was revealed that [3] approximately 60 percent of wildflower honey in Mongolia sold in supermarkets and online platforms by facebook in retail channels. (Saranagoods brand, 2020).

Logistics is one of the challenging problems to be solved because there are no longer proper and coordinated transportation services in Mongolia. Therefore, it is required that bee farmers who own smaller trucks transport honey to the processors. This has resulted, in turn, in the rise of raw material costs for honey processors. From Selenge province, producing 40% of total production, to Ulaanbaatar, there is a train, but the transportation cost is higher than road transportation, which has proper storage facilities.

The following challenge in the supply chain is placed in the export portion, due to the quality and price issues noted. Food safety requirements on importing food products to China is comparatively softer than those to Japan, and they require fewer documents for quality control. Although exporters may take a risk in terms of uncertain procedures and time issues, however, the average tariff is 15.8% on agricultural products; which is a good sign for exporters. On the honey import side, China prefers to work with processors and enterprises rather than bee farmers. Although food safety standards are high in Japan, Mongolian pure honey was accepted and exported in bulk in 2017. In order to maintain

honey as an export to other countries, Mongolia needs to update "Honey, technical requirement" MNS6294 and "National standard on origin of honey goods". In addition, supporting services such as finance and quality control service is highly required.

Information flow chain

Information flow on market dynamics and price setting among all participants are insufficient due to the shortage and transparency of baseline survey and market research. No available research or studies on agricultural competitiveness designed for agribusiness and other participants in the value chain currently exist. Right now, the Mongolian Honey Association, donor organizations and the local governor's office play the main role in the delivery of information flow on price and market trends among all participants.

Unfortunately, it is not inclusive. While local beekeepers and local processors have access to the internet on their mobile phones, they do not know how to use it effectively to get useful information for them.

In recent years, the rise of product developers' enterprise has driven competitiveness within the industry. For marketing, most honey brands opened online platforms in which price and product dynamics information can be observed. This has had a positive impact on information flow among all participants in the value chain. It was also observed that the more information on Mongolian pure honey features became transparent, the more consumption increased.

3.5 Human resource across the value chain

Bee Farming structure is small-scale and primarily on a household basis. Most of these are hobbyists or beginners, with only 5% considered professionals working in the field with 20+ years' experience (Tsevegmid, 2015). To enhance their productivity, it was stated that honey production shall be developed by a cluster system under the "National program on promotion of intensive farming" which was approved by the Government of Mongolia in 2018. The trained labor-force is required for growth of honey consumption. By 2019, there were 1'000 trained and experienced beekeepers and 54 firms registered at the national level. At the processing level, there were 14 processing enterprises that existed in the market, with 2 of them consisting of larger local processors (Saranagoods, 2020).

Human resource capacity at input

Currently, beekeeping associations of Mongolia are providing beekeeping training and related supporting programs to the public. In accordance with the estimation of required labor force for projected honey production, 20'000 trained beekeepers are required to produce over 4400 MT honey. If Mongolia is expected to produce 12'278 MT, it requires 55'500 trained beekeepers with over 22'000 households along with distribution of bee honey provinces based on estimation of the current yield and labor force of the honey industry.

If Mongolia is assumed to use its full capacity of 2 million bee hives, it can produce 40'000 MT per year. The largest volume of exporter in the organic honey of the global market was recorded 60'000 MT per year which was done by China in 2019.

As indicated previously, 64% of the total 290'160 labor force in the agriculture sector consists of the northern and central provinces where honey bee distribution is placed. The honey bee farm has a high potential to expand its labor force by herders and farmers to use its full capacity. Preparing trained beekeeping would be the great start to keep vertical development of the value-chain.

Table 11. Assumption of honey production growth in Mongolia.

Honey production projection					
	Current situation	**Projection - Domestic Production**	**Capacity share**		
	2019	2022	10%	30%	100%
Beekeeper number	1000	2036	20000	55,556	180,995
Beekeeping household number	400	814	8000	22,222	72,398
Bee hive number	10,800	21,990	216,000	600,000	1,954,751
Production by MT	221	450	4,420	12,278	40,000
Volume per hive	20	20	20	20	20

Source: NSOM and Bee Association of Mongolia, 2019.

In Mongolia, income generation of rural communities directly relies on livestock production. The incidence of poverty is still higher in rural areas (30.8 percent) than in

urban areas (27.2 percent). (World bank report, 2019). An empirical study on the role of the agriculture sector to community development in Mongolia by Mongol Bank in 2016 revealed that there were 3 main factors to increase livestock production: 1) Increase the number of livestock, 2) Raise the price of livestock products, 3) Increase credits toward livestock production. In regards to the exceeding use of pastureland, it is impossible to increase livestock numbers. In that case, becoming beekeepers would be the next potential alternatives for herders and farmers.

Dating back prior to 1990, the maximum number of bee hives rose to 4768 in the history and it declined to 600 in 2006. Since 2007, donor organizations have started a number of programs aimed at supporting household income generation and poverty reduction in which 800 bee hives were initially distributed along with training on how to run bee farming to herders and farmers in 8 provinces of Mongolia in 2014. (Otgonbileg.KH, 2014). To date, bee farming has been attempted to be introduced to all 21 provinces.

Table 12. Number of labor force in honey distributed provinces of Mongolia

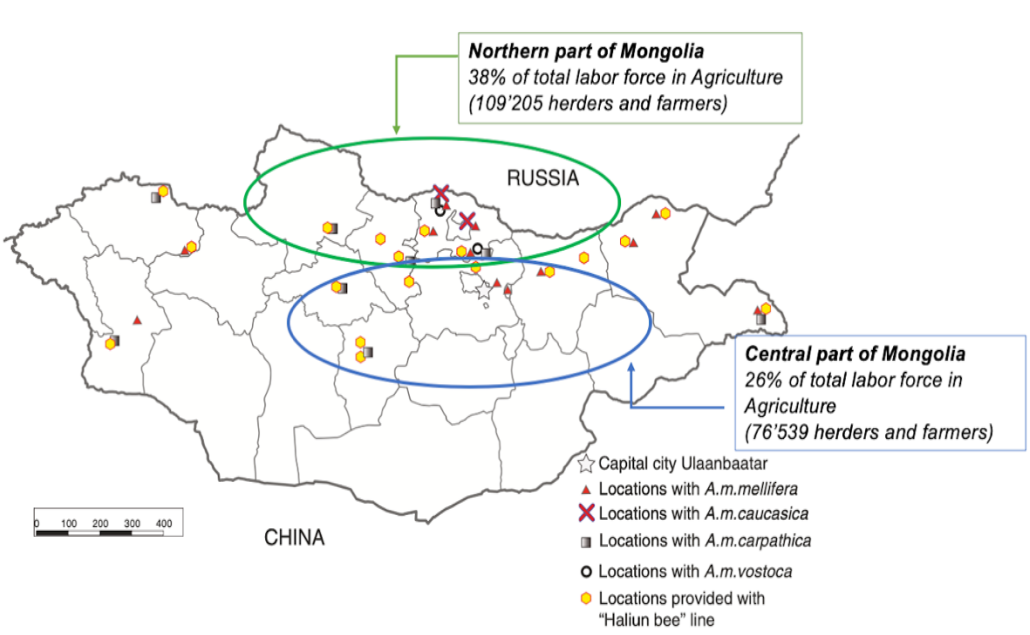


Fig. 9.2 Distribution of honey bees in Mongolia by subspecies (Selenge 1974–1995)

Source: NSOM 2019 report, Asian Beekeeping in the 21st century magazine. p.205

Regarding the growth of beekeeping, the challenging issue is to finance startup funds to have bee hives. As the national apiary association estimated that approximately $5400 is required to start their bee farming with a minimum 20 hives. Green finance or impact investment is highly required for its real action. Micro financing by commercial banks has worked on this situation but it failed due to the shortage of environmental study and small number of available beekeepers as a labor force. Investment is required for the environmental study. (Zandaakhuu, 2020).

Within the framework of promoting intensive agricultural farming programs in Mongolia, it is possible to request finance for the apiary sector development. In order to

place such financing on the state budget, an established legal and policy environment is required (Zandaakhuu, 2020).

Human resource capacity at processing chain

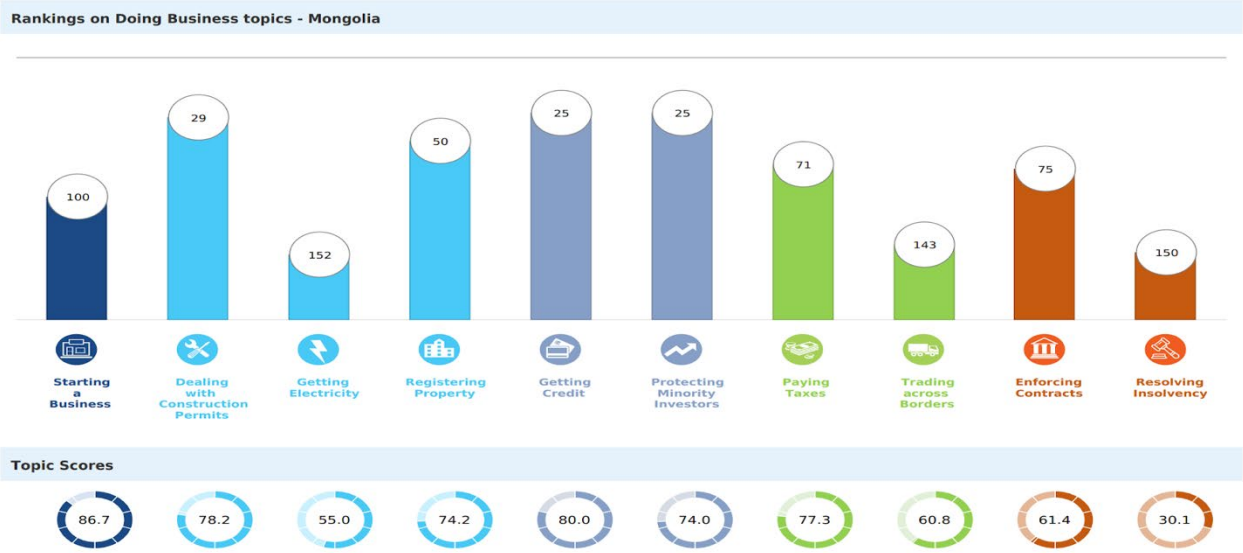
For national laboratories and product development firms at the processor level, high-skilled professionals in charge of quality and food safety issues are required. More specifically, professionals in food science, food engineering and biotechnology are highly required to be prepared in order to develop innovative and value-addition products. Currently, two state and few private universities are insufficient preparing professionals in biotechnology, food science and engineering, yet those graduates are being hired by large enterprises with higher salaries. Due to the low demand of food science professionals in the market, younger people are not interested in these majors.

The university of agriculture and life sciences of Mongolia is playing an important role in food security, but its extension services are not sufficient due to limited financial support from the Government.

3.6 Business environment across the value chain

Mongolia was ranked at 64 out of 190 score in terms of Ease of doing business in 2019. (Doing Business, 2020). The favorable condition to do business is improving recently but trading across borders, paying tax, resolving insolvency and getting electricity have continued to rank low over the years.

Table 13. Rankings on Doing Business topics in Mongolia



Source: Doing business, 2020

The apiary industry is a sustainable business which does not need electricity, water and other natural resources. Apart from this, it has a number of positive externalities in society and environment especially for our daily food production and forest regeneration. Regarding this notion, young entrepreneurs are becoming interested in bee-farming agribusiness as a social enterprise. To see the brand product developers in the honey market, around 80% of them were founded over the 3 years and expanded its market shares quickly up to 28%.

Agribusiness models in apiary industry

At the bee farming level, farmers work as cooperatives and clusters in order to share transportation and labor force during the harvest time. On selling their products, beekeepers make individual decisions on how they sell their products. Income tax on individuals is 10% while entities are 20% including VAT.

At the processing level, all of the processors are required to be formed as "social enterprises" because retailers only work with enterprises in order to build official corporate relationships. The challenging part of the business environment of Mongolia is directly linked to the income and VAT tax issue that is no differentiation policy on small and medium enterprises.

As reported in doing business in Mongolia, establishment of agribusiness is easy, but running its operations is challenging. This is due to the lack of a differentiated tax, credit availability and transparent information on all chains.

Investment in apiary industry

To see the investment flow, there was a $4 million investment was injected into the agriculture sector of Mongolia in 2016 which accounted for 0.04% of total foreign direct investment (FDI). (Ministry of Agriculture, Mongolia, 2015). It implies that the agriculture sector of Mongolia has not been attractive to foreign investors thus productivity of this sector must be enhanced. In contrast, the domestic investment flow has been quite good since 2013 in support of Governmental bonds named as Samurai and Chinggis designed for strengthening development of agriculture. Note that total $209 million spent on agriculture between 2013-2014 which can be recorded as the largest amount over the years. Tuvshintugs.B, Bumchmeg.G, Erdenebulgan.D (2015).

In the past 2 years, the finance and technical support to the agriculture sector has been conducted in accordance with the value chain, which is a good start for productivity improvement. The value addition industry for apiculture products is not well developed and there is a need for a more centralized extraction, processing, packaging and branding framework that small-scale, economically challenged producers can capitalize on. The only available financial support to the apiculture sector is the Small and Medium Enterprise Fund of Mongolia that offers loans with 3% interest annum and Bonds (Mongol Bank, 2016). It is important to note that rise of local impact investors who offer micro-finance to the innovative ideas to support sustainable business like apriculture has been increasing in recent years. Examples are "Gantsuurt" and "Saranagoods" local brands based on honey and other by-products. In addition to that, many donor organizations' technical supports have contributed to value chain study, standard development and capacity building in the rural area for income-generation.

Table 14. Number of value chain development projects in apiculture is increasing.

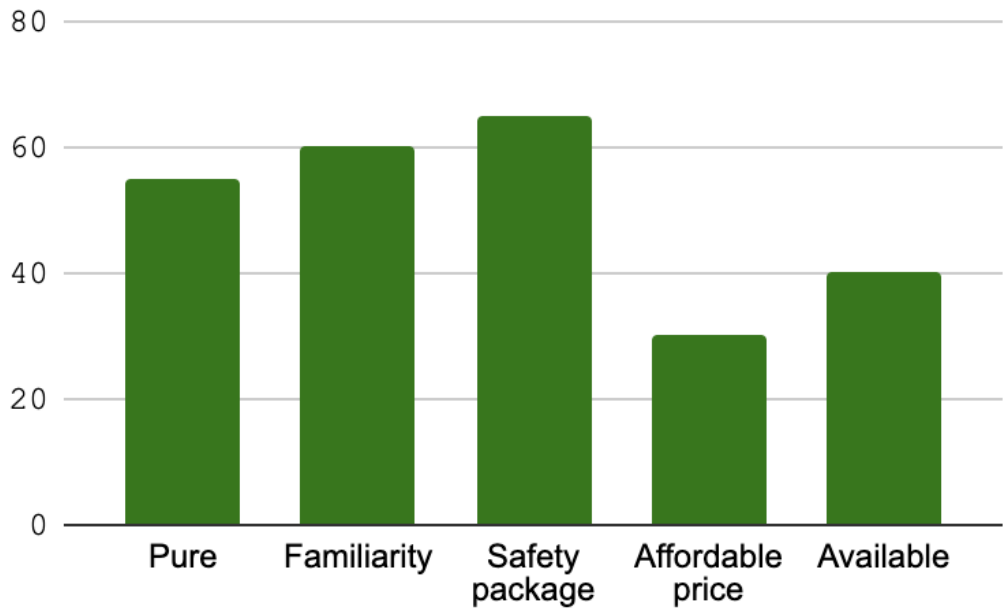
Source: Ministry of Food and Agriculture of Mongolia and Country reports of donor organizations

3.7 Domestic Demand

Saranagoods social enterprise has conducted a survey in 2020 among customers about customer requirements and demand with respect to Mongolian pure honey which is fairly common across the country. As indicated table 9, key consumer motivations for

consuming Mongolian pure honey were: 1. Familiarity 2. Safety package and 3. Pure. Over 60 percent of consumers said that they were increasing their purchase of local honey specially from Selenge province, and 40 percent identified packages related to food safety as affecting their purchases. Nearly 90% percent said that they would use wildflower honey to drink with water in the morning for stomach treatment - this was by far the most popular use.

Table 15. Consumer's Reasons for choosing Mongolian pure honey



Source: Focus group interview on customers' preference, Saranagoods research

3.8 Opportunities

The table below shows the main constraints in the honey value-chain of Mongolia. Those were categorized into the main three phases of the value chain such as bee farming, processing and marketing. From this picture, it can be concluded that Mongolian honey

industry risks being trapped into producing low-skill, low-value products as well as struggling to obtain a significant value-added share in the global market. The main problems for lower productivity are caused by little to no access to finance for bee farming expansion and production growth; lack of capacity building; insufficient value-addition; and little to no sophisticated marketing and branding.

Table 16. Opportunities in the honey value chain of Mongolia

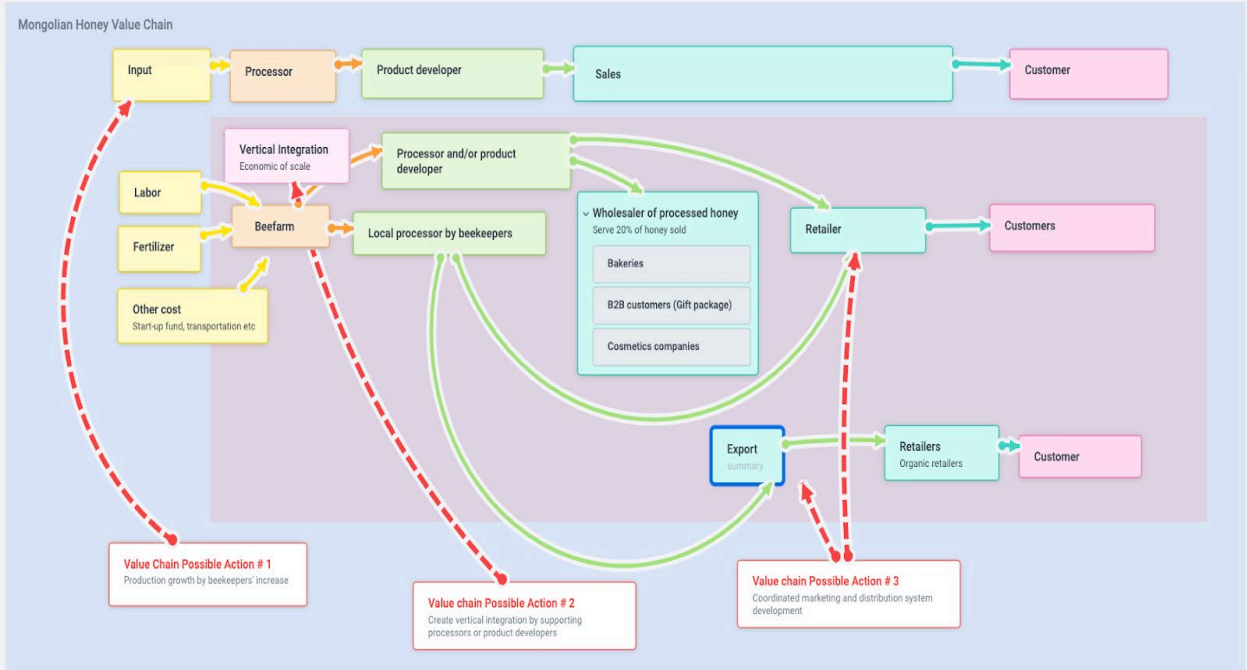
Value chain phases	Opportunities
Input - bee farming	• Yield per hive is comparatively low due to the beekeeping technology and quality standard; • Decline of honey bee flowers due to the climate change; • No access to finance for expansion and yield growth; • Lack of trained beekeepers; • Lack of baseline survey and research on beekeeping of Mongolia;
Processing	• Packaging does not meet with food security standard; • Rules of origin on wildflower honey is not well traced; • Lack of equipment in relation to processing; • Lack of professionals in laboratory and food science; • No access to finance for value-addition;
Sales /marketing/	• Lack transport and logistics; • Bulk price of export is not competitive in the global market; • Lack of marketing/branding; • No information flow on price, market dynamics and regulation; • Lack of customer preference on honey use and its benefits; • No competitive with imported honey in terms of price;

Source: Ganzorig.G, Enkhamgalan et al., (2018) and focus group interview result by author

3.9 Intervention in the Mongolian Honey Value Chain

The focus group interview and secondary studies among beekeepers and processors results in many possible value chain initiatives which are listed down in table 11. Unmet and clearly increasing market demand should be addressed by increasing supply of qualified honey from beekeepers (Value-chain Possible Action # 1) by growing number of trained beekeepers in table 10, taking advantage of the opportunities to vertically integrate operations by providing financial and technical support to beekeepers and processors/product developers for value-added production (Value-Chain possible Action # 2), and developing a more sophisticated marketing and distribution system in order to capture more value for domestic and global market access. (Value chain possible action # 3).

Table 17. Three proposed interventions in the value chain of Mongolia



Source: Ganzorig.G, Enkhamgalan et al., (2018) and focus group interview result by author

Table 18. Alternative solution to the value chain opportunity

Value chain phases	Alternative Solutions
Input - Bee farming	• Apply upgraded beekeeping technology and its quality standard for beekeeping; • Plant specific herbals (honey plants) in irrigated area; • Get crop producers and herders trained as beekeeper for its honey production growth; • Develop cluster based on distribution of bee hives; • Increase green financial and technical support toward bee farming development by donor organizations and Government of Mongolia; • To be done comprehensive research on bee forage and production capacity at cross-organizational level;

Processing and product developer	• Support processing and product developer social enterprises for standard labeling and packaging (post-harvest service); • Improve current origin of product standard through integral policy; • Honey lab-testing tools should be introduced from processing stage to market access in broad ways; • Logistic and transportation services should be coordinated in a shared way by all participants in the value chain. • Work with Professional training centers and state universities to prepare professionals in laboratory and food science;
Sales /marketing/	• Offer affordable price in both bulk and retail; • Improve customer preference on mongolian pure honey through comprehensive marketing tools; • Improve monitoring system on honey quality and product origins by the professional organizations; • Support enterprises in value-addition in terms of green financial and technical support by policy; • Increase information flow on price, market dynamics and legal regulation among all participants in the value chain;

Source: Source: Ganzorig.G, Enkhamgalan et al., (2018) and focus group interview result by author

The value chain perspective provides an important means to understand business to business relationships that connect the chain, mechanisms for increasing efficiency, and ways to enable businesses to increase productivity and value-add. (C.Martin Webber and Patrick Labaste, 2010). This is the first step to supporting services and creating a sustainable business environment. In further, it can contribute to pro-poor initiatives and better linking of small business with the market. In the next chapter, the author shows

agribusiness intervention to help bee-farmers of Mongolia through the social enterprise business models.

4. INTERNATIONAL AGRICULTURAL DEVELOPMENT AND INNOVATION

The GDP growth originating from agriculture is about four times more effective in raising income of extremely poor people than the GDP growth originating outside the agricultural sector (OECD, 2009).

Porter and Krugman stated that real competitiveness is measured by productivity, rather than the growth of exports, because it is everything in the long run for a country's prosperity (Latruffe,

2010). In addition to that, the productivity increase of the agriculture sector pertains to the poverty reduction through the following important economic factors such as income generation, creation of employment, support for agribusinesses, and decrease of food prices (Schneider Gugerty, 2011). In today's uncertain world, innovation is the only possible way to increase productivity in the agriculture sector in both developing and developed countries.

The global challenge in front of us is to produce more with less. Population increase and expansion of the economic system increasingly require an growing natural resource utilization and energy. Thus, we can-not keep going at the same pace as we have previously in order to conserve natural resources and the planet. We have to change the ways that we produce and consume. We need to invest in more research and innovation to find innovative solutions to sustain agriculture and achieve the SDG goals of zero hunger by 2030 (Lorenzo Bellu, FAO Senior Economist).

In chapter 2, the author explained that the productivity of the Mongolian agriculture sector was not competitive in the global market. Its example has been shown clearly on the value-chain approach analysis in the chapter 3. In response to that, Mongolia is asked for introducing productivity in agriculture sector by applying innovations in soil, irrigation, technology, greenhouse creation and know-how. Most importantly, establishing a complex adaptive system in the agriculture sector in support of the innovation system from farmer to the customer chain is necessary to protect and conserve natural resources in Mongolia.

In this chapter, the international trends of agriculture development policy will be discussed from the aspects of harmonization among R&D, value chain, and innovation systems for the growth of agricultural productivity for the potential implication in the Mongolian agriculture development.

4.1 International Development Policy on Agriculture

Traditional agricultural development policy replied directly to food security issues and increased attention on farmers trading surplus agri-food products for their subsistence. Today, development policy has pivoted to consider the agriculture sector as one of the main contributors to economic growth and support it through "market leverage" to increase income of all participants in the value chain of agriculture production and generate employment. The more agricultural products that are in high demand in the market, the more motivations herders and farmers will have to achieve a sustainable honey supply. Those motivations ultimately will result in providing income and employment for many, in rural areas and cities, in farming and the food business, as well as related activities such as logistics, the machinery industry, commerce, the service industry (accounting, banking etc.) and in governments. (Tuvshintugs.B, Bumchmeg.G, Erdenebulgan.D. 2015).

To date, sustainable agricultural growth depends on the constant demand of agriculture products, quality of extension service, inputs and technology upgrade. In other words, agriculture development policy has been increasingly prioritizing to support the value chain process under the innovation system. In this regard, the understanding of value chain analysis, innovation infrastructure, development study of agriculture and impact analysis are becoming main topics to be addressed in recent years. Business as usual is not an option, which is why research and innovation (R&I) is so crucial in helping future food security and competitiveness (Anandajayasekerum, Puskur and Zerfy, 2009).

Investing in science and innovation is the key input to maintain productivity and improve innovation in agriculture. Apart from this, it is difficult to imagine innovation and business development being successful unless there is pre-investment for ecosystem foundation. In context, investment into the innovation system should be harmonized with agriculture development policy and vision statement of any country. At the international stage, donor

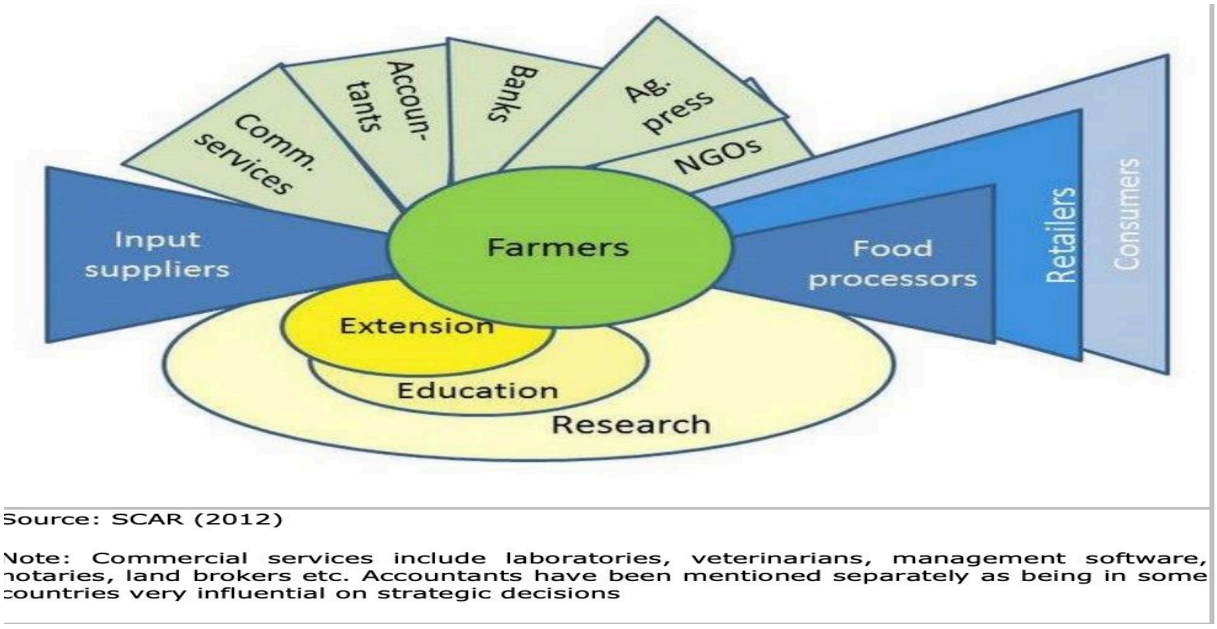
organizations have come to recommend to other countries that investment in the agriculture sector must be done based on impact evaluation on the environment, value chain in depth-analysis on problems and its prioritization with the purpose of offering sustainable agriculture norms.

4.2 Innovation in agriculture development

In a paper by the EU's Standing Committee on Agricultural Research (SCAR), it was stated that it is increasingly important to strengthen competitiveness and labor productivity in a way of supporting, designing and applying an innovation system for any country in today's uncertain world. In order to make an evaluation on the innovation system of the country, SCAR introduced the Agricultural Knowledge and Innovation Systems (AKIS) model in 2010 for the 'Big Data' and Information and Communication Technology revolution. The Open Science approach offers many new opportunities for knowledge networks and business models and is seen as an important opportunity to speed up excellence and innovation in science.

The AKIS model is a basic understanding of "innovation system" which highlights the relationships among all agents in the value chain of products and budget mechanisms or incentives at institutional infrastructure. Although different AKIS components – Extension, Education and Research – are often stressed, it is important to realize that there are many more actors in the value chain that directly influence the decision making of farmers and their innovations. (SCAR, 2012).

Table 19. Actors in the value chain for agriculture innovation



Source: SCAR (2012)

Note: Commercial services include laboratories, veterinarians, management software, notaries, land brokers etc. Accountants have been mentioned separately as being in some countries very influential on strategic decisions

Source: SCAR (2012).

In agricultural development policy, a certain part of the budget has to be spent on capacity building of farmers with the purpose of supporting research toward innovation. This research creates the platform of knowledge exchange and know-how among all actors.

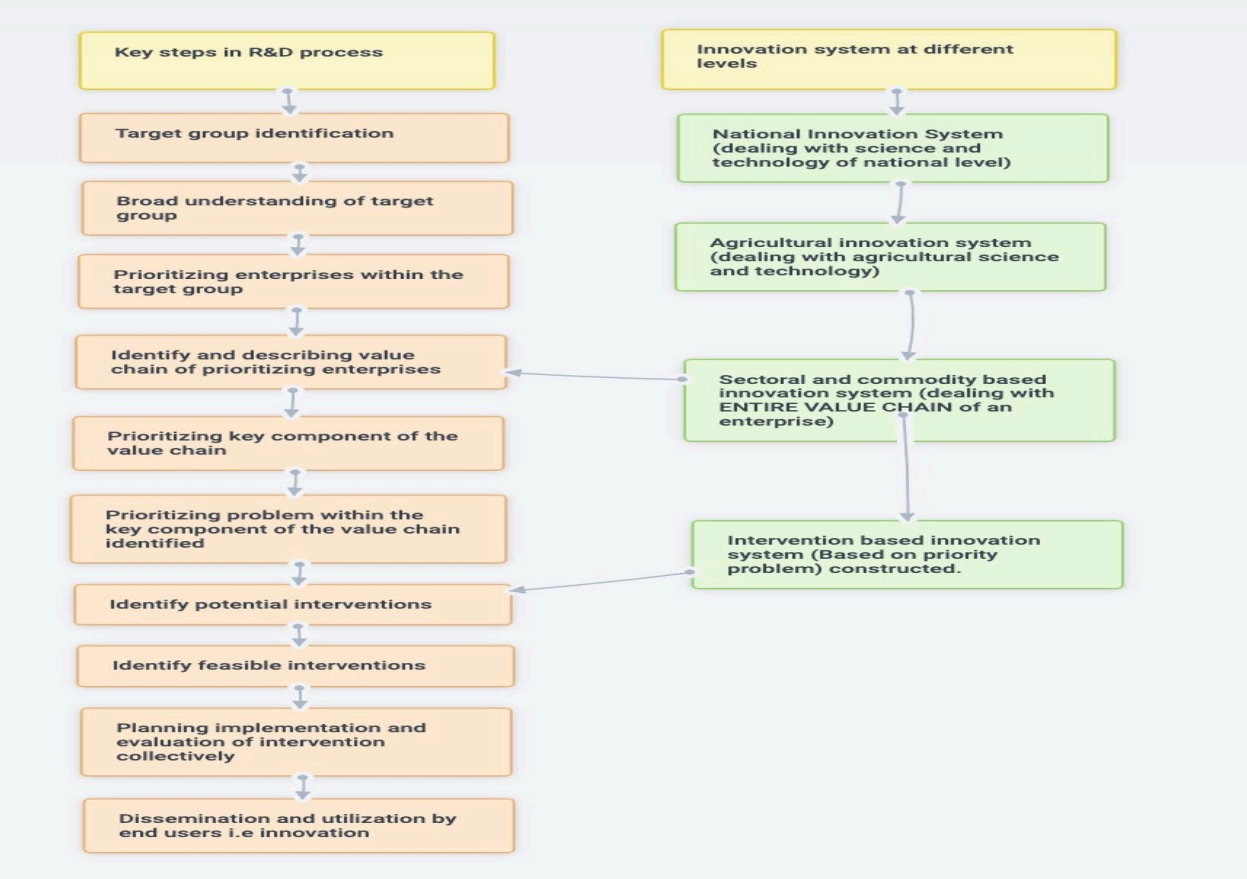
Innovation starts with the mobilization of existing knowledge and is a social process, more bottom-up or interactive than top-down in approach from science to implementation. Even pure technical innovations are socially embedded in a process with clients, advisors etc. Frequently, partners are needed to implement an innovation (SCAR, 2012).

At the same time, information technology plays an important role in maintaining existing innovation and its inclusive application to the other actors in the value chain. Innovation in agriculture covers the complex and broad aspects cause obstacles to find the main problems and proper innovation system. Against this background, information technology can help innovation to develop on a digital basis that brings opportunity to distinguish the role of all actors in the chain and evaluate their performances (World Bank, 2011).

Innovation systems consist of entrepreneurship and value chain, however, these two parts of innovation should be increasingly focused on building its relationships to other factors (Anandajayasekeram P, 2011). Value chain brings the opportunity to see how part of the system can make a contribution to the whole system by its value along with vertical integration. Innovation systems of agriculture can be formed at individual, farmers, cooperatives, province, country and international level. Value chain analysis can identify problems and challenges at any level. Innovation is created based on information flow from button to top and cooperation among actors in each chain.

The below table 11 shows how R&D, innovation and value chain interact with each other at any level of development. Based on this structure, agriculture -based countries have been trying to develop their agricultural policies and public investment to the result of value chain analysis. At the same time, donor organizations and governments are supporting social enterprises that are the main source of innovation in the agriculture sector for closing the gap in the value chain.

Table 20. Harmonization among Innovation, Value chain and Research & Development



Source: (Anandajayasekeram P, Puskur, Zefru, 2009)

Social enterprises are defined as private for-profit, non-profit, or hybrid organizations that use business methods to advance their social mission. In the case of agriculture, social enterprises are mainly focused on a particular sub-system of the value chain which is the whole system with the objective of developing a business model that is innovative, cost effective, and provides strong value for money in providing service and products. (Elaine Tinsley and Natalia Agapitova, 2018). In the next chapter 5, the author describes how social enterprise is making innovations, using the apiculture industry of Mongolia as a case study.

5. CASE STUDY OF SARANAGOODS BRAND

5.1 Introduction

Saranagoods LLC, a Mongolian agribusiness and social enterprise, contributes to the inclusive economic growth of rural communities through employment opportunities for women/mothers and productivity enhancement. This social enterprise serves as a model for understanding the structures, operations and challenges of a young mompreneurs-led social enterprise in the apiculture sector of Mongolia. Saranagoods brand shows how

social enterprise's business models can be effective and impactful in the honey industry for bolstering the sectoral productivity and economic growth.

5.2 Organizational Background

After she had her second child in 2016, co-founder of Saranagoods, Mrs.Naranzul had a chance to rest a bit with her family for her first six months. It was the first time she took her maternity leave from work in order to take care of a precious one until she was 6 months old. From the 6th month, infants are able to adapt to the regular meal step by step along with the breast milk. Within the first 6 months, her main concern was to find fresh and clear sourcing of fruit and vegetables for her daughter. Unfortunately, Naranzul soon realized that all types of fruits and vegetables, except for potatos, were imported from China and other countries. Afterwards, Naranzul had been curious about the fate of Mongolian food in terms of supply and demand; and what raw materials that we have in the rural area.

She was the Chief Operating Officer to "Angel Fund" in Mongolia when she joined agribusiness. In late 2016, she came back to her company from maternity break and started working on some shortlisted projects for luring investment from "Angel Fund" where she worked. Agribusiness was not an attractive sector for most investors who sought high margin, however, she promoted one of the most sustainable and high-impactful projects and could get investment approved for the Saranagoods honey proposal with a condition of running under her management. As a result of that, Saranagoods LLC was born along with as her 3rd child in January 2017.

Naranzul is grew up in a city and has a background majoring in International Relations and Business Administration. Nevertheless, her 2 years of working experience on participatory forestry management projects of Mongolia by the UNFAO greatly helped her to quickly adapt to the management of agribusiness in Mongolia in an inclusive and innovative way with farmers. At the UNFAO project in partnership with the Government of Mongolia, she assisted in delivering technical support and training to Forest User Groups on their income generation from non-timber production. Later, she joined an "Angel Fund" supported by local top companies to support start-ups in the fields of energy, agriculture and real estate in Mongolia for 7 years. As a result, Naranzul became well-experienced with the market access phase in the value chain when she took on the role as a Research and Development Manager on the storage and potato production project.

Bee farming can be described as a sustainable business model in relation to its multiple benefits not only to inclusive economic growth but also social issues such as poverty reduction in rural communities and employment. In this regard, Naranzul modeled Saranagoods as a social enterprise in combination with the addressing issues that were social-oriented such as inclusive economic growth through its contribution to employment creation amongst women, particularly mothers; cash upfront payment and value-addition offer or initiatives on honey production to bee farmers; and productivity of Mongolian honey. As a result of Sarangoods evolution on packaging and value-

addition initiatives in post-harvest, it has made a significant change on customer mindsets that would prefer imported honey and uplifted public trust in local honey.

5.3 Mission and Values

Approximately 80% of domestic honey consumption is concentrated in Ulaanbaatar, the capital city of Mongolia. With that consideration, Sarana Goods' head office and food processing certified production site are located in Ulaanbaatar to produce laboratory certified and high quality pure honey with collaboration with selected experienced bee farmers in Selenge province that is the main place to source wildflower honey. The vision of Saranagoods is to build a sustainable natural agri-food enterprise throughout Mongolia based on its natural resources. In order to achieve this Vision, the mission is to produce and supply responsible-sourced, value-added and natural food ingredients made from the heart in Mongolia to everyone all over the world with a healthy lifestyle. To fulfil its mission, Saranagoods embedded key values in its branding, which could be described as strategic partners with social and environmental purpose, inclusive growth based on innovation and positive impact on rural communities.

5.4 Organizational structure

Saranagoods organizational structure consists of 3 parts including bee-farming, processing and other supporting subsystems. It is formed as LLC (Liability Limited Corporation) with three-members in a board. It employs a staff in Ulaanbaatar to manage its operations in financial accounting, administrative management as well as its

processing, bottling, labeling and distribution. On other supporting services to operations in marketing, package designing, customer relations and legal relations, Sarana prefers to employ mothers who are taking care of their kids at home through outsourcing ways that are part of reflection to be a social enterprise. At the production site, it has invested in two big and experienced bee farms that are formed as cooperative. In case of increasing demand for honey sourcing, Saranagoods offers an investment in new beekeepers with hives and technical support through current cooperative based bee farms. According to the contract, beekeepers should supply honey at an negotiated price to Saranagoods and they work together under the instructions of current experienced beekeepers. That's making a great impact on access to finance in terms of small-sized herders and farmers. Currently Saranagoods has invested in two bee farms having approximately full-time 10 farmers but the numbers rises to 30 when collecting nectar from May to September each year. Saranagoods' strategy to partner with beekeepers is to invest in start-ups and/or expansion and offer a constant sourcing honey from them in case of meeting quality standards in accordance with Saranagoods' requirement. From the beginning, Saranagoods preferred to select partners and employees who were passionate, diligent and supportive for its vision and mission. It would be great leverage to adhere to goals in this uncertain world. Saranagoods salary range is comparatively higher than small-scaled food companies in Mongolia and offers additional benefits to annual medical full checkups and training packages.

5.5 Company operations

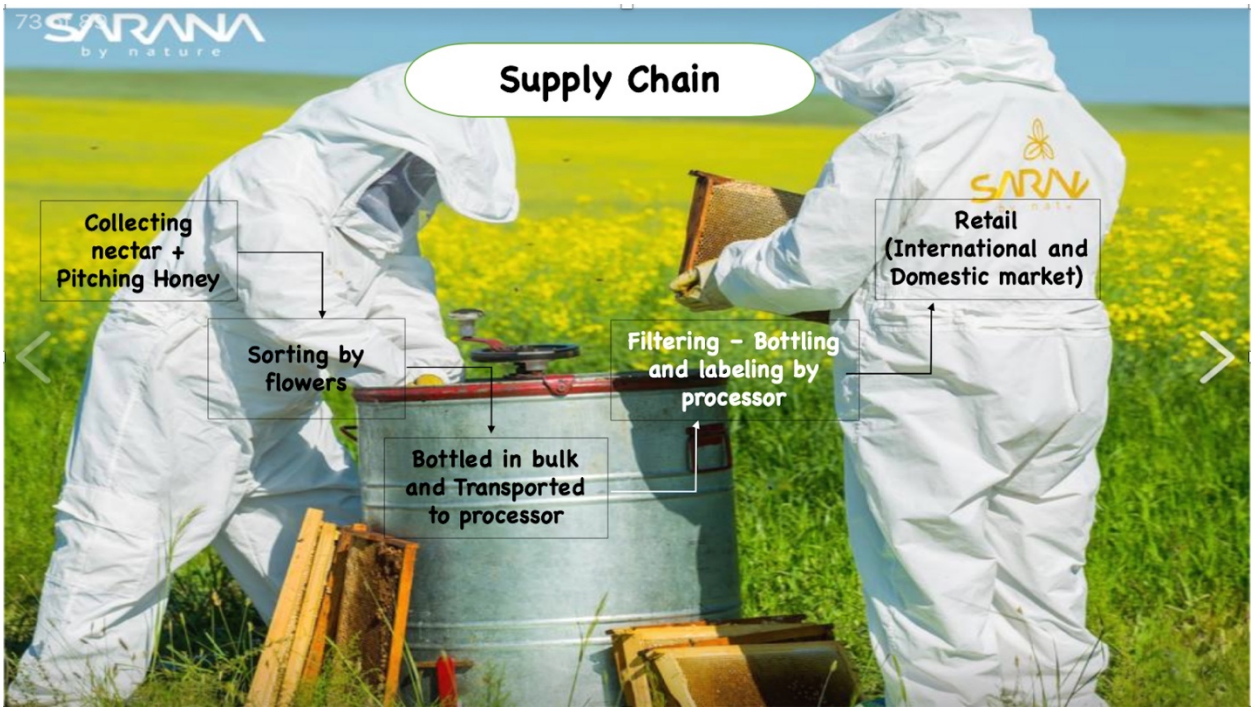
Saranagoods has taken account of 4% market shares in the Mongolian honey industry within 2 years. Currently, it conducts filtering, bottling, labeling and sells rapeseed, buckwheat and wildflower honey in different customer preference packaging. Value-added process is the key focus to be applied in order to compete with imported honey as well as the global market. In this regard, Saranagoods prefers to add values as soon as possible on each phase of entire value chains from the production at the bee farm to the customer. From each product package and process, the value chain and innovation pattern can be shown in turn, it enhances employees' productivity and creativity.

5.6 Production Process

Mongolian harsh weather conditions make beekeepers collect nectar on a seasonal basis from May to September each year. Until the first of July, beekeepers collect wildflower honey and then transfer beehives into planted flowers such as rapeseed and buckwheat. At the field, they finish up pitching honey and sorting them by flower types. Saranagoods asks those bee farmers to make honey sorting out by wild and planted flowers before supplying the production and offering market wholesale prices with upfront cash. This is a process of value-addition at the field site. Prior to that, all types of honey were blended with each other because beekeepers were not concerned about customer feedback. When transporting honey from the farm gate to the processing plant, it is important to use a proper bulk storage package. Once received in a processing plant, a food technician tests its moisture content and gets samples for the National laboratory to show retailers. Due to the cost and benefit analysis the location of the processing plant in

Ulaanbaatar is beneficial for filtering, bottling and labeling there. Currently, Saranagoods supplies all its products to roughly 80 retailers from the largest supermarket to online customers.

Table 21. Sarana Goods' Supply Chain Map



Source: Saranagoods research et al., 2020

MARKETING

5.7 Products

To date, its product line has been developing 16 types of products under five categories such as Food, Home, Kids, Gift Package and Cosmetics. (See Annex 1). In order to increase public awareness of the distinction of Mongolian pure honey, Saranagoods

produced honey straw and bottled 3 types of honey in small-sized and sorted patterns. This packaging was new for Mongolians and made a huge impact on their undervalued mindset about Mongolian honey.

In the competitive domestic market, Saranagoods strategy is to be diversified and value-added in terms of products and supporting services. In this regard, Saranagood collaborates with organic cosmetics producers and candle makers to produce soap and lip balm with the ingredients of their sourcing honey as well as to make beeswax crayons based on Saranagoods' product development technology and recipes. So far, Saranagoods owns two kinds of intellectual property rights on 6 color beeswax crayon and on-the-go honey straw. Gift package line is one of the main contributors to total sales revenue because Mongolia has a traditional culture to exchange gifts during the national holidays. Until today, Saranagoods' all products are made up of honey and beeswax however, the product development team has been working actively on new products based on propolis and bee pollen together with food scientists and researchers from the University of Agriculture and Life Science of Mongolia.

Table 22. Products line of Saranagoods

Source: Saranagoods website (www.saranagoods.com)

5.8 Prices

At Saranagoods, price is set by analyzing the cost of production, profit margins and customer's affordability. In particular, cost of production was expensive for Saranagoods as it needed to account for the cost of imported bottles and packaging materials. In addition, spending on customer education is one of the largest costs of marketing. On nutrition benefits, Mongolian wild flower honey is highly competitive in the global market, thus Saranagoods' first strategy is to target medium and high-end customers who are the constant customers of honey. Accordingly, Saranagood's honey bottled in 500gr

is comparatively super premium. (See Annex 2). In order to expand its share into the mainstream market, Saranagoods invested in bee farms with technical support and financing on bee hive purchase for the farm expansion. In doing so, it is expected that the price of raw material sourcing from baa farming can be reduced at fair price level.

However, other types of smaller sized honey products and gift packages are affordable for middle income people. Prices of cosmetics and kid product line products are designed for middle and high end customers because the production cost of ingredients and labor can be expensive at the domestic market.

5.9 Distribution

The majority of Saranagoods products are sold in Ulaanbaatar, the city center of Mongolia. Saranagoods is managing its distribution to all retailers and distributors including supermarkets, hotels, convenience stores, pharmacies, cafe shops, local cooperative shops and duty-free shops. In order to track the stock and delivery management, Saranagoods is using a new bookkeeping and stocking application designed for small-scale companies. It is a cloud-based tracking software used by stock bookkeeper, distributor and accountant all together to see their relationship. After introducing this software, meeting among beekeepers and accountants was reduced 2 times and paper usage was lowered 3 times. With the high demand of online shopping, Saranagoods has been working with top two online shops for 2 years under a special contract for local producers. To accomplish its goal of being a global supplier of honey and other value-added by-products, the company exports lower volumes of honey into

Inner Mongolia, China while working on exporting to Japan. Naranzul highlighted that Japan, EU and USA had expressed their interest in Mongolian wildflower honey but it did not work due to the strict entry requirements to the regions for smaller companies to be met. However, Saranagoods has been actively working on quality standards, packaging and testing at the International Laboratory in order to export its value-added honey, not in bulk. At the same time, lack of beekeepers and proper technology of bee farming is caused by its productivity to be competitive in the global market. Saranagoods always stimulates dignity and empowers all participants in the value chain of honey to achieve a goal all together step by step. First step is to have self-sufficiency in the domestic market and then export large quantities of honey outside of the country.

5.10 Advertising

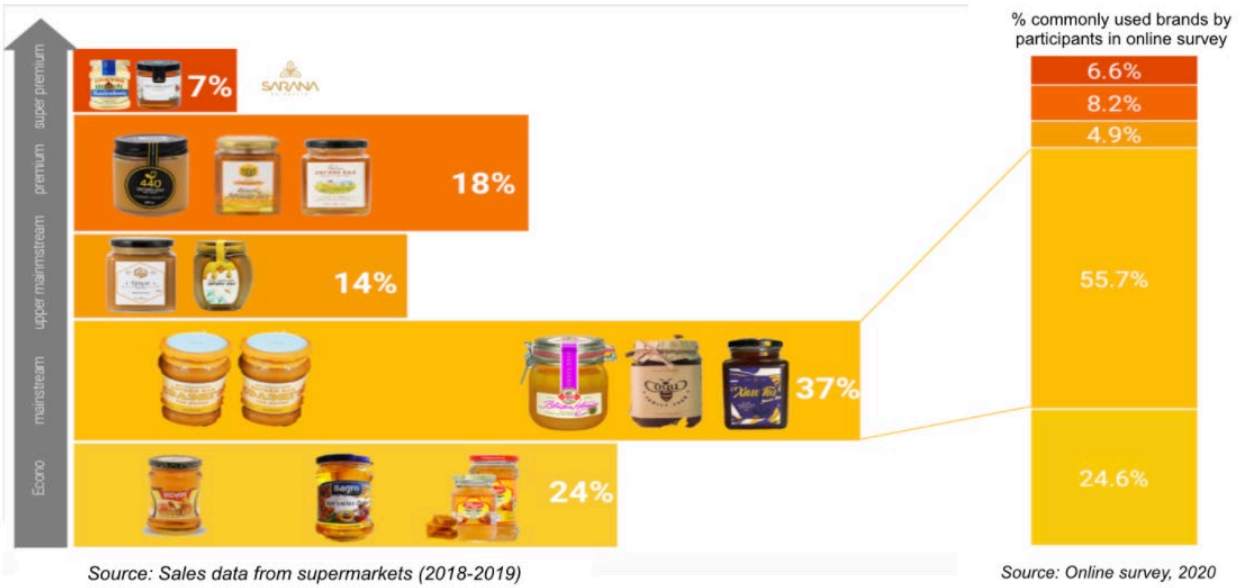
Promotion is one of the major challenges for Saranagoods because customer understanding on honey use and mongolian wildflower honey is comparatively weaker. As a small scaled company, the cost of promotion is difficult to manage easily, in turn it asks management to make a good marketing and highly efficient initiatives with a limited budget. In this regard, there are three main Saranagoods' strategies for promotion. Firstly, practical and science based nutrition information on honey and other by-products was delivered to the public through Influencers on social media (Facebook, Instagram). Secondly, information and video on the benefits of honey bee-farming in rural communities and our fruit and vegetable production was given for the message why

customers should be supportive for local bee farming through daily newspapers and billboards in support of donor organizations and start-ups enhancement programs. Thirdly, targeted promotion has been done successfully through several sponsorships of large events on cultural and business through honey product gift packages to show and taste mongolian wild flower honey is the competition. As a result of those promotions, Shangrila hotel in Ulaanbaatar had become our main customer. Nowadays, fliers and brochures do not work at all; instead, short and good video content in 2 min is becoming as highly influential. Thus, Saranagoods is starting to work with young freelancers and creative mothers as an outsourcing.

5.11 Competition

In the domestic market, branded and domestic honey products have become more competitive over the past 3 years increasing from 5% to 28% in market share of honey consumption. In particular, bee farmers have created their own brands, an affordable price and similar packaging. Based on competitive analysis, it is clear to see that the retail price of Saranagoods was expensive in the branded products; no distinction on supermarkets' aisles; no distinction in similar products at the targeted segments; branding recognition was not good.

Table 23. Price segmentation and its shares in the market (in percent)



5.12 Potential challenges

Loss of Market Share

There are approximately 15-20 domestic brand products competing with each other in branded segments which accounts for 28% of total market share. In addition to that, "Selenge" honey produced by beekeepers shares 24% individually. With the surge of domestic competition, Saranagoods is asked to initiate a new strategy to compete with those players by its distinction for the long-run.

Branding Strategy

Current brand development has been done under Saranagoods. Customers are a little bit confused on our main concentration whether it is a food producing company or a gift package supplier. Based on product development, branding concept is in need of redevelopment. Otherwise, customers do not understand how Saranagoods is creating innovation in the value chain approaches. In order to do that, Saranagoods is required to

have proper and professional marketing managers. This uncertain situation may affect the sale of retailers even if there is no impact on Horeca sales.

Capital Acquisitions

Honey is the potential export product as defined by the Mongolian Government. Unfortunately, there is no favorable condition on financial support and other types of preferences towards all participants in the value chain of bee farming at the National Level. In order to expand its operations and upgrade technology for value addition, acquiring financial capital is the biggest challenge for Saranagoods. Value-added and innovative products are defined as the competitive advantage in terms of the bee farming industry, while all participants in the chain need to invest time and capital into the development of technology and knowledge. Agribusinesses are poorly financed because they tend to be riskier and incur higher transaction costs compared to other businesses. (Byerlee et al., 2013; World Bank, 2018).

Climate change

In recent years, climate change has been affecting honey collection dramatically during the summer. In the last two years, summer drought has resulted in in the quick disappearance of the honey flower. In contrast, with plenty of rainfall this year, beekeepers were led to not harvest expected honey from the wildflower.

5.13 Potential opportunities

Market Expansion in the Domestic and International market

With growth of customer's preference on pure honey, it is suggested that 24% of artificial honey in the market will be reduced in the coming years. Apart from this, bilateral trade agreements with Japan and China are creating an opportunity for entry into the international market. To achieve this goal, legal and quality control frameworks in apiculture are being established in support of donor organizations such as JICA, World Bank and Asian Development Bank.

Growth of Innovative Agribusiness

With the growth of young people-led enterprises in agriculture, Mongolian natural resource-based production has become innovative and competitive with substitution of imported products and is export-oriented. Along with this trend, customer choice turned to local products based on an increase of public awareness on Mongolian agri-food products based on pastureland characteristics.

In this regard, many enterprises had created in the apiculture with the purpose of producing export-oriented and innovative products based on its natural gifts that are increasingly attractive from all over the world.

Growth of Beekeepers

As a result of increasing technical support by donor organizations in rural areas and growth of social enterprises based on honey and other by-products, herders and crop farmers tend to have strong interest in running bee-farming simultaneously. Bee farming is comparatively requiring lower start-ups cost and creating high cash pay back.

5.14 Saranagoods' Impact

Saranagoods' has contributed extensively to the livelihoods of small-scale beekeepers in rural areas and of mothers in urban areas. There are many stories of Saranagoods' impact and results in tangible and intangible rewards for both employees and contractors who work with the organization. From the earnings, many improve their livelihoods, send their children abroad for study, begin socializing from the home and in some cases, these mothers create additional outsourcing businesses like online trading.

One of the greatest impacts was to motivate and reward beekeepers in the rural area for their hard work and dignity. Saranagoods' offering in upfront and fair-price at the farm-gate played an important role to beekeepers to focus on their main business that runs honey production at the farm. Otherwise, running processing and bottling operations in order to sell their product at the city center makes it difficult for small beekeepers to keep its cash management. In fact, Mrs. Naranzul stated that

"I believe in one Chinese proverb "Go together if you want to go further, go alone if u want to go fast". I embedded this concept into Sarangoods' mission as a social enterprise as fair price and innovation along the value chain will be the key to open inclusive development in this industry as stated in SDG goal 11 and 8."

Saranagoods's work and contribution serves as an example of a social enterprise in the agri-food industry of Mongolia. The company's high quality and innovative packaging products allow them to be competitive with reputable brands in both domestic and international markets.

5.15 Saranagoods' Future

Board members of Saranagoods constantly discuss the future of the organization as Saranagoods brand recognition both domestic and international markets. Board members unanimously agreed to design market entry strategy in stages. First steps will be continued for 4 years after its establishment to strengthen their position in the domestic market sufficiently and to enhance its production capacity in rural areas as well. The second step is expected to start from the 5th year with value-added Mongolian products to the International Market. In order to achieve this long-term goal, the organization is required to build a comprehensive innovation system including research centers, specialized associations, extension services, donor organizations and public organization. Within the framework of this perspective, Saranagoods started to partner with forest user groups in 3 provinces of Mongolia to strengthen their capacities on bee farming for income generation under green financing initiatives for developing countries.

Annex 1. Price of Saranagoods Products

	Products	**Price**
1	Wildflower Honey (460gr)	$ 9
2,3	Organic Charcoal + honey soap (50gr) Organic honey+ oat soap (50gr)	$ 3.50
4	Honey straw (5gr x 10 pieces)	$ 2.50
5	Honey Straw (5gr x 5 pieces)	$ 1.50
6	Mongolian Honey starter-kit (Wildflower, Rapeseed, Buckwheat)	$ 3.50
7	Wildflower Honey (280gr)	$4.7
8	Buckwheat Honey (280gr)	
9,10	Seabuckhorn + Wilflower Honey = Lipbalm Roseship + Wildflower Honey = Lipbalm	$3.1
11	Honey Product Gift Set # 1 (Honey set+honey stick+charcoal soap+wooden spoon) 	$11

12	Honey Product Gift Set # 2 (Wildflower honey+lipbalm+charcoal soap) 	$17
13	Honey Product Gift Set # 3 (Honey set+honey stick+charcoal soap+wooden spoon) 	$16
14	Kids Gift Package # 4 with Beeswax crayon + Bee Coloring Book 	$12.5

Annex 2. Quotation of Saranagoods Brand Product

	Brand	Price $/500g
Super Premium	Dreyer (Import)	10.14
	SaranaGoods	9.70

Premium	Gatsuurt	9.08
	Eco Maalinga	8.93
Upper mainstream	Kirkland (Import)	8.72
	Mihachi	8.01
	Gut and Gunstig (Import)	6.46
	Flower	6.43
	Bee love	6.41
	Honey Bee	5.46
Mainstream	Bihophar G&G (Import)	5.31
	Khalkh Gol	5.14
	Oyu Family Farm	5.05
	Elkos Vivide (Import)	5.02
	Fuerstenreform (Import)	4.76
	Selenge brand	4.37
Econo	Selenge Shaamar	3.86
	Vidan	1.28
	Bagro	1.16
	Gazar shim	1.03

6. CONCLUSION

A. Discussion Policy Implications

This paper presented theories from R.Kaplan, D.Norton readers with context on the role of competitiveness in agriculture sector. Also, it highlighted how to estimate its competitiveness of agriculture products in the international market by the RCA index.

Today, Mongolian agriculture sector is seen as non-competitive in terms of value-added products even though, they have a plenty of opportunities and resources. However, it is viewed as diversified and the second largest sector, followed by mining industry to the economic growth.

Upon this strategy, the Government of Mongolia paid more attention to the establishment of infrastructure such as electricity, research on agricultural potential products and road which increase connectivity of rural areas to major borders and markets over the years. At the same time, Mongolian decision makers have tried to set a legal framework for all potential industries within the agriculture sector under its vision 2050 strategy. However, all those policies and implications have not been implemented well as they planned due to the limited budget and public spending.

As highlighted in AKIS model in the chapter 4, Governments should realize that the investment in agriculture sector by public spending that must be influenced by innovation development in the agriculture sector. Innovation is the key factor to agriculture development in growth both developing and developed countries in the unprecedented and uncertain times. As Ponniah Anandajayasekeram stated that the main factor of competitiveness in the agriculture relies on innovation that brings growth of productivity through information technology, research, smart machinery and equipment. One thing J.E.Auston added on international agriculture development was value chain approach by which the Government should design policy and incentives toward Agriculture sector.

Another important policy implication should be done by Public-Private Partnership (PPP) on value -chain research on specific products and financial support to the all participants in the value chain. Agriculture sector is indicated as a business with high-risk, however, women-led and younger entrepreneurs in Mongolia had entered into agribusiness bravely to build inclusive business model for creating value both on economic and social framework without any financial support. Once the model structure has established in Mongolian agriculture sector, the comprehensive policy and regulation should focus on creating a favorable condition for agribusiness and foreign investment. In other words, Government actions and policies should be designed based on value chain vertical integration.

One of the major challenges in agriculture sector is linked to the quality control issues. It depends on standard and its application throughout the industry. In the past, several projects and attempts have been made to address those issues but with no result at the end. Thus, the Government should take this seriously and work with donor organization to address those issues systematically and consistently.

B. Lessons learnt from Saranagoods brand

In chapter 5, the case study was presented to show how social enterprise is addressing with core issues such as rural community development, unemployment and market connectivity for small – scaled beekeepers in Mongolia.

There are several lessons-learned from the Saranagoods as below:

Firstly, the fact that Saranagoods is formed as Social enterprise that is the comparatively new term for everything including farmers and herders and embedded with SDG goals in itself. In that sense, it has 2 positive advantages: 1. It can build trust easily between farmers and enterprises, 2. It reminds all stakeholders to create positive impact on society and the environment at all times.

Secondly, Sarangoods' value-addition and innovation actions on packaging and new product development strengthen and expand the capacity of the Mongolian apiculture sector by introducing a new business model that can be diversified into other types of businesses such as cosmetics, flavor production and trading companies. As a result of introducing new products based on current raw material, many start-ups were motivated and attempted to be more innovative to their products and services.

Thirdly, Saranagoods showed that company strategy should be based on the value chain approach like the National strategy. Once it is established, management can see the big picture how they can play with whom to where. In that sense, many potential solutions are come up together.

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