

1. Overview of Business Operation and Policy

1.1) Business Objectives

Khon Kaen Sugar Industry Public Company Limited has the policy to operate its business ethically and responsibly towards, society, and the environment. It places emphasis on conducting transparent operations, respecting human rights standards, and safeguarding the interests of all stakeholders through the following vision, mission, and quality policy:

Vision

We are natural energy innovation for all.

Mission

1. Create income for farmers on basis of sustainable agricultural development
2. Develop high value products and services
3. Develop personnel's potential as well as information technology to increase competitive edge and growth
4. Develop manufacturing process and technology to achieve highest efficiency and effectiveness as well as compatibility with environment and community
5. Promote innovation and research and development to expand and extend to new business potentials.

Quality Policy

To produce high quality sugar, achieve efficient operation, make on-time delivery, ensure customer's satisfaction and consumer's safety.

Long term goal of the company is to be one of the leaders in sugar, by-products, and value added productions which can be shown in company's sugar policy: "production of high quality sugar with high efficiency, prompt delivery, winning customers' trust, consumption safety". This policy has encouraged company's 5 sugar factories to be widely accepted as one of the highest efficiency and highest quality sugar production groups in Thailand. In addition, with the goal of being one of leading companies in by-product and value added production and with the vision on the potential growth in related – sugar businesses, such as ethanol business and power business. The company has made continuous investments in these sectors.

The company's short term goal is to be one of the leaders in the industry who excels in cost management and productivity. The goal can be achieved by applying modern technology to the corporate production and management systems. Furthermore, the company is aware that its primary risk is the amount of cane it is able to procure for crushing. The sugar factories and other integrated businesses cannot sustain without adequate cane crushed. The company, hence, aims to reduce the farmers' cane cultivation cost as well as to improve their productivity yields and

efficiency. Its objective is to help the farmers sustain their living and receive higher return on their investment as well as to remain productive farmers to our businesses.

1.2) Significant Changes and Developments During the Past 3 Years

In the year 2017, the Board of Directors No. 6/2016-2017 passed a resolution to approve the amalgamation between (1) KSLGI Company Limited, a subsidiary of the Company, and (2) BBP Holding Company Limited (“ BBH”), a subsidiary of Bangchak Corporation Public Company Limited (“BCP”), and register a new company named BBGI Company Limited (BBGI). In October 2018, BBGI was subsequently registered as a holding company with initial registered and paid-up share capital of Baht 2,532 million and the business objective is to invest in bio-based products business. The shareholding percentage of the Company and BCP in BBGI’s shares is 40% and 60%, respectively.

In the year 2018, BBGI Company Limited was registered as a public company named BBGI Public Company Limited and had a plan to be listed on the Stock Exchange of Thailand (SET). In addition, the development projects had been achieved in 2018 as follows:

- Bio Diesel production project made for expansion of its capacity from 930,000 liter per day to 1,000,000 liter per day or equivalent to 330 million liter per year.
- For ethanol made from cane bagasse, ethanol production project at Nam Pong factory made for expansion of its capacity by increasing from 45.00 million liter per year to 49.50 million liter per year.
- For ethanol made from cane bagasse, ethanol production project at Bo-Ploy factory made for expansion of its capacity by increasing from 200,000 liter per day to 300,000 liter per day or equivalent to 99.00 million liter per year.

In the year 2019, the BBGI Board of Director no. 1/2019 passed a resolution to postpone the first initial public offering (IPO) and registration as listed company in SET resulting from the unfavorable capital market.

The current projects under development are the construction of defined glycerin distillery with capacity of 100 tons glycerin per day and capacity improvement project of Ethanol made from bagasse with capacity increased by 200,000 liter per day or equivalent 66 million liter per year. Expected investment total Baht 1,400 million.

1.3) Company’s Business Overview

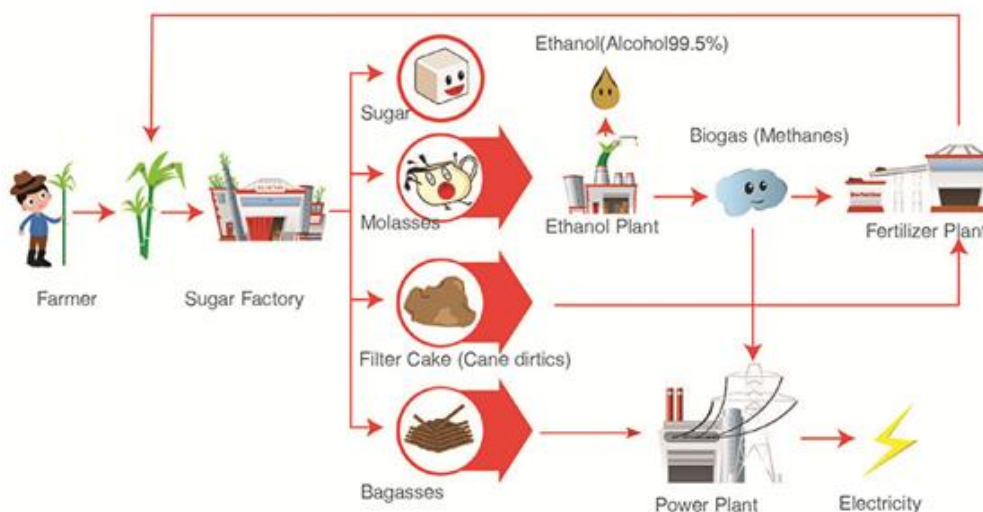
Khon Kaen Sugar Industry Public Company Limited and its subsidiaries, under KSL, are Thailand 3rd largest sugar producer group. The company has 5 sugar factories in the group, located in three different regions, as follows:

1. Northeastern Region (2 factories) : Khon Kaen Sugar Industry Public Company Limited; Nampong branch in Khon Kaen province and Wangsapung branch in Loei province.
2. Western Region (2 factories) : New Krung Thai Sugar Factory Co., Ltd and Tamaka Sugar Industry Co., Ltd. in Kanchanaburi province
3. Eastern Region (1 factory) : New Kwang Soon Lee Sugar Factory Co., Ltd in Chonburi province

The core products which the company produces are sugar which can be categorized to be 5 types: (a) raw sugar, (b) high pol sugar, (c) white sugar, (d) refined sugar and (e) liquid sugar. The company also has other products related to sugar production process, such as molasses, bagasses and filter cake. According to these kinds of products, the company has a plan to invest in value added projects, as followings: (shown on Figure 1.1)

- (1) Ethanol plant : Ethanol is mixed with gasoline, and the mixture is used as fuel for vehicles. Raw materials used in the Group's ethanol production include molasses and sugarcane juice (it is currently managed by BBGI Pcl.)
- (2) The biogas plant uses waste water from ethanol production process as a raw material. Biogas produced through fermentation is used as a supplementary fuel for the corporate power plant. (it is currently managed by BBGI Pcl.)
- (3) The organic fertilizer plant uses waste from the sugar production process (filter cake) and waste water from biogas and ethanol production as raw materials.
- (4) The power plant uses waste from the sugar production process (bagasses) and biogas from the biogas plant as fuel sources for producing electricity and steam sold to plants in the Group and Grid.

Figure 1.1 : The Relationship between KSL's existing Sugar Production and KSL's Value Added Project



Unofficial Translation

As of October 31, 2019, Khon Kaen Sugar Industry Public Company Limited and its subsidiaries have the investments in subsidiaries and associated companies as follows:

Business Unit/Company Name	Paid - Up Capital (THB Million)	Proportion Of Investment	Nature of Business
<i>Sugar Business</i>			
Tamaka Sugar Industry Co., Ltd.	600.00	90.21%	Manufacture and distribution of sugar and molasses
New Krung Thai Sugar Factory Co., Ltd.	1,000.00	95.78%	Manufacture and distribution of sugar and molasses
New Kwang Soon Lee Sugar Factory Co., Ltd.	500.00	98.61%	Manufacture and distribution of sugar and molasses
Savannakhet Sugar Corporation	684.76	98.49%	Sugar cane plantation and Sugar Factory in Laos
Koh Kong Plantation Co., Ltd*	936.98	80.00%	Sugar cane plantation in Cambodia
Koh Kong Sugar Industry Co., Ltd	1,167.66	80.00%	Sugar Factory in Cambodia
<i>Supporting Business</i>			
Thai Sugar Terminal Public Company Limited** and 5 subsidiaries	191.66	23.82%	Warehousing and loading of goods, property rental, produce and distribute wheat flour and palm oil and polypropylene bag.
K.S.L. Export Trading Co., Ltd.	20.00	79.55%	Certified company as export agent of sugar export.
KSL. Agro and Trading Co., Ltd.	300.00	100.00%	Trading domestic sugar and operating agricultural businesses

Business Unit/Company Name	Paid - Up Capital (THB Million)	Proportion Of Investment	Nature of Business
KSL Material Supply Co., Ltd.	480.00	100.00%	Material Sourcing for sugarcane plantation
WSP Logistics Co., Ltd	0.25	100.00%	Service transport and shipping goods
Wynn In Trading Co., Ltd	487.50	100.00%	International trading and consulting service
<i>Energy and Biofuel Business</i>			
BBGI Public Company Limited *** and 3 subsidiaries and 1 associate	2,532.00	40.00%	The holding company which invests in biofuel product and relating products business.
Khon Kaen Sugar Power Plant Co., Ltd	800.00	100.00%	Production and distribution of electricity
<i>Other Business</i>			
KSL Real Estate Co., Ltd	840.00	91.02%	Real Estate Development and Training Center

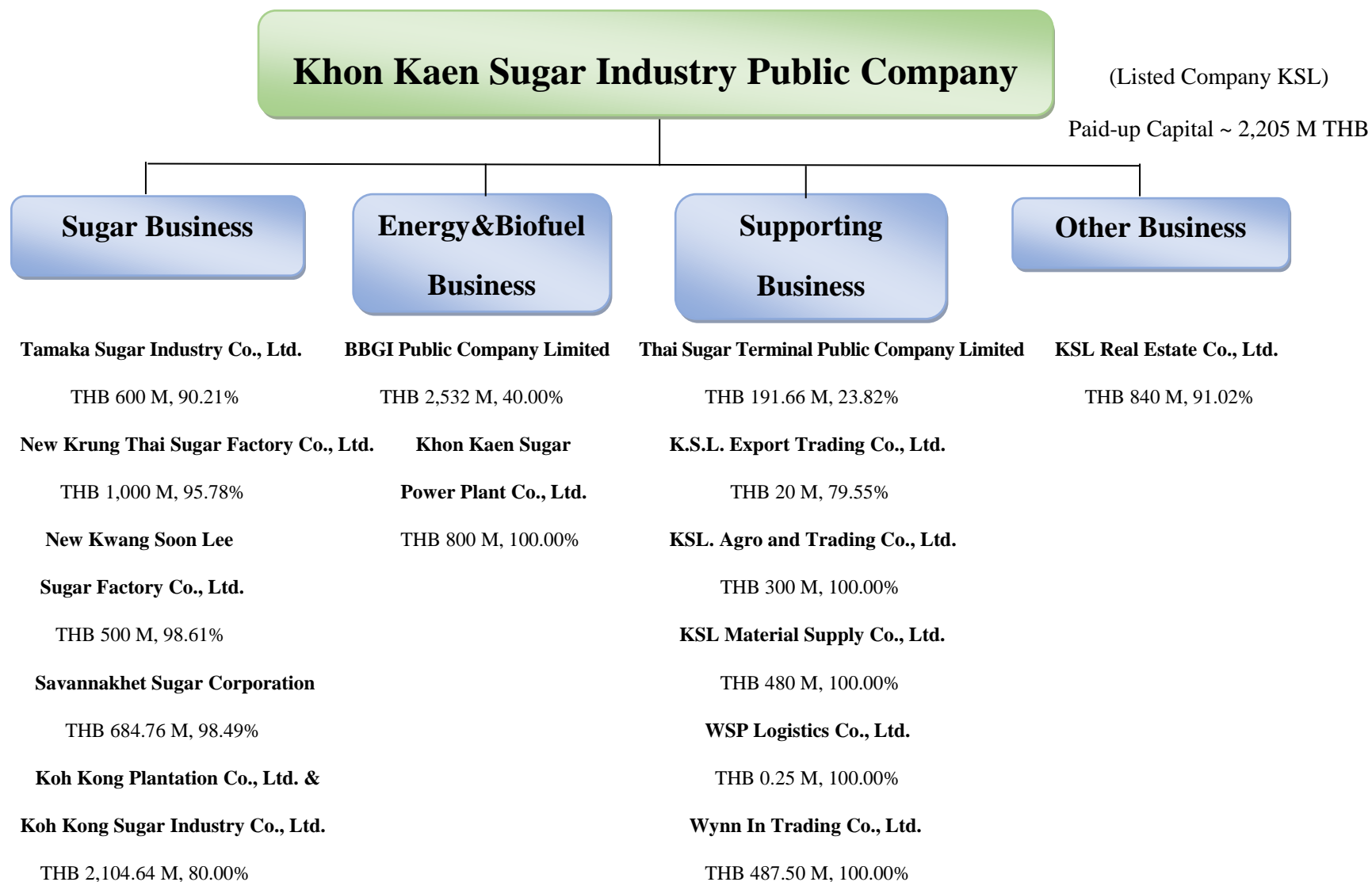
Note: Proportion of investment shown above includes both direct and indirect shareholdings.

* Indirect holding by Wynn in Trading Co., Ltd.

** Associated company: Thai Sugar Terminal Pcl. and 5 subsidiaries: (1) TS Oil Industry Co., Ltd. (2) TSG Trading Co., Ltd. (Formerly TSG Asset Co., Ltd.), (3) TS Transport and Logistics Co., Ltd., (4) TS Warehouse, (5) TS Flour Mill Pcl.

*** Associated company: BBGI Pcl. and 3 subsidiaries and 1 associated company: (1) Bangchak Bio Ethanol Co., Ltd., (2) Bangchak Bio Fuel Co., Ltd., (3) KSL Green Innovation PCL, (associated company). (4) Ubon Bio Ethanol PCL. (formerly Ubon Bio Ethanol Co.,Ltd.) consolidated with 3 subsidiaries.

Business structure of KSL Group as at October 31, 2019 shown on the following chart:



The business details of Khon Kaen Sugar Industry Public Company Limited, subsidiaries and affiliates are classified by business type as follows:

Sugar Business

Khon Kaen Sugar Industry Public Company Limited

The nature of business is to produce and distribute sugar and other by-products. The first branch is located in Nampong district of Khon Kaen province with the maximum crushing capacity of 40,000 tons of cane per day and the second branch is located in Wangsapung district of Loei province with the maximum crushing capacity of 36,000 tons of cane per day. Both branches have the capability to produce raw sugar, high pol sugar, white sugar, refined sugar and liquid sugar.

Tamaka Sugar Industry Co., Ltd

The nature of business is to produce and distribute sugar and other by-products. The factory is located in Tamaka district of Kanchanaburi province with the maximum crushing capacity of 20,000 tons of cane per day and capable to produce raw sugar, white sugar and refined sugar.

New Krung Thai Sugar Factory Co.,Ltd

The company produces and distributes sugar and other by-products. The factory is located in Bo-Ploy district of Kanchanaburi province, (originally located in Tamaka district, Kanchanaburi province) with the maximum crushing capacity of 32,000 tons of cane per day. The factory is capable to produce raw sugar, white sugar, and refined sugar.

New Kwang Soon Lee Sugar Factory Co.,Ltd

The company produces and distributes sugar and other by-products. The factory located in Panusnikom district of Chonburi province, has the maximum crushing capacity of 3,500 tons of cane per day. The cane crushing capacity decreased due to the fact that some of the machines had been moved to Laos and Cambodia. The factory is capable of producing raw sugar, high pol sugar, white sugar, and refined sugar.

Savannakhet Sugar Corporation

The company received sugarcane plantation concession that covers approximately 10,000 hectares (62,500 rai) from the Lao government. Sugarcane cultivation is undertaken by the

company itself. The sugar factory in Savannakhet has the maximum crushing capacity of 3,000 tons of cane per day. Its output includes raw sugar and other by-products.

Koh Kong Plantation and Koh Kong Sugar Industry

As at October 31, 2019 The company received sugarcane plantation concession that covers approximately 18,097 hectares (112,856 rai) from the Cambodian government. Sugarcane cultivation is undertaken by the company itself. The sugar factory in Koh Kong has the maximum crushing capacity of 6,000 tons of cane per day. Its output includes raw sugar and other byproducts.

Energy and Biofuel Business

BBGI Public Company Limited

BBGI Public Company Limited (“BBGI”) was established in October 2017 and consequence of merger between bio-based product business of Khon Kaen Sugar Industry Public Company Limited and Bangchak Corporation Public Company Limited. This company invests in following entities;

- KSL Green Innovation Public Company Limited: Producing and distributing molasses-based ethanol with 450,000 liters per day, in which BBGI Company Limited holds 99.99% shares.
- Bangchak Bio Ethanol (Chachoengsao) Company Limited: Producing and distributing cassava-based ethanol with 150,000 liters per day, in which BBGI Company Limited holds 85% shares.
- Bangchak Bio Fuel Company Limited: Producing and distributing bio-diesel with 1,000,000 liters per day, in which BBGI Company Limited holds 70% shares.
- Ubon Bio Ethanol Company Limited: Producing and distributing cassava-based ethanol with 400,000 liters per day, in which BBGI Company Limited holds 21.28% shares.

As a result, BBGI will be a shareholder of the group companies which are considered Thailand’s largest manufacturer and distributor of bio-fuel with the total production capacity of 2,000,000 liters per day which consists of 1,000,000 liters per day of ethanol and 1,000,000 liters/day of bio-diesel. This company will operate as a flagship company for bio-based product business in the future.

Khon Kaen Sugar Power Plant Co.,Ltd.

The Company is established in late 2003 and operates renewable power plants that can produce electricity and steam by using bagasses as raw material. The power produced at the plants can supply the factories within the group and any additional power generated are then sold to EGAT and PEA (Grid). Currently, the company operates 3 power plants all locating nearby its sugar factories. The first branch is closed to Khon Kaen Sugar Factory in Nampong district of Khon Kaen province. The second branch is closed to New Krung Thai Factory in Kanchanaburi province (part of the Bo-Ploy Renewable Energy Project). The third branch is located next to Khon Kaen Sugar Factory in Wangsapung district of Loei province (The Loei Project). Currently, the total capacity of all three branches can produce up to 190 MW of electricity.

Supporting Business*Thai Sugar Terminal Public Company Limited (TSTE)*

The company is a listed company in the Stock Exchange of Thailand. Its businesses involve warehouse leasing, loading and discharging sea freight, port operations, and freight forwarding. The terminal and warehouse are located in Prapadang, Samutprakarn, on the Chopraya River. Customers are primarily sugar companies in the KSL Group, other sugar factories owned by strategic partners, and general customers. In addition, Thai Sugar Terminal Public Company Limited (TSTE) is the mother company of 5 subsidiaries, which mainly deal with real estate trading and leasing, wheat flour production, plastic sack manufacturing, and palm oil refinery plant operations. (For details, refer to listed company profiles section: Thai Sugar Terminal Public Company Limited (TSTE) and T S Flour Mill Public Company Limited (TMILL)).

KSL Export Trading Co., Ltd

Established in 1992, the company performs as a licensed exporting company, according to Cane and Sugar Act 1984, which provides services of exporting activities to the sugar companies in KSL Group and also other sugar factories.

KSL Agro and Trading Co., Ltd.

Established in 2006, the company trade sugar and related products for domestic customers. It also grows sugar cane on the company's land.

KSL Material Supply Co., Ltd

KSL Material Supply Co., Ltd. operates business relating to sourcing and selling raw materials and materials related to agriculture such as organic fertilizers and related services.

WSP Logistics Co., Ltd.

The company was incorporated in 2016 with the business objective of transporting sugar and other products. The company has been dormant.

Wynn In Trading Co., Ltd

The nature of business is international trading and international investment consulting. Khon Kaen Sugar Industry Public Company holds 100.00% share of Wynn In Trading Co., Ltd.

Other Businesses*KSL Real Estate Co., Ltd.*

The company is involved in the business of property rental and resort ownership in Kanchanaburi, near the River Kwai, under the name of “River Kwai Park and Resort” This company provides the accommodation and facilities for holiday vacation and training center for employees of the KSL group and other general customers. Additionally, the company has acquired a commercial rental property, The Liberty Square Building that is located in the heart of Silom Road that is one of the busiest business area of Bangkok with approximately 19,151 sqm of rental space consisting of 22 floors and 6 levels of underground parking. The Company also invested in other properties for future profit generated from rent business or trading.

Membership of associations

The Company holds membership in several associations. Representatives of the Company are directors in the following associations that are directly related to its business, namely, The Federation of Thai Industries, Thai Sugar and Bio-Energy Producers Association and Thai Sugar Millers Association.

Regarding the policy to regulate and monitor the operation of subsidiaries and affiliates, Khon Kaen Sugar Industry Plc. has categorized its subsidiaries and affiliates which have the similar nature of business to be a group together under the same management team, for instance, four sugar companies are under the same board of executive directors. For supporting business, energy and chemical business and other business, Khon Kaen Sugar Industry Plc. will assign its own representatives to join as a position of company directors for involvement of policy establishment or as a position of top management for operation directing in subsidiaries to ensure that policy of the subsidiaries is complied with the parent company’s policy.

2. Description of Each Business Operation

2.1) Revenue Structure

Company	% of Shareholding in 2019	2019		2018		2017	
		Revenue (Million THB)	%	Revenue (Million THB)	%	Revenue (Million THB)	%
1. Khon Kaen Sugar Industry PCL.	Parent Company	11,224	43%	9,819	38%	8,416	33%
2. Tamaka Sugar Industry Co., Ltd	90.21%	2,395	9%	2,888	11%	3,006	12%
3. New Krung Thai Sugar Factory Co., Ltd	95.78%	3,298	13%	4,274	17%	3,631	14%
4. New Kwang Soon Lee Sugar Factory	98.61%	571	2%	562	2%	664	3%
5. K.S.L. Export Trading Co., Ltd	79.55%	19	0%	17	0%	13	0%
6. BBGI PCL *	40.00%	0	0%	0	0%	2,148	8%
7. Khon Kaen Sugar Power Plant Co., Ltd	100.00%	3,588	14%	3,643	14%	2,386	9%
8. KSL Material Supplies Co., Ltd	100.00%	360	1%	382	1%	362	1%
9. KSL Real Estate Co., Ltd	91.02%	190	1%	193	1%	188	1%
10. KSL. Agro and Trading Co., Ltd.	100.00%	3,822	15%	3,420	13%	3,806	15%
11. Koh Kong Plantation Co., Ltd**	80.00%	12	0%	45	0%	77	0%
12. Koh Kong Sugar Co., Ltd	80.00%	45	0%	366	1%	264	1%
13. Savannakhet Sugar Corporation	98.49%	309	1%	199	1%	418	2%
14. Wynn In Trading Co., Ltd	100.00%	0	0%	0	0%	0	0%
15. WSP Logistics Co., Ltd.	100.00%	0	0%	0	0%	0	0%
Total		25,833	100%	25,808	100%	25,379	100%
Minus Interrelated items		-7,978		-7,996		-9,756	
Total Revenues		17,855		17,812		15,623	

* Since October 31, 2017, the Company has indirectly hold shares in KSL Green Innovation PCL. through an associated company, BBGI PCL. The Company holds the associated company's shares with 40% shareholding.

**Indirect shareholding through Wynn In Trading Co., Ltd.

(Explanation of change in revenue and earnings stated in Part 3 "Financial Position and Operating Performance")

2.2) Description of each products

Major Product: Sugar

Sugar: Product Characteristic

The company is a group of sugar manufacturers whose quality management system is certified by SQF 2000, ISO 9001: 2000, and Hazardous Analysis and Critical Control Point (HACCP) accreditations. Sugar produced by the KSL group can be divided into five categories according to their types and levels of purity as follows:

Raw sugar – Raw sugar has a color index higher than 1,500 ICUMSA. It is dark brown with a high dirt index and a low purity index. Transfer is done in bulk without the use of sacks. This type of sugar cannot be consumed until it is refined or purified, turning into white sugar or refined sugar.

High pol sugar – High pol sugar has a color index between 1,000 - 1,500 ICUMSA. It can be consumed without any further process required. Generally, the sugar is packed in sacks before being transported. It is priced lower than white sugar and refined sugar.

White sugar – White sugar has a color index between 46 - 200 ICUMSA with a degree of polarization not lower than 99.50. It is widely consumed among households and used as a raw material in food industries where moderate purity is required.

Refined sugar – Refined sugar has a color index that does not exceed 45 ICUMSA. It is especially high in purity. The sugar is used in certain industries where highly pure sugar is required, such as pharmaceutical industry, carbonated beverage industry, and energy drink industry.

Liquid sugar – liquid sugar is produced by transformation from sugar crystals with a color index that does not exceed 35 ICUMSA and its concentration specified in approximate range between 66.5% - 67.5%. It is especially high in purity and preferred to be used in particular industries for efficient production process such as carbonated beverage and energy beverage industries.

After sugar manufacturing process, there is a residue called “molasses” that its sugar content is so low that any further sugar extracting is uneconomical. Molasses is a valuable by-product obtained from sugar production. It contains 20% water, 30% sucrose, 32% invert sugar, 12% non-sugar organic substance, and 6% ash. From one ton of sugarcane, the corporate sugar factories have capacity to manufacture between 45-50 kilograms of molasses. An amount of molasses produced in each year depends on a quantity of sugarcane crushed in the year. Molasses can be widely used in such biochemistry industries as alcohol and distilling industry, yeast industry, monosodium glutamate industry, animal food industry (where molasses is mixed with cassavas and bagasse), vinegar industry, and soy sauce and seasoning sauce brewing industry.

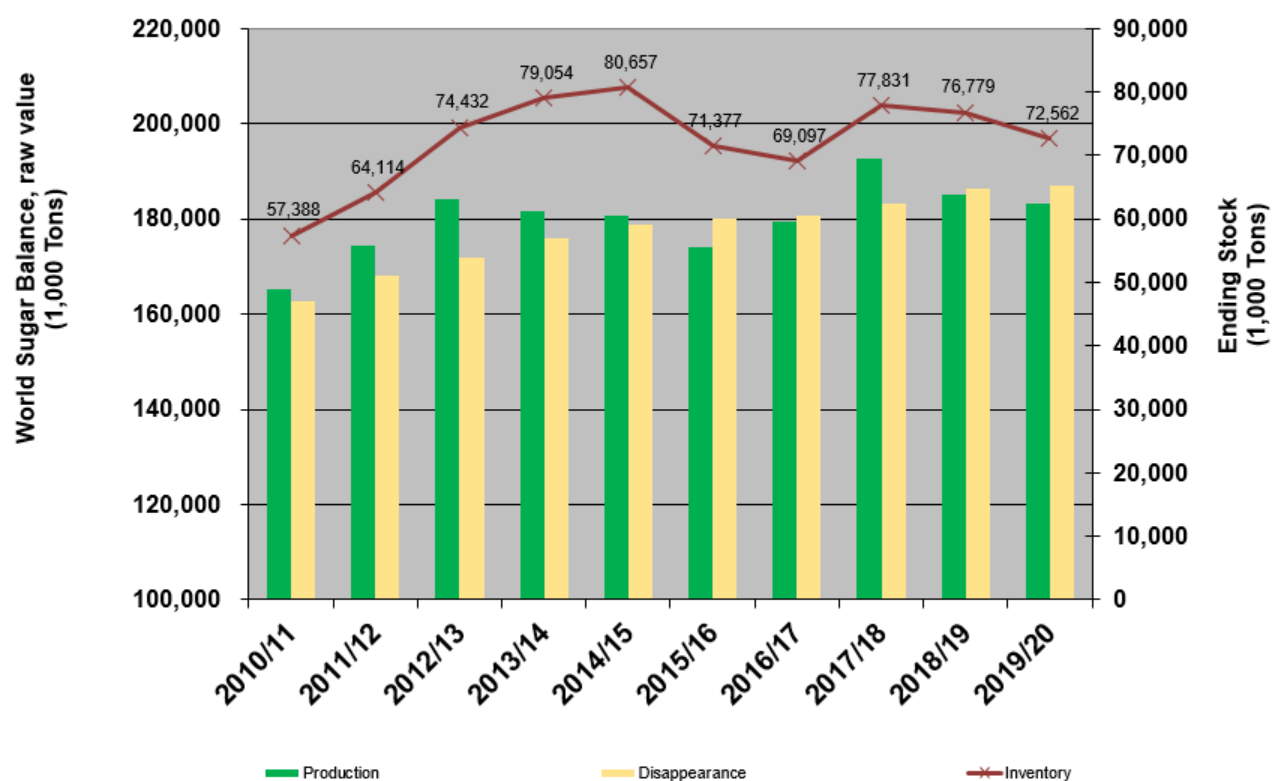
Other residues from sugar manufacturing process that are also useful include bagasse and filter cake. Bagasse is the fibrous material remaining after the last extraction of juice from sugarcane. Now the company uses burned bagasse as a source of energy for electricity and steam generation used in sugar manufacturing process. Part of the electricity generated is sold to the Grid. Filter cake is a residue from vacuum filtration. It can be used as a raw material for general-purpose fertilizer. In the past, the company gives away filter cake to sugarcane farmers to promote sugarcane plantation in nearby areas. After the company’s subsidiary has continuously operated alcohol and chemical production, wastewater from the factory can be mixed with filter cake and bio-decomposed to produce organic fertilizer that is suitable for sugarcane plantation. This completes the corporate value-added product ranges.

Sugar: Market and Competition

International Market and Industry Overview

The world sugar market overview: In 2018/2019, approximate 184.43 million tons of raw sugar was produced worldwide, representing a decrease of 9.80 million tons or 5.04% from the 2017/2018. The world's total consumption demand rose to 184.74 million tons, a 1.90 million tons increase or about 1.03% growth compared to 2017/2018. However, the ending stock was slightly decreased from 77.83 million tons in 2017/2018 to 76.78 million tons in 2018/2019. The stock represented 41% of the total demand, or an equivalent of 4.9 months sugar consumption. Estimated production over the world in 2019 would be deficit but some countries had a large volume of remaining stocks carried from previous year. In the beginning of 2019, a world sugar price decreased to the range between 10-14 cents/lbs. from former range between 11-16 cents/lbs. in 2018.

Chart 2.1: World Sugar Balance (1000 Tons, centrifugal sugar, raw value, OCT/SEP)



Note: 2019/2020 is forecasted number

Source: F.O. Licht, updated October 3, 2019

In a mid of 2018, the forecast sugar cane production in 2018/2019 will be decreased from declining of sugar production in Thailand and India due to dry weather, however, the remaining global stocks had been maintained in a large volume. As a result, the price was declined from 14-15 cent/lbs at the beginning of year to 10-13 cent/lbs. at the end of year. According to F.O. Licht's forecast on October 3, 2019, the 2019/2020 output will be slightly decreased by 1.04% approximately, from 184.97 million tons to 183.13 million tons. Consumption is projected to increase by 1.6%, from 184.74 million tons to 186.89 million tons. Consequently, the world sugar supply will be deficit, with ending stock for the year 2019/2020 decreasing from 76.78 million tons to 72.56 million tons. Sugar stock per consumption is 39 % compared to normal level at 45%.

During the last few years, the sugar price has been volatile because of climate change, flooding, drought, or severe cold which impact on the availability of sugar in the market and its market price. In addition, the quantity of world sugar stock, production and consumption of ethanol, sugar hedging, government policy of producer and consumer countries are all consequently affected on the sugar price.

Chart 2.2: World Sugar Price (NYBOT#11) during Last 10 Years



Furthermore, export channels of Thai sugar manufacturers are classified as follows:

1. Thai sugar manufacturers sell their sugar through major traders such as Wilmar, Cofco, Alvean, Sucden, etc. The traders then sell the sugar to other overseas buyers. Risk of default debt collection and complications in export management are minimized. Thai sugar manufacturers' responsibility is only to transport their sugar to ports of exports, such as FOB ports of Bangkok and Lamchabang.
2. Thai sugar manufacturers export their products to neighboring countries, such as Laos and Cambodia, through borders. A small amount of sugar is sold to vendors at borders.
3. Thai sugar manufacturers sell to manufacturers who use sugar as raw material in production of their exported products. Since domestic sugar prices are higher than prices of international markets, the export manufacturers who use sugar as a production material lose their competitiveness in the world market. Therefore, the government allows those who manufacture the exported products to buy sugar at the global market prices conditionally in order to promote investment in the food industry and competitiveness.

Domestic Marketing and Industry Overview

Since 2018, Thailand has encountered a situation of changes in sugar cane and sugar industry system, thereby resulting in there having been no quota system and no fixing of local sugar selling prices, which led to the free market system. Eventually, the sugar price in the country would be floating and fluctuating according to the world sugar price. And coupled with the Thai sugar premium system, the overall picture of the sale of sugar in the country as well as

the exportation of sugar for sale were directed by the marketing mechanism and the production capability of each seller. The details of the proportion of sale of sugar of the group of companies were as shown in Table 2.3. Nevertheless, the significance of Thailand's Sugar Cane and Sugar Act in regard to benefits sharing with the sugar cane farmers remained the same.

Competition Situation and Competitors

In 2019, there are 54 operating sugar factories (exclude non-operating and new license sugar factories which is not yet constructed) in Thailand with sugarcane crushing capacity of 130.97 million tons per year and sugar manufacturing capacity of 14.58 million tons per year (depending on yearly sugarcane amounts in the crushing process and sugarcane quality). The crushing process lasts about 4 - 5 months each year due to small amounts of sugarcanes entering the process. It begins in November till the beginning of April. The numbers of sugar factories are under government control. Licenses from Office of the Cane and Sugar Board and Department of Industrial Works, Ministry of Industry, are required for sugar factories in increasing capacity, moving factories, or operating new sugar factories.

In 2019, all 54 sugar factories are opened for operation. Most of these factories are part of the six major groups of sugar manufacturers and only a handful of small manufacturers operate independently. The KSL Group is the 3rd largest sugar producer in Thailand, with 8% market share. There are 5 factories located in three regions: Northeast (2 factories), Western (2 factories), and Eastern (1 factory). Table 2.3 shows sales of different types of sugar in the past 3 years as well as ratios of sales in export markets to domestic markets.

Table 2.3: Sales of Different Types of Sugar and Ratio of Domestic Sugar to Total Sugar Sales in the Past 3 Years

Sale Volume & Price	2019			2018			2017		
	Quantity (Ton)	Avg. Price (THB/ton)	Amount (Million THB)	Quantity (Ton)	Avg. Price (THB/ton)	Amount (Million THB)	Quantity (Ton)	Avg. Price (THB/ton)	Amount (Million THB)
Total Sugar Sale	1,255,593	10,902	13,688	1,091,228	12,526	13,668	687,046	17,362	11,928
Domestic sale	231,537	16,406	3,799	199,876	17,553	3,508	199,091	19,526	3,887
Export sale	1,024,056	9,657	9,889	891,352	11,398	10,160	487,955	16,479	8,041
% Domestic Sale/Total Sale	18%			18%			29%		

Sugar: Product and Service Provision

Raw Material Provision Policy

Providing raw materials for manufacturing is a vital process for sugar producers. As the total capacity of the Thai sugar industry exceeds domestic sugarcane produce, all the sugar factories need to ensure that the maximum amount of cane is provided for their production in order to reduce their fixed cost per unit. The main solution employed by most sugar manufacturers is providing financial support to farmers, which is known as the “Geaw” system. Agreements of the sugar producers’ advance purchase of sugarcanes from the supported farmers are made, allowing the farmers to apply for loans from the sugar manufacturers. The loans are used for sugarcane cultivation. Harvested sugarcanes, then, are delivered to the factories and the sugarcane costs are deducted from the loans.

The company’s strategy is giving long-term benefits as incentives to the sugarcane farmers providing their crops to the corporate factories. This promotes both the growth of the farmers’ incomes and the company. The main policy “Prosperity of farmers is prosperity of the factory and brought to the community happiness”, especially employed in the northeast, emphasizes creating and promoting a sustainable way to make a living for sugarcane farmers, as well as eliminating middlemen known as “Quota Heads”. This effort allows the company to learn about problems experienced by the farmers and provide them suitable assistance. Also, the company provides the farmers equipment, knowledge and production support, such as providing loans for purchasing trucks; giving them filter cakes for making fertilizers with free of charge; and providing experts in sugarcane cultivation, and prevention and elimination of crop pests. The support enhances good relationships between the farmers and the company, as well as systematic growth.

Production policy

The company focuses on maximizing the volume of white sugar and refined white sugar manufactured, as the two products have the highest selling prices with the highest profit. It also focuses on the improvement of production efficiency. Production efficiency that is higher than the average of the industry will help reduce unit cost. As a result, the company will be more competitive.

Marketing policy

The company emphasizes direct sale to industries with product quality and on-time delivery promises. Most customers are in business of beverage and confectionary industries.

The company, moreover, emphasizes the sale of its sugar products to food product re-exporters, as a result that it is generated higher profit than regular exports due to lower transportation costs.

Environmental effects

The sugar manufacturing process causes wastewater and dust from ash in the steamer's burning process. The company is well aware of such effects and has employed appropriate measures to prevent environmental problems, in compliance with standards issued by Ministry of Industry.

Sugar: Works Not Submitted

- None –

Major Product: Electricity and Steam

Electricity and Steam: Product Characteristic

The project has been undertaken by Khon Kaen Sugar Power Plant Co., Ltd who sells electricity and steam to factories within the group as well as selling any excess electricity produced to Electricity Generating Authority of Thailand (EGAT) and Provincial Electricity Authority (PEA). Currently, the group operates 3 power plants. The first power plant is located near to Khon Kaen Sugar Factory in Nampong district of Khon Kaen province. It can produce up to 30 Megawatt (MW), 20 Megawatt (MW) of which is sold to EGAT. The second power plant is located nearby New Krunghthai Sugar Factory in Bo-Ploy of Kanchanaburi province. It can produce up to 90 MW, 30 MW of which is sold to EGAT. The third power plant is located nearby Khon Kaen Sugar Factory in Wangsapung district of Loei province. It has the capacity to produce 70 Megawatt (MW), 2.12 MW of which is sold to PEA.

In addition, there is 1 sugar factory having power plants entered into electricity sale agreements with PEA in the total sale amount of 3.81 MW.

Electricity and Steam : Market and Competition

The electricity and steam generated is first sold to the KSL Group's plants so that it can be used to produce sugar and ethanol. The excess electricity produced is then sold to Electricity Generating Authority of Thailand (EGAT) and Provincial Electricity Authority (PEA) through long-term contract and therefore has limited number of competitor and reliable customer. A 100% of electricity and steam produce is sold domestically.

Table 2.7 Sales Volume and Average Selling Price of Electricity in the Past 3 Years

	2019	2018	2017
Sale volume (MW-hour)	372,481	346,894	268,893
Avg. selling price (THB/MW-hour)	2,952	2,940	2,795

Electricity and Steam: Product and Service Provision

Raw material provision policy

Raw material procurement is crucial in operating the electricity generating business. The corporate power plant is mainly fueled by bagasse. Each year, the Group crushed sugarcane fluctuates. A limited amount of crushed sugarcane may affect the fuel amount available for the power plant's electricity generating. Thus, Khon Kaen Sugar Power Plant has prepared purchasing biomass fuel sources, such as bagasse from nearby plants.

Production policies

(1) Cost Management

Khon Kaen Sugar Power Plant committed to minimize its production cost. Costs of electricity generating and steam energy production include fuel and depreciation. Fuel efficiency is, hence, crucial. The company also ensures economy of scale to reduce its unit cost.

(2) Improving and Developing of Production Effectiveness

The quality of fuel is effectively controlled, as the company uses its own bagasse. Fuel efficiency is ensured by controlling moisture in bagasse using such methods as bagasse dryer system and setting up roofs to protect the material from the rain.

Marketing policy

The long-term agreement between the company and EGAT allows the electricity produced to be priced based on natural gas prices and exchange rates. The sale unit price increases at the time when EGAT's demand for electricity is high. Electricity sold to the companies in the KSL Group is priced at the same rate as that sold to EGAT.

Environmental effects

Extensive Environmental Impact Assessment (EIA) has been carried out. The facilities in Khon Kaen province has been registered with CDM Executive Board as a CDM (Clean Development Mechanism project under the Kyoto Protocol) which helps carbon reduction.

Electricity & Steam: Works Not Submitted

- None -

3. RISK FACTORS

Significant risk factors in the operation of the sugar business of the company, which may effect on the return on investment by the shareholders, can be summarized as follows.

1. Risks from Raw Material Supply – Sugarcane

Khon Kaen Sugar Industry Public Company Limited produces sugar which derives from sugarcane as raw material. The company has also invested in other related projects, which use by-products and wastes generated from the sugar manufacturing process, to create added value. Therefore, the quantity of sugarcane available for crushing is the most important factor affecting the operations of the company.

There are two main reasons that cause fluctuations in the quantity of sugarcane, i.e., (1) changes in the acreage under sugarcane plantation which may depend on the price agreed for the cane and whether it is worthwhile for the farmers to grow sugarcane compared to other agricultural crops as well as the promotional policies of the Government and (2) changes in the yield of sugarcane (ton(s) of cane per rai) which may occur due to climate change conditions, such as drought and flood, caused by global warming.

To reduce the above-mentioned risk, the company provides promotion and assistance to sugarcane farmers, such as loans for planting sugarcane, materials for sugarcane planting, irrigation system, technology to increase yields and efficiency in cultivation and reduction of middle man's roles in sugarcane sales and purchase deals. All the assistance is aimed for the farmers' better quality of life.

2. Risks from Fluctuation of World Sugar Price

While considering sugar trade in the world market, it can be said that sugar is the commodity that has high price fluctuation when compared with other agricultural products. The world sugar price depends on several factors, such as demand and supply of countries being producers or consumers or exporters or importers, traders' speculations, climate conditions facilitating cultivation in each of the respective countries, promotional policy, intervention, exportation, importation of the industry and the government, particularly the developed ones. Sugar price is also interrelated to oil price. Because of sugarcane and molasses can be used to produce a type of alcohol called ethanol. Ethanol can be blended with gasoline to produce fuel for automobiles. All the above factors cause high fluctuation in sugar price in the world market.

Generally, sugar companies in Thailand are obliged to meet the domestic demand first. The balance sugar can be exported. Every year, the Office of the Cane and Sugar Board estimates the quantity of domestic demand for sugar, and allocates this volume to all sugar factories based on their respective sugar production. The proportion of domestic sales to exports of each sugar factory is therefore similar, usually in the range of 20:80 to 30:70 depending on the sugarcane available for crushing all over the country. In 2019, the world sugar price was very volatile, seeing the price at 12-13 cents per pound. The price fluctuation was derived from the increase of world sugar cane production and the consumption of sugar is inclined to be lower than the production even though the production in year 2018/2019 decreased from the previous season. The surplus of supply accordingly kept the sugar price low. If the Company was not able to establish a selling price that was higher than the price level for setting cane prices, the corporate operating results would have been severely affected. To prevent the risk posed by sugar price volatility in the world market, the Company undertakes sugar futures contract with financial institutions and monitors the situation as well as analyzes the trend or effects carefully. The meeting of relevant executives is organized monthly to prescribe policy and operation that were adaptable to circumstances. Such risk precaution would keep the Company's profitability and keep away from too much fluctuation risk of sugar price.

In the past, the operation results relied on sugar and molasse businesses; the price fluctuation of sugar in the world market therefore directly affected the Company's operation. At present, the business is diversified to ethanol, organic fertilizer and electricity supply. The operation therefore depends less on world sugar price; the effect of price fluctuation becomes relatively less.

3. Risks from Government Policy

The sugarcane and sugar industry in Thailand is under the supervision and control of the Office of the Cane and Sugar Board under the Cane and Sugar Act 1984. The significant administration includes the allocation of sugar production by a proportion of domestic sale and export sale, the domestic selling price, the ratio of distribution of revenue from the sugar business between the farmers and sugar factories with the 70:30 revenue sharing, the opening of new factory. It is evident that the rules and regulations promulgated by the Cane and Sugar Board have an impact on the production costs and the operations of the Company such as the revenues sharing system 70:30 ratio which determines the sugar cane price to be paid to farmers by sugar factories, the adjustment of domestic sugar selling price, the payment to the Cane and Sugar Fund, the promotional scheme for other crops which would encourage sugar cane farmers to plant other crops which bear higher income.

In 2019, the Company strictly complied with the government policy through various measures set by the relevant authorities. Meanwhile, the amendment of the Cane and Sugar Act 1984, which is mainly amended to avoid inconsistencies with the World Trade Organization's rules, is in the legislative process. The Company shall monitor the risk closely and establish related plans to comply with the law.

4. Risks of Bad Debts from Credit System Provided to Farmers (Advanced Credit)

In the operation of a sugar factory, the factories provide loans or other kinds of financial support to sugarcane farmers as working capital to plant sugarcane crop, or what is called "advanced credit", thereby reserving the sugarcane for crushing. After the sugarcane crop is ready for harvesting and the sugar factories are ready to start crushing the cane, the farmers harvest the cane and send it to the sugar factories and receive payment for the value of the cane supplied after the loans and other financial support given is deducted. The risks that are generated from such credit can come from reduced volume of sugarcane in any year due to drought conditions, losses from crop disease and pestilence, farmers refusing to send the cane to the sugar factories, etc. Such liabilities, arising from sugarcane credit, can adversely affect the company's operations requiring higher amounts of provisioning for bad debts.

However, the Company is well aware of the said risks and therefore develops the sugar cane subsidies system to be more efficient, by using GPS in inspecting and surveying sugar cane plantation areas to reduce the problem of claiming of right of ownership of certain farmers, and it was also used for sugar cane supply planning. The Company also develops a tablet-installed program so as to effectively monitor sugar cane and debt status of each farmer, as well as the development of database of farmers in respect of growing ability, debt, security data, and ability to pay debt, which would help analyze suitable credit facility with the ability to service debt and the value of property placed as security.

5. Risks from Exchange Rate

The volatility of exchange rate poses a significant risk to the Company's operation. The Company exports about 70-80% of its total sugar sales. The Company also imports tools and machinery, and conduct operations in neighboring country. The Company reduces its exchange rate risks by making currency forward contracts or managing the foreign exchange using natural hedging mechanism by way of paying the foreign currency expense with the same foreign currency revenue from sugar sale.

The 70:30 revenue sharing scheme sees the cost of sugar cane, which is the major cost, and the revenue from sale influenced by the same direction of foreign exchange. The Company keeps monitoring the exchange rate movement to react against the changes in a timely manner.

6. Risks from Investment Project in Laos and Cambodia

The investment projects of sugar business in both countries were initiated by the Company, whereby the Company had obtained concession areas from the governments for sugar cane plantation and it was also licensed to construct sugar factories. The Company then managed its key risks in this issue as follows:

1.The quantity of sugar cane is insufficient to the production owing to climate change, natural disasters and spread of pests including deteriorated soil conditions at the concession areas, thereby causing a fluctuation of sugar cane supply in each year, and thus resulting in production per area to have been insufficient to cover the break-even point.

2.Management problems, such as, lack of sugar cane growing technology in large areas, lack of infrastructure, namely road, transport system, including plantation labour shortage and capable personnel, etc., and it would take longer than expected to solve these problems and to improve the development in this regard.

3.Control from governments, especially investment projects in Cambodia where the Company experiences problems about the concession policy, unclear concession areas and claimed areas by villagers, taxation policy, including ambiguity of local rules and regulations which had been revised and changed and which may cause disputes with the communities. Nevertheless, the said issues were given much importance by the Company and the Company was prepared to manage or rectify such problems suitably.

In 2019, projects abroad still suffered a loss. The Company has explored the solutions for its business in Cambodia, while the Company managed the risks of operation in Laos by 1) budget control, 2) providing loans to farmers, partners, in order to expand the plantation areas, and 3) continuous development of deteriorated soil conditions.

7. Risks from Selection and Maintaining Personnel in Organization for Sustainable Growth

The business operations of the group of companies mainly rely on personnel and it needs sufficient and quality personnel, especially at executive level, whereby the executives must be of a number that meets the demand of the business, so as to support and implement the Company's strategies to a success. Hence, the Company finds it necessary to develop the process of selection, maintaining, and development of potential of its staff to cope with the changing circumstances by reducing personnel risks with various measures emphasizing on individual development planning, career planning, succession planning, and leadership development program.

In 2019, the Company materializes the personnel development by providing new knowledge and skills relating to the use of technology to help develop the work and lifestyle in digital age. The staff are trained with working skill for their daily work and managerial skill for understanding of team members comprising difference of generation gap. The Company also encourages the knowledge management within the company, knowledge sharing and cross functional training so that the staff can apply the knowledge to develop their work process continually. The Company improves working environment that facilitates the discussion and active listening together with the review of performance management system to correlate the remuneration and fringe benefits with the competitive level of the same industry. The approach would help build quality of life and long term stability for the employees and, by the same token, the Company can maintain enough quality employees on continuing basis with the Company and reduce the burden to recruit qualified staff from outside.

4. Operating Assets

4.1) Core Operating Fixed Assets

As of October 31, 2019, the company and its subsidiaries have core operating assets as follows:

Items	Area (approximat ely)	Ownership	Net Book Value (Million THB)	Encumbrance
1. Land & Land Development (Rai)				
Land for factory location				
- Khon Kaen Sugar Industry	1,739.25	Owner	1,024.28	
- Tamaka Sugar Industry	239.13	Owner	615.86	
- New Krung Thai Sugar Factory	1,492.89	Owner	562.96	
- New Kwang Soon Lee Sugar	2,570.00	Owner	386.95	
- KSL. Agro & Trading Co., Ltd.	2,032.05	Owner	245.09	
- Khon Kaen Sugar Power Plant Co., Ltd.	420.15	Owner	188.07	
- KSL Material Supplies Co., Ltd.	511.45	Owner	204.86	
Cane Plantation Area	11,147.58	Owner	1,213.95	
Other Lands	100,252.99	Owner	651.16	
Total Land & Land Development			5,093.18	
2. Factory Building and Construction		Owner	4,861.52	
3. Machinery and Equipment		Owner	13,673.41	
4. Motor Vehicle and Labors-saving device		Owner	505.73	
5. Furniture and Office Equipment		Owner	37.00	
6. Assets under Construction		Owner	1,668.86	
Grand total			25,839.70	

4.2) Significant Intangible Assets

Trademarks

Key trademarks of Khon Kaen Sugar Industry Public Company and subsidiaries are registered with the Department of Intellectual Property, as follows:



Privileges of Benefits from Promoted Investment

A domestic subsidiary received 3 investment promotion certificates from the Board of Investment of Thailand (BOI) under the Investment Promotion Act B.E. 2520. The benefits include the exemption from income tax for profit for the year derived from operations of promoted businesses for the period of 8 years, commencing from the date of first receiving operation revenue of promoted businesses. The details are as follows:

<u>Certificate No.</u>	<u>Sections</u>	<u>Date</u>	<u>Promoted activity types</u>	<u>Commenced date</u>	<u>Expire date</u>
	<u>Privilege</u>			<u>of revenues generated</u>	
1432(2)/2552	25, 26, 28, 31(1), 31(2), 31(3), 31(4), 34, 35(1), 35(2) and 35(3)	June 24, 2009	- Production of electricity, power steams and water for manufacture	November 30, 2010	November 29, 2018
1349(2)/2556	25, 26, 28, 31(1), 31(2), 31(3), 31(4), 34, 35(1), 35(2) and 35(3)	Mach 15, 2013	- Production of electricity, power steams and water for manufacture	January 21, 2014	January 20, 2022
61-0170-1-00-1-0	25, 26, 28, 31(1), 31(2), 31(3), 31(4) and 34	February 12, 2018	- Production of electricity, power steams and water for manufacture	Income not yet derived	

Furthermore, in accordance with the Promotion Certificate No. 1432(2)/2552 and 1349(2)/2556, the subsidiary receives the privilege in 50% income tax reduction of the regular rate for the period of 5 years commencing from the expiration date of income tax exemption and under all Promotion Certificates, the subsidiary is granted privilege for exemption of import duties for approved machinery and exemption from income tax on dividend on profit from promoted businesses during the period in which the Company is granted exemption from corporate income tax.

4.3) Investment and Management Policy for subsidiaries and affiliates

As of October 31, 2019, the company invests in both direct and indirect 13 subsidiaries and 2 affiliate companies, as followings:

Subsidiaries (The company holds the shares directly)

- 1) Tamaka Sugar Industry Co., Ltd
- 2) New Krung Thai Sugar Factory Co., Ltd
- 3) New Kwang Soon Lee Sugar Factory Co., Ltd
- 4) KSL Real Estate Co., Ltd
- 5) K.S.L. Export Trading Co., Ltd
- 6) Khon Kaen Sugar Power Plant Co., Ltd
- 7) KSL Material Supplies Co., Ltd.
- 8) KSL. Agro and Trading Co., Ltd.
- 9) Savannakhet Sugar Co., Ltd
- 10) Koh Kong Sugar Industry Co., Ltd
- 11) Wynn In Trading Co., Ltd
- 12) WSP Logistics Co., Ltd.

Subsidiaries (The company holds the shares indirectly through Wynn In Trading Co., Ltd.)

- 13) Koh Kong Plantation Co., Ltd.

Affiliated Companies

- 1) Thai Sugar Terminal PCL
- 2) BBGI PCL

For the subsidiaries that the company holds its shares directly, the company has controlling power through holding more than 50 % of registered shares.

The company has the investment and management policy to invest in the business related to sugar business, sweetener business or other business that gives the benefit and reasonable return to the core business. The criteria for the investment will be based on competitive advantage, reasonable rate of return and the investing amount of each business type. In addition, considering the proportionate of investment will be depended on various factors, especially the company's expertise. If the business requires special experiences significantly and the company has no or less experience, the company will let other strategic partners holding the share in higher proportion. However; if the company has the investment in high proportion, the company will assign its own representatives to participate in a position of company directors or a position of top management. In addition, all of company investments must be approved by the board of director and there should not be the conflict of interest with the parent company in the future.

Non-financial performance indicators, such as Market share, Customer satisfaction

KSL and its subsidiaries have been certified ISO 9001:2000, therefore the companies have to survey Customer satisfaction, both domestic and international survey, which cover areas of Quality, Services and others to assess and improve satisfaction. The company have target to get score at least 94 out of 100. The results in the last 3 years are as follows:

Satisfaction Survey	Year 2019	Year 2018	Year 2017
Domestic	96.65	96.46	98.26
International	95.54	95.78	96.71

Sugar production and market share of the group companies for the last 3 years are as follows:

Production/Market share	Year 2019	Year 2018	Year 2017
Production (Metric Ton)	1.151 Million	1.182 Million	0.713 Million
Market Share (%)	8%	8%	8%

5. Legal Dispute

As of 31 October 2019, the Company had no dispute which might have a potential negative impact in excess of 5% of the shareholders' equity per its consolidated financial statements.

6. General Information and Other Information**6.1) General Information**

Company Name : Khon Kaen Sugar Industry Public Company Limited

Type of business : Manufacturer of Sugar & Sugar-related products

Registered & Head Office : 503 KSL TOWER 9th Floor, Sriyudhya Road, Rajathevi,
Bangkok, 10400 Thailand

Company Registration Number : PCL 0107547000214

Registration Phone number

Telephone : +662-642-6230

Facsimile : +662-642-6228

Website : <http://www.kslgroup.com>

6.2) Risk Hedging Procedure Against Sugar Price Volatility in the World Market

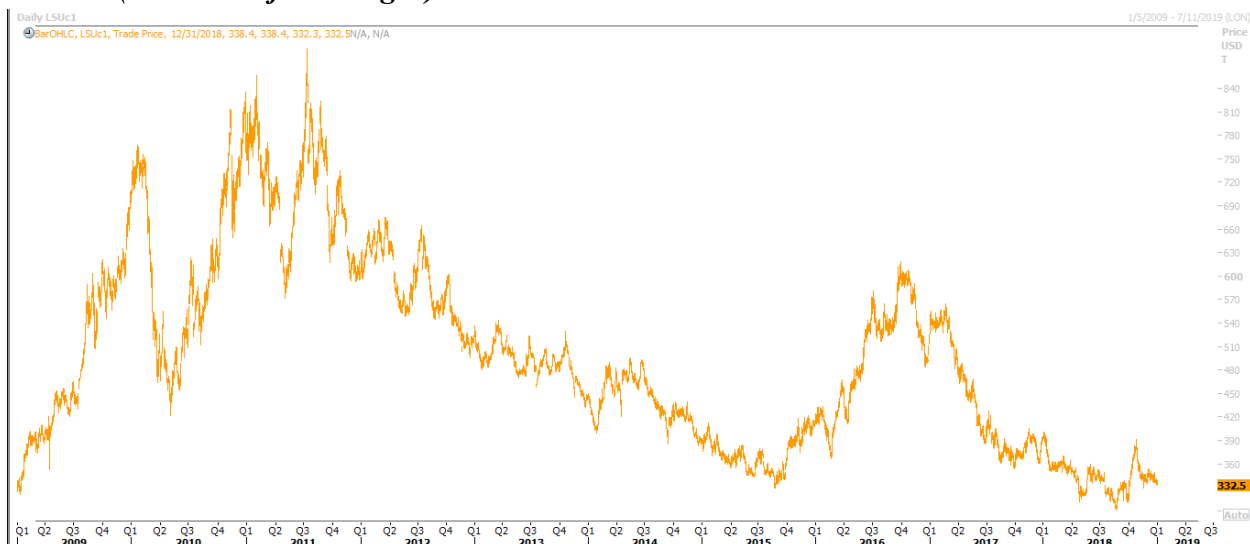
Thailand has the capability to produce sugar more than domestic consumptions, some of remaining sugar were exported. Ratios of domestic consumption to exportation vary each year by year in approximate range from 20:80 to 30:70 depending on annual amounts of sugar cane crushed. Then, Thailand becomes the second largest sugar exporter after Brazil. Revenue of sugar producers in Thailand is partially based on the world market sugar prices and domestic sugar prices, regulated by government.

In terms of world sugar price, the policies supporting and protecting benefits of farmers, and food security policies regulate importing countries to issue measures for regulating and restricting sugar importation. These policies, issued by international government sectors, affect sugar demand in the world market. Factors related to climate uncertainty such as flooding, droughts, or severe cold in countries where sugar is produced and consumed, limited number of exporting countries, and any other events affecting the world market sugar supply also affect the world sugar prices. Furthermore, in the past 2 – 3 years, significant increase in investment by foreign funds has heightened fluctuation of sugar prices in the world market; prices are much higher or lower than fundamental factors. Sugar prices are especially volatile in years when consumption demand is close to or greater than the amount of sugar produced. Chart 6.1: World Sugar Prices in the Past 10 Years demonstrates volatility of sugar prices.

Chart 6.1: World Sugar Prices in the Past 10 Years

New York (NYBOT#11 – Raw Sugar)



London (LD#5 – Refined Sugar)

Due to the fact that revenue of sugar producers in Thailand is partially based on the world sugar prices, which fluctuate significantly, the company's operating results will be affected when sugar prices in the world market drop drastically. To prevent the risk posed by sugar price volatility in the world market, the risk hedging procedure has been established with the use of risk management mechanisms and tools in the forms of futures contracts. Prices are based on those at futures markets in New York (NYBOT#11 – Raw Sugar) and London (LD#5 – Refined Sugar). Details are as follows:

Case 1: Normal business transactions in trading export sugar (without risk hedging)

A buyer and seller agree on a sugar price based on the market price. Once reaching an agreement, the changed world market price does not affect the agreed price and accounting recorded value. The seller records the price as agreed with the buyer, for instance:

In case of sugar price increase in futures market

Day 1: Sugar futures price is at 600 USD / ton:

The buyer and seller agree on a transaction of sugar at the market price of 600 USD + premium 100 USD

Day 2: Sugar futures price increases to 800 USD / ton :

The seller delivers the sugar. The buyer pays 600 USD + 100 USD premium = 700 USD
Accounting Record: The company income generated from sugar sale is 700 USD.

Note: Premiums of sugar are based on types of sugar, delivery sites, delivery time, delivery terms, etc.

In case of sugar price decrease in futures market

Day 1: Sugar futures price is at 600 USD / ton:

The buyer and seller agree on a transaction of sugar at the market price of 600 USD + premium 100 USD.

Day 2: Sugar futures price decreases to 400 USD / ton :

The seller delivers the sugar. The buyer pays 600 USD + 100 USD premium = 700 USD.

Accounting Record: The company's income generated from sugar sale is 700 USD.

It is demonstrated that prices that buyers receive depend on the time that buyers and sellers agree to make transactions. This becomes problematic when the world sugar prices are high. Sellers are interested in selling, while buyers are not willing to buy due to high prices. When the world sugar prices are low, buyers are willing to buy. Sellers, however, consider the prices too low and are not so willing to sell. Sellers and buyers are unable to agree on prices. This method would only work if sugar prices in the world market were not volatile. High volatility of sugar price causes the sellers and/or buyers losing the opportunities to trade at their own satisfied prices.

Case 2: Adopting risk hedging procedure for sugar price in form of sugar future contracts

During a period when the world sugar prices are highly volatile, to prevent losing opportunities to sell at satisfied prices, sugar producers adopt risk hedging procedure in form of "sugar futures contracts" which their price are based on world sugar price. With this futures contracts, contracts are not settled by sugar delivery, but by cash settlement which paying the difference between the sugar price fixed on the day the contracts are made and the sugar price on the day the contracts are settled (unwinded). The risk hedging procedure may be carried out directly at sugar futures market through a broker or alternatively, through a financial institution as a counterparty. Examples are as follows:

In case of sugar price decrease in futures market

Day 1: Sugar futures price is at 600 USD / ton:

The seller is satisfied with the price at this level, but no interest from any buyer. Buyers expect the price to decrease. The seller entered into a contract with a financial institution fixing the sugar futures price at 600 USD.

Day 2: Sugar futures price decreases to 400 USD / ton :

A buyer is interested in buying. The seller sells sugar at the agreed market price of 400 USD + 100 USD premium = 500 USD. At the same time, the seller closes or unwinds the futures contract by buying back the contract at the market price of 400 USD/ton (sold at 600 USD while bought back at 400 USD), resulting in 200 USD gain.

From this example, the seller's actual income from the sugar sale is 500 USD + 200 USD gain from entering into the sugar futures contract = 700 USD. The amount equals the guaranteed price of 600 USD + 100 USD premium = 700 USD.

Accounting Record: The company generates income from sugar sale at 500 USD (which is lower than the guaranteed price of 700 USD). The 200 USD gain from entering into the sugar futures contract is recorded as other income.

In case of sugar price increase in futures market

Day 1: Sugar futures price is at 600 USD/ton:

The buyer is satisfied with the price at this level, but receives no interest from any seller. Sellers expect the price to increase. The seller enters into a contract with a financial institution fixing the sugar futures price at 600 USD.

Day 2: Sugar futures price increases to 800 USD/ton:

A buyer needs sugar for use, resulting in buying at a high price. The seller sells sugar at the agreed market price of 800 USD + 100 USD premium = 900 USD. At the same time, the seller closes or unwinds the futures contract by buying back the contract at the market price of 800 USD/ton, resulting in 200 USD loss (sold at 600 USD while bought back at 800 USD).

In this example, the seller's actual income from the sugar sale is 900 USD + -200 USD loss from entering into the sugar futures contract = 700 USD. The amount equals the guaranteed price of 600 USD + 100 USD premium = 700 USD.

Accounting Record: The company generates income from sugar sale at 900 USD (which is higher than the guaranteed price of 700 USD). The -200 USD from entering into the sugar futures contract is recorded as a loss.

In all the cases, the company has the net income of 700 USD (excluding a commission paid to the financial institution). Methods of producing accounting records are, however, different. For the regular transaction, (no risk management involved), the company records 700 USD as income from sale. The concerns with this type of transaction is that at the time there may not be any buyer willing to buy, or the seller may not be willing to sell. Adopting a risk hedging tool of sugar futures contracts, if the market is in a downturn, the company will record income from the sugar sale at 500 USD, and 200 USD gain from entering into the sugar futures contract will be recorded as other income. However, during an upturn in the market, the company will record 900 USD as income from sale and -200 USD loss from entering into the sugar futures contract.

In conclusion, entering into sugar futures contracts enable (1) buyers and sellers to trade at prices considered satisfactory by both parties without the need to wait for prices to reach the levels that buyers and sellers can agree on; and (2) the net revenue will be equal to fixed prices. If the market is experiencing a down turn, actual income from sugar sales will be low, but will be offset by gain from entering into sugar futures contracts. During an upturn, however, actual income from sugar sale will be high, while there is loss from entering into sugar futures contracts.

Important Concerns

1. The time to record actual sales may be different from those of recording gain/loss from entering into sugar futures contracts. For example, the companies record income from actual sales when sugar is delivered to customers. Gain/loss from entering into sugar futures contracts is recorded upon contract closure or unwinded. It is possible that companies will realize gain/loss from entering into sugar futures contracts before recording sales, resulting in a discrepancy between the two records produced at different periods. This outcome will be experienced significantly by companies that report their operating results on a quarterly basis.
2. Adopting a risk hedging procedure for sugar price volatility in form of sugar futures contracts can insure the company against the sugar price risk on existing sugar volume and also sugar volume estimated to be produced in the future. Amounts hedged under sugar future contracts vary according to sugar production estimated to be produced in the future. However, amounts of sugar produced depend on quantities of cane crushed largely affected by climate, vast cultivation areas, and a lot of farmers. As a result, inaccuracy of estimation of sugar cane crops may be rather high.

When estimation of sugar cane crops is too high, sugar futures contracts have been made according to the estimates and later the actual outputs do not match up with the estimates, the contracts become oversold. If the sugar future price is in an upturn, there will be actual loss from sugar futures contracts made. This is due to the fact that there is no actual sale at a high price to offset. In contrast, when the sugar market price is experiencing a downturn, there will be actual gain from sugar futures contracts.