

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 gives 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

Sugar business

Since the year 2018, the company has invested in new machinery and expanded capacity for liquid sugar production. The current target group of liquid sugar is both domestic and overseas foods and beverage industrial customers and other distribution channels are planned to be expanded in the future. In addition, during the year 2020, the company started to expand distribution channel of white sugar and refined sugar sale through modern trade channel starting at Marko Department store in order to introduce and sale products to retail customers. Moreover, it will be expanded to other department stores and other hyper markets in order to support the marketing plan of new special products distribution in the future such as natural brown sugar, organic sugar, low GI (low glycaemic index) sugar and sugar in other special packages, etc.

Related Business

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). The business objective of BBGI is to invest in bio-based products manufacturing and trading business as a holding company. In October 2017, BBGI was subsequently registered with initial registered and paid-up share capital of Baht 2,532 million. 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 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. The renewal of registration is under consideration of recent capital market resulting from the recent unfavorable capital market circumstance and assessment of the new business marketing. However, BBGI has an alternative to raise funds through debt security after BBGI performance has been rated at BBB+ (Stable) by Tris Rating Co., Ltd. in the fourth quarter of the year 2020.

As a result of BBGI group's business and capacity expansion, BBGI is considered as the largest biofuel business and distribution in Thailand. The development projects had been achieved during the period from 2018 until present (December 20, 2020) as follows:

- Biodiesel production project made for expansion of its capacity from 930,000 liters per day to 1,000,000 liters per day.
- Construction of pure glycerin distillery with 80 tons per day of capacity was completed in December 2020.
- The ethanol which is made from cane bagasse and other agriculture product, had been expanded its capacity with the current capacity of 1,000,000 liters per day (included capacity of joint venture).
- Investment in a biotechnology business, Manus Bio Inc., incorporated in United States in order to expand new bio-based product business in the future.

The current projects under development with expected investments of Baht 875 million for the year 2021 are as follows:

- the second ethanol refinery construction project at Nam Pong factory in Khon Kaen province which is made for expansion of its capacity by 200,000 liters per day, is expected to be completed in December 2021.
- The construction projects of biogas and facilities systems at 2 locations, Nam Pong in Khon Kaen province and Bo-Ploy factory in Kanchanaburi province are continued to be completed in January 2022.

1.3) Company's Business Overview

Khon Kaen Sugar Industry Public Company Limited and its subsidiaries, under KSL, are the fourth largest sugar producer group in Thailand. The group consists of 5 sugar factories 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

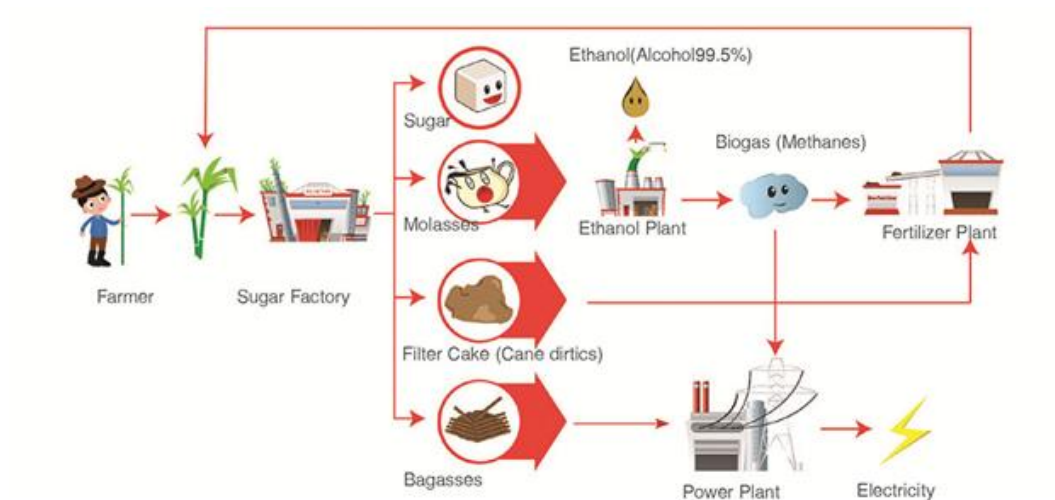
In addition, the Company has an operated factory located in Savannakhet Province, Lao.

The core product which the company produces is 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) The 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 (bagasse) 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



As of October 31, 2020, 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 (Million THB)	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	687.73	98.00%	Sugar cane plantation and manufacture and distribution of sugar and molasses, in Laos
Koh Kong Plantation Co., Ltd*	468.49	80.00%	Sugar cane plantation in Cambodia
Koh Kong Sugar Industry Co., Ltd	1,946.69	88.02%	Manufacture and distribution of sugar and molasses, 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 5 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

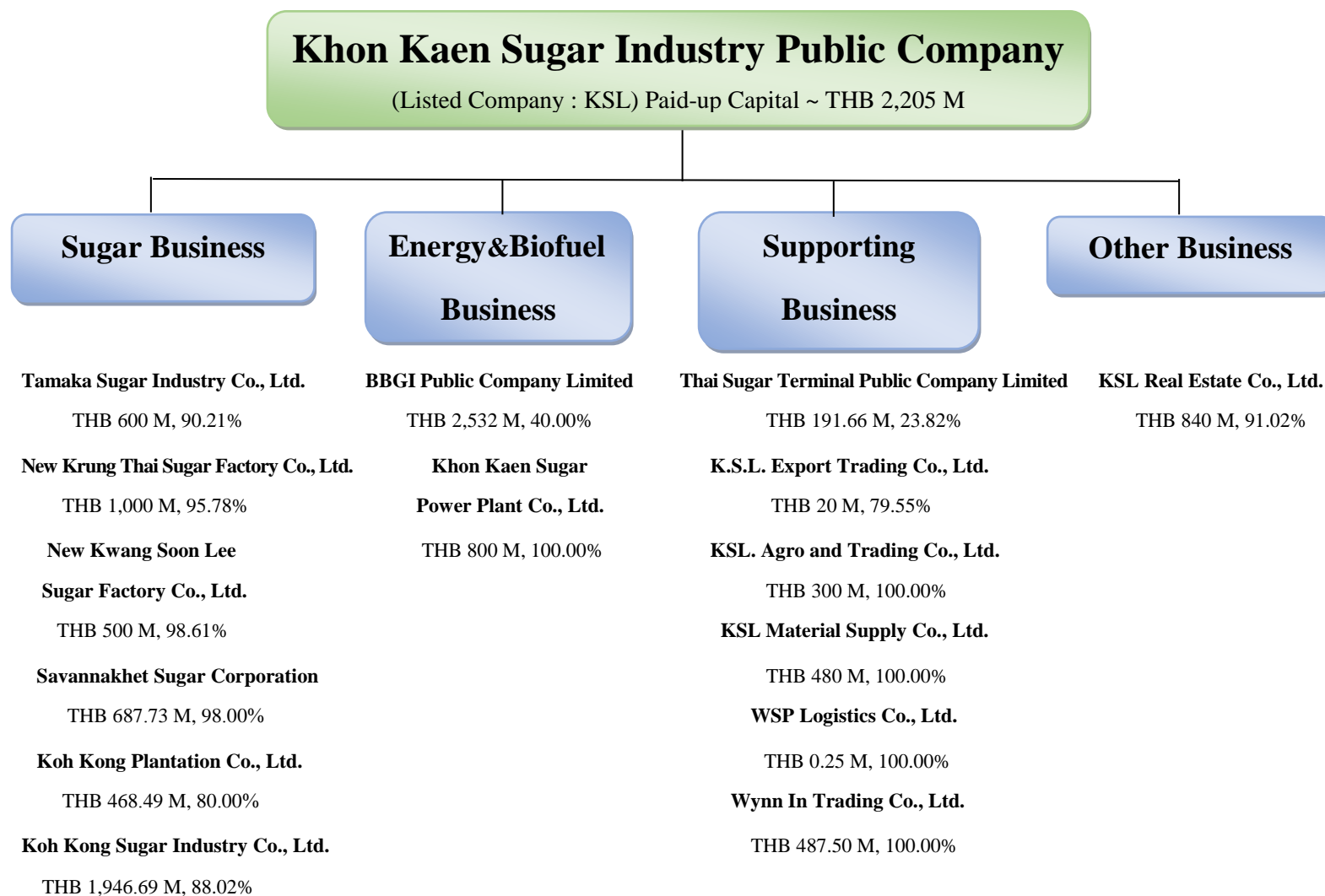
Note: Proportion of investment shown above includes both direct and indirect shareholdings.

* 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., (3) TS Transport and Logistics Co., Ltd., (4) TS Warehouse, (5) TS Flour Mill Plc.

*** Associated company: BBGI Pcl. and 5 subsidiaries and 1 associated company: (1) Bangchak Bioethanol (Chachoengsao) Co., Ltd., (2) Bangchak Biofuel Co., Ltd., (3) KSL Green Innovation Plc., (4) BBGI Utility and Power Co., Ltd., (5) Win Ingredients Co., Ltd., (6) Ubon Bio Ethanol Plc. (associated company) consolidated with 3 subsidiaries.

Business and shareholding structure of KSL Group as at October 31, 2020 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 nature of business is to produce and distribute 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 nature of business is to produce and distribute 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 factory is capable of producing raw sugar, high pol 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. The factory is capable of producing raw sugar.

Koh Kong Plantation and Koh Kong Sugar Industry

As at October 31, 2020, 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. The factory is capable of producing raw sugar and white sugar.

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 bio-based product business of 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 Public Company Limited : Producing and distributing cassava-based ethanol with 400,000 liters per day, in which BBGI Company Limited holds 21.28% shares.
- BBGI Utility and Power Company Limited: Producing and distributing biogas steam and electricity, in which BBGI Company Limited holds 100% shares.
- Win Ingredients Company Limited: Producing, selling, importing and exporting biological products and chemicals in various categories, in which BBGI Company Limited holds 51% shares.

As a result, BBGI will be a shareholder of the group of companies which are considered Thailand's largest manufacturer and distributor of biofuel 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. Furthermore, the company entered into Preferred Shares Purchase Agreement from Manus Bio Inc., which is incorporated in the United States of America and its business is biotechnology, amounting to USD 25 million. 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 was established in late 2003 and has operated 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 sold to EGAT and PEA (Grid). Currently, the company operates 3 power plants all located 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. Its 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 trades 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

Khon Kaen Sugar Industry Plc. 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, the company 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 2020	2020		2019		2018	
		Revenue (Million THB)	%	Revenue (Million THB)	%	Revenue (Million THB)	%
1. Khon Kaen Sugar Industry PCL.	Parent Company	6,267	35%	11,224	43%	9,819	38%
2. Tamaka Sugar Industry Co., Ltd.	90.21%	1,664	9%	2,395	9%	2,888	11%
3. New Krung Thai Sugar Factory Co., Ltd.	95.78%	3,029	17%	3,298	13%	4,274	17%
4. New Kwang Soon Lee Sugar Factory Co., Ltd.	98.61%	492	3%	571	2%	562	2%
5. K.S.L. Export Trading Co., Ltd.	79.55%	16	0%	19	0%	17	0%
6. Khon Kaen Sugar Power Plant Co., Ltd.	100.00%	2,579	15%	3,588	14%	3,643	14%
7. KSL Material Supplies Co., Ltd.	100.00%	149	1%	360	1%	382	1%
8. KSL Real Estate Co., Ltd.	91.02%	164	1%	190	1%	193	1%
9. KSL. Agro and Trading Co., Ltd.	100.00%	2,901	16%	3,822	15%	3,420	13%
10. Koh Kong Plantation Co., Ltd.*	80.00%	0	0%	12	0%	45	0%
11. Koh Kong Sugar Industry Co., Ltd.	88.02%	1	0%	45	0%	366	1%
12. Savannakhet Sugar Corporation	98.00%	498	3%	309	1%	199	1%
13. Wynn In Trading Co., Ltd.	100.00%	0	0%	0	0%	0	0%
14. WSP Logistics Co., Ltd.	100.00%	0	0%	0	0%	0	0%
Total		17,759	100%	25,833	100%	25,808	100%
Minus Interrelated items		-5,907		-7,978		-7,996	
Total Revenues		11,853		17,855		17,812	

*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. KSL's has variety of sugar produced which can be divided into five categories of sugar according to its type and level of purity as follows:

Raw sugar – Raw sugar has a color index higher than 1,500 ICUMSA. It is dark brown with a high impurity index and a low purity index. The shipment is usually loose-loaded in bulk. Raw Sugar cannot be direct consumption. It is required to refine to white sugar or refined sugar.

Raw Sugar with High-Polarization – Hi-pol Raw sugar contains color between 1,000 - 1,500 ICUMSA. It is not fit for direct human consumption. Normally, the sugar is transported loose-loaded in Bulk to the vessel. The price is usually lower than that of white sugar and refined sugar.

White sugar – White sugar contains its color between 46 - 200 ICUMSA with minimum polarization 99.50. It is fit for direct human consumption. It is being used for home used and/or raw material/ main ingredient in food industries.

Refined sugar – Refined sugar contains its color not more than 45 ICUMSA. The sugar is being used for home used and some industries which required the better quality and higher in purity, such as pharmaceutical sector, beverage sector, and energy drink.

Liquid sugar – liquid sugar contains its color below 35 ICUMSA with 66.5-67.5% brix. This product has higher in purity and preferably be used in the industries whereas required to melt the sugar crystal into liquid form, therefore this product is the most suitable for beverage and energy drink sectors as it can generate the saving for its process of sugar crystal melting.

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-products 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 can generate their capacity to extract between 45-50 kilograms of molasses. The molass production has annually positive correlation with the quantity of sugarcane crushed. Molasses can widely be used in various industries such as biochemistry alcohol and distilling, yeast, monosodium glutamate, animal feed (where molasses is being mixed with cassavas and bagasse), vinegar, and soy sauce and seasoning sauce brewing.

The last element from cane crushing process are bagasse and filter cake. Bagasse is the last fibrous material after the juice extraction process from sugarcane. Currently, the companies use their bagasse as their main source of energy for electricity and steam generation in sugar manufacturing process. Part of the electricity that the sugar factories generated is sold to the EGAT. Filter cake is a residue from vacuum filtration process. It appears to be used as main element to be general-purpose fertilizer. Over the years, the companies have given away their filter cake to their contracted cane farmers to promote sugarcane plantation within the companies' s nearby cane growing areas. Since the company's subsidiaries have started to operated their alcohol and chemical production, the waste water from the alcohol factories mixed with filter cake and bio-decomposed are used to produce organic fertilizer which consider to be the best fertilizer for sugarcane plantation. This supply chain has efficiently completed the corporate value-added product with zero waste.

Sugar: Market and Competition

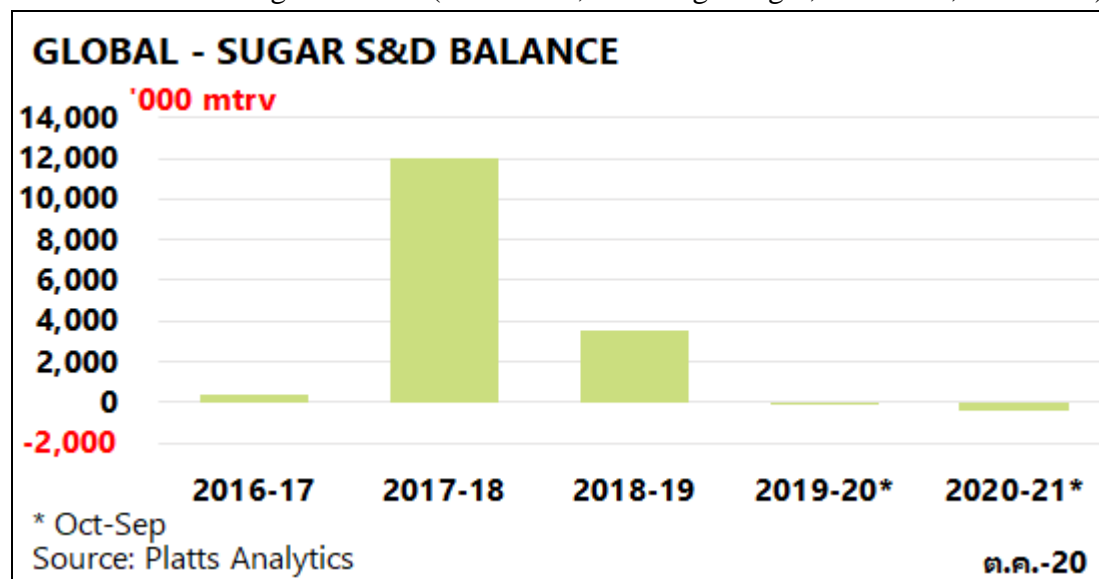
International Market Overview

In the overview of the world sugar market, world sugar production in 2019/20 production season which was approximately 181.11 million tons (raw sugar volume), a decrease of 4.22 million tons or 2.27% compared to the 2018/19 production season, meanwhile, the total world demand was 181.22 million tons, a decrease of 0.56 million tons or 0.30% compared to the season. Production in 2018/19, with the remaining sugar content at the end of the year slightly decreased from 77.83 million tons in the production season 2018/2019 to 76.78 million tons in the production season 2019/20, representing 41% of the consumption volume. The remaining stock level is sufficient for consumption in approximate 4.9 months with the global output forecasted to produce a slight deficit. In this regard, sugar consumption demand in 2020 slows down due to lockdown measures caused by the Covid-19 epidemic, therefore, some countries still have a relatively high stock of sugar. Moreover, a major producer of the world, Brazil, increased the proportion of sugar production. As a result, in the year 2020 during the second quarter of 2020, the world market sugar prices dropped sharply.

In the middle of 2020, it was expected that 2019/20 sugar cane production from Thailand and India would be declined due to drought but Brazilian producer decided to increase their proportion of sugar production. This incident was resulted in a sharp drop from the price level of 15 cents per pound in the early of year down to 9-10 cents per pound in the second quarter of 2020. However, the price range during the end of the year recovered to 14 -15 cents per pound.

According to Platts Analysis reported on October 22, 2020, the output in 2020/21 is expected to be slightly deficit. Both sugar prices in the past 2-3 years have been volatile since both world sugar volume and sugar price are affected by changing in climate, flooding, drought or cold weather. In addition, other key factors also affect to the world sugar price such as the world's sugar stocks level, production volume, ethanol usage, Fund's speculative entry volume and government policies in the countries of key producers and consumers.

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



Note: 2019/20 and 2020/21 are forecasted number

Source: Platts Analysis, 22 October, 2020

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



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 in Thailand, such as FOB ports of Bangkok and Lam Chabang.

(2) Thai sugar manufacturers export their sugar to neighboring countries; Cambodia, Laos, Myanmar and Vietnam through borders. The sugar is being sold to vendors at borders.

(3) Thai sugar manufacturers sell to the manufacturers at destination who use sugar as main raw material in production of their exported furnish products. Since the domestic sugar price is higher than that of world market prices, the Re-export manufacturers who use sugar as their main raw material has lost their competitiveness as the domestic price is higher than that of in the world market. Hence, the government allows those Re-export manufacturers who export furnish products abroad to buy sugar at the world market prices conditionally in order to boost investment in the food industry and competitiveness.

Market Overview and Industrial Domestic Market Conditions

Since 2018, the cane and sugar industry system of Thailand was modified with no longer continuing of quota system and fixed sale price of domestic sugar sales. Therefore, there is currently a free market in the country and domestic sugar prices are floated and varied according to the world sugar prices plus domestic sugar premium. As a result, the overall of both domestic and export sales are in accordance with the mechanism of the world sugar market as well as it depends on the different production capability of each factory. The proportion of sugar sale of the group companies is detailed in Table 2.3. However, the essence of the Thai Cane and Sugar Act in regard to the benefit sharing system with farmers has been remained.

Competition conditions and competitors

In 2020, there are 58 sugar mills operating in Thailand which consist of 6 groups of sugar mills as the major producers and other small producers. The numbers of sugar factories are under government control. Licenses certified by Office of the Cane and Sugar Board and Department of Industrial Works, Ministry of Industry, are required for sugar factories in increasing capacity, relocating factories, or operating new sugar factories.

The sugar cane crush season normally begins in December till the beginning of April approximately. For the production year 2019/2020, the Thailand output of sugar cane crush in the total amount of 74 million tons produced 8.4 million tons of sugar. Khon Kaen Sugar Factory Group is the fourth largest sugar-cane producer group with a market share of about 7.02%.

Table 2.3: Sales Volume and Ratio of Domestic Sugar Sales in the Past 3 Years

Sale Volume & Price	2020			2019			2018		
	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	693,830	12,717	8,823	1,255,593	11,084	13,917	1,091,228	12,585	13,733
Domestic sale	164,067	17,535	2,877	230,145	16,431	3,781	187,656	17,880	3,355
Export sale	529,762	11,225	5,946	1,025,448	9,884	10,135	903,572	11,485	10,378
% Domestic Sale/Total Sale	24%			18%			17%		

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 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 exporters 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

	2020	2019	2018
Sale volume (MW-hour)	330,882	372,481	346,894
Avg. selling price (THB/MW-hour)	3,191	2,952	2,940

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. Costs of electricity and steam depend on the amount of crushed sugarcane and other alternative biomass fuels' cost (in case of insufficient bagasse volume). In each year, Khon Kaen Sugar Power Plant has prepared purchasing biomass fuel source, such as purchases of bagasse from nearby plants, wood chips, coconut shells or other biomass fuels etc.

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 construction of rain shield roofs including development or modification of machineries used for other biomass, etc.

Marketing policy

The long-term agreement between the company and EGAT allows the electricity produced to be priced based on fixed formula of calculation. 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 equivalent 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' roles in sugarcane sales and purchase deals.

2. Risks from Fluctuation of Global Sugar Price

Sugar industry is one of the major processing agricultural industries of Thailand. Sugar is primarily supplied to meet the domestic consumption demand before being exported (70-75 percent of the total national production capacity) to global market, mainly to Asian one where the demand is constantly high. Located in Asia, Thailand gains advantage in this region and becomes the net exporter, generating income to the sugar factories and cane farmers.

The sugar price in global market is a key factor affecting Thai sugar industry apart from demand and supply of producers, consumers, exporters, importers, climate, promotional policies, and intervention by the government in both producing and consuming countries. The energy price is also interrelated to the fluctuation of the sugar price, so are the traders' speculations. Due to the risk from the to-be-announced sugar price following the global sugar price and exchange rate (THB-USD), KSL, therefore, appointed the pricing committee to prevent the risk from the difference between the global sugar price and the cane price.

In the production year 2019/2020, the Office of the Cane and Sugar Board reported the amount of cane procured for crushing at 74.89 million ton-cane or over 40 percent decrease from the previous year due to the worst drought in 40 years affecting the cane growth even though the rain partially covered the area.

In 2020 the raw sugar price in New York market highly fluctuated, especially in the first quarter: from 15.90 cents/lb at the highest in the first quarter (mid-February) to 9.05 cents/lb in the second quarter (end of April) due to the decrease of crude price and Brazilian real depreciation at 5.97 BRL/USD, promoting the export volume of sugar from Brazil 10 million ton-cane from the previous year. This resulted in the high fluctuation of global sugar price in the second quarter.

In the last 2 quarters of the year the global sugar price increased following the crude price, directly resulting in the higher ethanol price in Brazil which attracted many speculators. In addition, the rapid appreciation of Brazilian real over 19% to 4.81 BRL/USD (as of June 6, 2020) increased the sugar price to 12 cents/lb from the lowest price at 9.05 cents/lb at the end of the second quarter.

At the end of 2020, the global sugar price appeared to be more constantly positive from the average of 12 cents/lb to 14.00-15.00 cents/lb as a result of the economic restoration after the COVID-19 pandemic. KSL earned more revenue from the related businesses, ethanol business in particular under the partnership with the energy specialist including biomass power plant, organic fertilizer factory by using by-products and wastes as raw materials.

3. Risks from Government Policies

The cane and sugar industry in Thailand is under the supervision and control of the Cane and Sugar Board under the Cane and Sugar Act B.E. 2527 (A.D. 1984). The government delegated the amendment of such act to the Office of Cane and Sugar Board (OCSB) to allow other products, apart from sugar, to be produced from cane juice in order to generate more revenue to the cane and sugar industry as a key mechanism to develop new potential industries for the national economic growth following New S-Curve strategy which adds more value to the cane and creates a variety of bioproducts, such as bioplastic, biochemical, and biopharmaceuticals in accordance with the Thai Bioindustry Development Measure 2018-2027.

The allocation ratio of revenue generated from sugar business between sugar factories and cane farmers remained at 70:30. The policy issued by OCSB announced the new domestic sugar prices (before VAT) for the production year 2019/2020 as follows:

1. White sugar: 17.25 baht/kg (seventeen baht twenty-five satang)
2. Refined sugar: 18.25 baht/kg (eighteen baht twenty-five satang)

The new prices shall be effective from October 1, 2019 onward.

In order to properly support the cane farmers and follow the rules of the World Trade Organization (WTO), OCSB regularly updates the cane farmer database for the purposes of analyzing and prescribing the relevant policies, rules and regulations for cane and sugar industry which affects the production cost and KSL performance.

The repayment of loan, taken out earlier in order to financially support and addressed the issues raised by the cane farmers in the production 2015/2016, to Krung Thai Bank by the Cane and Sugar Fund was partially made from the revenue of domestic sugar distribution. The request for the support from the annual government expenditure of 2021-2023 was made through the discussion with the Ministry of Treasury to repay the principal of the loan. In case that the request is denied, the Fund will ask for the repayment extension. Furthermore, the current situation of constantly low sugar price and the trend of high fluctuation affect the cane farmers as the production cost is at 1,110 baht/ton-cane. In order to ease their suffering, the loan program to increase the efficiency of cane production 2019-2021 was approved to promote the low-interest loan to cane farmers as well as the use of machinery for cane farm management, allowing the small cane farmers to acquire the necessary production factors with satisfactory return which creates the circulation in the economy.

Another challenge for the cane farmers and sugar factories is the issue related to PM 2.5 reduction in the crushing season 2020/2021 by adjusting the ratio of burnt cane to fresh cane to 20:80 in accordance with the government measure, which affects the traditional cane harvesting methods.

KSL is closely monitoring the risks from the government policies in order to properly determine the operational guidelines for any relevant departments to comply with such policies.

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 Geographic Information System: GIS 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 mitigates the exchange rate risk exposure by a close monitoring of exchange rate trend and entering derivative contracts for foreign currency hedging i.e. forward contracts, option contracts, etc. In addition, the Company manages 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 trends 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 2020, 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, so as to support and implement the Company's strategies to a success. Hence, the Company finds it necessary to develop the process of maintaining, and development of potential of its staff to cope with the changing circumstances.

In 2020, world face to COVID – 19 pandemics that challenges to continue about human resource policy, the Company materializes the personnel development with new normal situation by providing new channel as an online training courses and joint with outsource moreover in class training only. 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, 2020, the company and its subsidiaries have core operating assets as follows:

Items	Approximate Area	Ownership	Net Book Value (Million THB)	Encumbrance
1. Land & Land Development (Rai)				
Land for factory location				
- Khon Kaen Sugar Industry	1,421.81	Owner	965.82	
- Tamaka Sugar Industry	244.76	Owner	722.89	
- New Krung Thai Sugar Factory	1,139.90	Owner	308.45	
- New Kwang Soon Lee Sugar	251.53	Owner	104.71	
- KSL. Agro & Trading Co., Ltd.	90.86	Owner	58.16	
- Khon Kaen Sugar Power Plant Co., Ltd.	420.15	Owner	202.78	
- KSL Material Supplies Co., Ltd.	226.52	Owner	26.66	
Cane Plantation Area	9,621.61	Owner	1,607.26	
Office Area	376.88	Owner	206.10	
Other Lands	106,351.60	Owner	1,753.35	
Total Land & Land Development			5,956.18	
2. Factory Building and Construction		Owner	4,868.45	
3. Machinery and Equipment		Owner	14,028.37	
4. Motor Vehicle and Labors-saving device		Owner	442.86	
5. Furniture and Office Equipment		Owner	31.97	
6. Assets under Construction		Owner	542.94	
Grand total			25,870.77	

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>Privilege</u>	<u>Date</u>	<u>Promoted activity types</u>	<u>Commenced date</u>	<u>Expire date</u>
				<u>of revenues</u> <u>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, 2020, 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 Group companies and its subsidiaries have been certified ISO 9001:2000, which required the companies' survey Customer satisfaction, both domestic and international selling channel, covering variety of Quality, Services and others to assess and improve satisfaction. The company has set their target to achieve the score at least 94 out of 100. The results in the last 3 years are as follows:

Satisfaction Survey	Year 2020	Year 2019	Year 2018
Domestic	97.77	96.65	96.46
International	96.55	95.54	95.78

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

Production/Market share	Year 2020	Year 2019	Year 2018
Production (Metric Ton)	0.585 Million	1.151 Million	1.182 Million
Market Share (%)	7.02%	7.85%	8.16%

5. Legal Dispute

As of 31 October 2020, 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) Sugar Price Risk and Company's Hedging Procedure

The availability of Thai sugar is greater than its country's sugar consumption, therefore, Thailand has over the years exported their exceeding sugar to the world market. The ratio of domestic consumption required to export has been varied, approximate range from 20:80 to 30:70, depending on annual sugar produced. Thailand has become the second largest sugar exporter after Brazil. The main revenue of sugar producers in Thailand has exposed directly to the world sugar prices and the other is aligned with domestic sugar price according to the government policies.

The world sugar market price has been volatile and the global sugar production is falling in some main producing countries due to the severe climate change. The government also increased the level of regulation on the sugar industry as well as the government policies to support and focus to protect cane farmer's benefits, food security policies lead to regulate importing countries to issue restriction of sugar importation. The sustainable sugar is become increasingly important. 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)

The revenue of sugar producers in Thailand is substantially in line with the world sugar prices, which fluctuate significantly, the company's operating results will be affected when sugar prices in the world market drop drastically. In order 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 form 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 350 USD / ton:

The buyer and seller agree on a transaction of sugar at the market price of 350 USD + premium 50 USD

Day 2: Sugar futures price increases to 450 USD / ton :

The seller delivers the sugar. The buyer pays 350 USD + 50 USD premium = 400 USD

Accounting Record: The company income generated from sugar sale is 400 USD.

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

In case of sugar price decrease in futures market

Day 1: Sugar futures price is at 350 USD / ton:

The buyer and seller agree on a transaction of sugar at the market price of 350 USD + premium 50 USD.

Day 2: Sugar futures price decreases to 300 USD / ton :

The seller delivers the sugar. The buyer pays 350 USD + 50 USD premium = 400 USD.

Accounting Record: The company's income generated from sugar sale is 400 USD.

It is demonstrated that prices to be received by buyers 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 400 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 400 USD.

Day 2: Sugar futures price decreases to 300 USD / ton :

A buyer is interested in buying. The seller sells sugar at the agreed market price of 300 USD + 50 USD premium = 350 USD. At the same time, the seller closes or unwinds the futures contract by buying back the contract at the market price of 300 USD/ton (sold at 400 USD while bought back at 300 USD), resulting in 100 USD gain.

From this example, the seller's actual income from the sugar sale is 350 USD + 100 USD of hedging gain from sugar futures contract. The amount equals the guaranteed price of 400 USD + 50 USD premium = 450 USD.

Accounting Record: The company generates income from sugar sale at 350 USD (which is lower than the guaranteed price of 400 USD). The 100 USD gain from entering into the sugar futures contract is recognized as other income.

In case of sugar price increase in futures market

Day 1: Sugar futures price is at 400 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 400 USD.

Day 2: Sugar futures price increased to 450 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 450 USD + 50 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 450 USD/ton, resulting in 50 USD loss (sold at 400 USD while bought back at 450 USD).

In this example, the seller's actual revenue from the sugar sale is 500 USD - 50 USD of hedging loss from sugar futures contract = 450 USD. The amount equals the guaranteed price of 400 USD + 50 USD premium = 450 USD.

Accounting Record: The company generates income from sugar sale at 500 USD (which is higher than the guaranteed price of 400 USD) but hedging loss of 50 USD is also recognized according to sugar futures contract.

In all the cases, the company has the net income of 500 USD (excluding a commission paid to the financial institution). Methods of producing accounting records or presentation are, however, different. For the regular transaction without risk management involved, the company records 500 USD as revenue 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 revenue from the sugar sale at 500 USD, and gain on hedging of 50 USD will be recognized as other income. However, during an upturn in the market, the company will record 500 USD as revenue from sale but loss on hedging of 50 USD will be recognized according to 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 revenue from sugar sales will be low, but it is compensated with gain on hedging according to sugar futures contracts. During an upturn, however, actual revenue from sugar sale will be high, while it must be offset with loss from hedging according to sugar futures contracts.

Important Concerns

1. Currently, there is the time difference between recognition of revenue from sales and gain/loss on hedging from sugar futures contracts. For example, the companies record revenue from actual sales when sugar is delivered to customers. Hedging gain/loss from sugar futures contracts is recognized upon contract closure or unwinded. It is possible that companies will realize hedging gain/loss from futures contracts before recognition of revenue from sales, resulting in a time difference between those two records. This outcome will affect to 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 the overestimate of sugar cane output incurs, 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. On the other hand, when the sugar market price is experiencing a downturn, there will be actual gain from sugar futures contracts.