



Part 1

Business Operations

1. Business Policy and Overview

CH. Karnchang Public Company Limited was incorporated on November 27, 1972 to operate the business as construction contractor given the opportunity for the construction business expansion while Thailand was focusing on national development, by initiating a number of various construction projects. It is the Company's policy from the outset to focus on construction works which are beneficial for the society and the country and to carry on its operations under the business philosophy based on integrity, justice and utmost interest of all stakeholders as well as to always give priority to the social and environmental responsibility. Initially, the Company's scope of work covered construction of buildings and general civil works, mostly for the Royal Thai Army and the government sector.

Subsequently in 1981, the Company entered into a joint venture with Tokyu Construction Co., Ltd., one of Japan's top ten construction contractors, to jointly establish CH. Karnchang-Tokyu Construction Co., Ltd. for the purpose of expansion of the scope of business operations and learning and acceptance of construction technology transfer, as well as formation of a business alliance.

Thereafter, the Company was converted into a public limited company on October 10, 1994 and the Company's ordinary shares were listed and began trading on the Stock Exchange of Thailand on August 3, 1995, at which time, the Company was rapidly growing and improving its capabilities and potential in all aspects, including work management and development of human resources, as well as construction technology development through its joint ventures with foreign companies which possess expertise to enhance its potential for more efficient operations. This has enabled the Company to expand its scope of engagements to various fields to the point at which the Company has become one of the construction contractors which are sufficiently capable of carrying out sophisticated construction requiring advanced construction technology, such as, construction of large scale infrastructure projects, namely, construction of expressways, subways or dams, etc. With the Company's continued development of its capabilities in terms of both engineering and management, the Company is thus able to handle projects on a design and construction or turnkey basis.

Moreover, based on the vision and policy of the management team which realizes the need to enlarge the scope of business operations; create a prominent role and a sustainable and stable growth for the Company, the Company has changed its role to become an investor in regional, comprehensive infrastructure project development. Currently, the Company has invested in small, medium and large concession projects which cover all systems, namely, transportation, mass rapid transit, infrastructure, and hydropower systems. Among these projects include, for instance, investment in Bangkok Expressway Public Company Limited, which constructs and operates the Si Rat Expressway (the Second Stage Expressway), and various extension projects; investment in the MRT Chaloem Ratchamongkhon Line Project of Bangkok Metro Public Company Limited (on



December 30, 2015, Bangkok Expressway Public Company Limited amalgamated with Bangkok Metro Public Company Limited into Bangkok Expressway and Metro Public Company Limited, which operates the expressway and rail mass rapid transit services, including commercial development in connection with the expressway and metro systems; and subsequently, Bangkok Expressway and Metro Public Company Limited has been granted a concession to conduct construction and management of the Si Rat - Outer Ring Road Expressway, including provision of the operation service of the MRT Blue Line Extension Project and the MRT Chalong Ratchadham Line Project or the MRT Purple Line Project, Bang Yai - Rat Burana, Bang Yai - Bang Sue Section); investment in the Tap Water Production Project of TTW Public Company Limited for sale of tap water to the Provincial Waterworks Authority in the vicinities of Nakhon Pathom Province and Samut Sakhon Province; and investment in CK Power Public Company Limited which operates the core business as holding company in the electricity production and distribution business from energy resources of various types, namely, investment in the Hydroelectric Power Project (Nam Ngum 2) for electricity generation and distribution to the Electricity Generating Authority of Thailand, investment in the Small Power Producers (SPP), two Cogeneration Power Projects, with their respective production capacity of 117.5 MW and 120 MW, by the cogeneration system for electricity generation and distribution to the Electricity Generating Authority of Thailand and industrial operators in Bang Pa-in Industrial Estate, investment in the solar power projects for electricity generation and distribution to the Provincial Electricity Authority, investment in the Xayaburi Hydroelectric Power Project for electricity generation and distribution to the Electricity Generating Authority of Thailand and the Electricité du Laos, etc. The Company's business operations in this manner demonstrate the results when the group companies whose shares are held by the Company have successfully achieved good operational results, and the Company has received returns on investment in those companies in the form of dividend, including gains on sales of investments, which generate regular income and profit for the Company.

Based on the policies and far-sighted vision in business operations, the Company is able to become a construction contractor, investor and concessionaire, which has distinguished the Company from other leading construction companies in Thailand, and generates revenues for the Company from construction services for both the government sector and the private sector, including income from investment in basic infrastructure project development business. Moreover, the Company is able to more efficiently manage risks in the construction business due to the Company's chance to initiate its own works from its roles as full-scale developer, investor, and manager of concessions. These policies and strategies in management can result in good business returns and stable growth for the Company and its group companies, which make the Company strong and distinctive, and afford an opportunity and have the potential beyond being a construction company alone. This is a prominent factor which empowers the Company to become successful in its business operations for over 47 years.



1.1 The Company's Overall Operational Policy

To ensure the accomplishment of the Company's operations for the utmost benefits of all stakeholders, the Company has thus adopted the operational policies subject to the principles as follows:

Vision

To be the leader in construction business and the pre-eminent and comprehensive basic infrastructure developer in the region.

Missions

- Deliver quality work for our customers while committed to creating work that contributes to the society and country with good returns to our shareholders and providing fair treatment to all our stakeholders
- Manage our business with professionalism and in accordance with the guidelines of good Corporate Governance
- Be responsible to the community, society and the country
- Develop human capital and organization on a continuous and consistent basis

Corporate (Q-C-I-S-T)

- Quality of Services
- Customer Satisfaction
- Integrity
- Social and Environmental Responsibility
- Teamwork

Strategies: Sustainable Growth

- Select projects with good contribution to the society and our country and with fair business returns
- Manage construction projects under the principles of effective cost management, timeliness and quality of work
- Build the business synergy in construction business and investment in basic infrastructure projects that contribute to the country's development for the purpose of risk management and increase in long-term returns to shareholders
- Expand to regional market with an emphasis on Southeast Asia
- Develop organizational capacity – human capital and management structure – to increase the company's competitiveness
- Manage and develop advanced technology, including knowledge to ensure the company's comparative advantage



To ensure the Company's business operations in compliance with the policies, the Company has complied with the strategies and action plans in 2019 as follows:

1. The Company carried out construction and performed various related works, with progress according to schedule;
2. The Company followed the procedures under every project agreement;
3. The Company conducted feasibility studies and made preparations for investments in various projects;
4. The Company maintained its liquidity and efficiently managed short-term and long-term investments to generate more revenues, as well as used various financial instruments for risk management, including reduction of finance cost;
5. The Company built a relationship with stakeholders through the social responsibility process and communicates to both internal and external persons for acknowledgement;
6. The Company maintained an efficient, transparent, and auditable management system subject to the good corporate governance principles, including the Quality Management System (ISO 9001), and developed the information system with updated technology to enhance performance.

1.2 Significant Changes and Development

According to the aforesaid business policy and overview of the Company, details of the Company's significant changes and development can be summarized as follows:

1972: The Company was incorporated as a limited company with the initial registered capital of Baht 1.40 Million to engage in general construction business. Initially, the Company's scope of work covered construction of buildings and general civil works and its major clients were government agencies, such as, the Royal Thai Army and the Royal Thai Air Force. The achievements bringing reputation to the Company included, for example, the Chulachomklao Royal Military Academy, various buildings, hospitals and public utilities for the Royal Thai Army and the television station building for the Mass Communication Organization of Thailand (MCOT), etc.

1981: The Company realized the need to enlarge the scope of its business operations for long-term prosperity. In this respect, the Company entered into a joint venture with Tokyu Construction Co., Ltd., one of Japan's top ten construction contractors, for the purpose of construction business and management, as well as potential business alliance.

1994: The Company expanded its scope of business operations and increased the registered capital to accommodate the continued business expansion. On October 10, 1994, the Company was converted into a public limited company, resulting in an increase in its registered capital to Baht 700 Million, and then became a listed company on the Stock Exchange of Thailand on August 3, 1995.



1996: The Company increased its registered capital from Baht 700 Million to Baht 1,050 Million, at which time, the Company was rapidly growing and improving its capabilities by both work management and development of human resources, as well as construction technology development through its joint ventures with foreign companies which possess expertise, e.g., Bilfinger AG from Germany, Thames Water International Limited from England. This enabled the Company to expand its scope of engagements to the point at which the Company became one of a few construction contractors which were sufficiently well-prepared to carry out sophisticated construction requiring advanced construction technology, such as, construction of large scale infrastructure projects. The Company also developed its capabilities in terms of both engineering and management, allowing the Company to operate projects on a design and construction basis or the so-called turnkey, concession projects on a Build-Transfer-Operate (BTO), Build-Operate-Transfer (BOT), Build-Own-Operate (BOO) and Build-Own-Operate-Transfer (BOOT) basis, as well as other small, medium and large scale projects.

2004: The Company established SouthEast Asia Energy Limited to serve as the developer of the Nam Ngum 2 Hydroelectric Power Project in the Lao People's Democratic Republic (Lao PDR).

2006: The Company commenced the construction of the Nam Ngum 2 Hydroelectric Power Project, with a project value of more than Baht 22,000 Million, with a production capacity of 615 MW, for production and distribution of electricity to the Electricity Generating Authority of Thailand. This project is regarded as a source of clean and renewable energy, which is low-priced and stable; and as an international investment which helps create jobs and revenue to the Lao PDR, together with improvement of the quality of life of local people in the long run, strengthen friendship and create partnership and good investment opportunity on a national level.

2009: In addition to the hydropower investment, the Company expanded its investments to other energy businesses, such as, investments in natural gas power project, thermal power technology (cogeneration), and solar power projects, etc. The Company then established Bangpa-in Cogeneration Limited for operation of the Small Power Producer (SPP) construction and management, with a production capacity of 120 MW, by the cogeneration system within Bang Pa-in Industrial Estate to generate and distribute electricity to the Electricity Generating Authority of Thailand and industrial operators in Bang Pa-in Industrial Estate.

2010: The Company established Xayaburi Power Company Limited to operate the electricity generation concession granted by the Lao PDR.

2011: The Company established Nakhon Ratchasima Solar Limited, Chiangrai Solar Limited, and Bangkhengchai Company Limited to carry out construction and operation of solar power projects to generate and distribute electricity to the Provincial Electricity Authority. Moreover, the Company established CK Power Limited as a holding company with its core business in SouthEast Asia Energy Limited, the major shareholder of the Nam Ngum 2 Hydroelectric Power Project, with the objectives for investment and shareholding in energy business, starting from its shareholding in energy business under development by the Company group. It has a vision to invest in good energy business, including alternative and clean energy, either projects initiated by the Company group or by other groups of business partners, in order to boost the business prospects in this field.



2012: The Company commenced construction of the Xayaburi Run-of-River Project, a 1,285 MW hydropower plant, with a construction project value of more than Baht 76,000 Million, for production and distribution of electricity to the Electricity Generating Authority of Thailand and the Electricité du Laos, which is expected to complete in 2019.

2013: CK Power Limited converted into a public limited company on February 6, 2013 and has been listed on the Stock Exchange of Thailand since July 18, 2013.

2015: The Company supported the amalgamation between Bangkok Expressway Public Company Limited (BECL) and Bangkok Metro Public Company Limited (BMCL) since the amalgamation was considered a strategy to integrate the strengths of both companies in order to diversify services; strengthen business competitiveness and create investment opportunities in the future; as well as promoting image of securities of the new company from the amalgamation. The Joint Shareholders' Meeting between shareholders of Bangkok Metro Public Company Limited and shareholders of Bangkok Expressway Public Company Limited resolved to approve various matters of the new company from the amalgamation as stipulated by the Public Limited Companies Act B.E. 2535 (1992) and its amendments. In this regard, the public limited company registrar, Department of Business Development, Ministry of Commerce, accepted the registration of the amalgamation on December 30, 2015, and as a result, Bangkok Metro Public Company Limited and Bangkok Expressway Public Company Limited became defunct and amalgamated into Bangkok Expressway and Metro Public Company Limited or BEM, with its registered and paid-up capital equal to Baht 15,285,000,000, divided into a total of 15,285,000,000 ordinary shares, at the par value of Baht One per share. Therefore, such new company has assumed all assets, debts, rights, duties and responsibilities of Bangkok Metro Public Company Limited and Bangkok Expressway Public Company Limited by operation of law from the date of the public limited company registrar's acceptance of registration of the amalgamation onwards.

2017: CH. Karnchang Real Estate Co., Ltd., as the Company's subsidiary, jointly invested with other persons and/or legal entities which had no connection with the Company, by signing the shareholders' agreement to become a shareholder in Kamala Senior Living Co., Ltd., a newly registered company (by having its shareholding proportion representing 20 percent of the paid-up capital of the joint investment company), with a purpose for development and management of the elderly luxury residential project located at Tambon Kamala, Amphoe Kathu, Phuket Province, which is the elderly residential project fully equipped with various facilities and services for the elderly. The initial registered capital of such company is Baht 1,000,000 (One Million Baht), divided into 100,000 ordinary shares (one hundred thousand shares), at the par value of Baht 10 (Ten Baht) per share, and its registered capital will be increased as it deems necessary and in line with its business operation plan.

Significant Changes in 2019

1. On April 23, 2019, the Company executed the Contract for the Construction and Improvement of the Si Rat - Outer Ring Road Expressway and Repair of the Structures of the Si Rat Expressway with Bangkok Expressway and Metro Public Company Limited, for the operation period of approximately 12 months and with the estimated contract value of Baht 779,684,481, exclusive of value added tax, divided into:



- Construction and improvement of the Si Rat - Baht 625,663,881
Outer Ring Road Expressway
- Repair of the Structure of the Si Rat Expressway Baht 154,020,600

2. On May 29, 2019, the Executive Board's Meeting of the Company resolved to grant approval for the Company to jointly invest in the High-Speed Rail Linking Three Airports (Don Mueang- Suvarnabhumi-U-Tapao) Project by way of holding five percent of the registered capital of Eastern High-Speed Rail Linking Three Airports Company Limited in the amount of Baht 200 Million, including exercise of the right in purchase of shares for capital increase in proportion to the price at the par value upon Eastern High-Speed Rail Linking Three Airports Company Limited's capital increase from Baht 4,000 Million to Baht 35,000 Million; and on October 24, 2019, Eastern High-Speed Rail Linking Three Airports Company Limited executed the Agreement for Joint Investment for the Hi-Speed Rail Linking Three Airports Project with the State Railway of Thailand.

3. On July 2, 2019, the Company executed the Contract for the Improvement of Machinery and Equipment for the Tap Water Production and Distribution System for the Banglen Water Treatment Plant (Phase 1) with TTW Public Company Limited, for the operation period of approximately 540 days and with the estimated contract value of Baht 349,692,000, exclusive of valued added tax.

4. On August 16, 2019, the Company executed the Contract for the Repair of the Structures of the Si Rat Expressway, Period 4, Phase 3, Sector B (Urupong - Bang Khlo), and the Improvement of the Structures of the Si Rat Expressway and the Si Rat - Outer Ring Road Expressway with Bangkok Expressway and Metro Public Company Limited, for the operation period of approximately 12 months and with the estimated contract value of Baht 233,255,144, exclusive of value added tax.

5. On September 23, 2019, the Company executed the Contract for the Construction of the Medical and Public Health Service Integration Center for Chulalongkorn Hospital, the Thai Red Cross Society, Pathumwan Subdistrict, Pathumwan District, Bangkok, with the Thai Red Cross Society, for the operation period of approximately 1,280 days and with the estimated contract value of Baht 2,160,000,000, including value added tax.

6. On December 4, 2019, the Company executed the Contract for Construction of the Rama III - Dao Khanong - Western Outer Ring Road Expressway Project, Contract 4 (Civil Work), with the Expressway Authority of Thailand, for the operation period of approximately 1,170 days and with the estimated contract value of Baht 6,636,192,131.80, including value added tax.

7. On December 27, 2019, CKST Joint Venture (CH. Karnchang Public Company Limited and Sino-Thai Engineering and Construction Public Company Limited) executed the Construction Contract of Pipeline and Related Works on Ramkhamhaeng Road from Soi Ramkhamhaeng 12 to Hua Mak, together with the MRT Orange Line (Contract 2) of the Mass Rapid Transit Authority of Thailand with the Provincial Waterworks Authority, for the operation period of approximately 1,080 days and with the estimated contract value of Baht 188,093,866, including value added tax.



1.3 Shareholding Structure of Company Group

1.3.1 Policy on Business Grouping among Companies in the Group

The business operations of group companies are divided into two categories as follows:

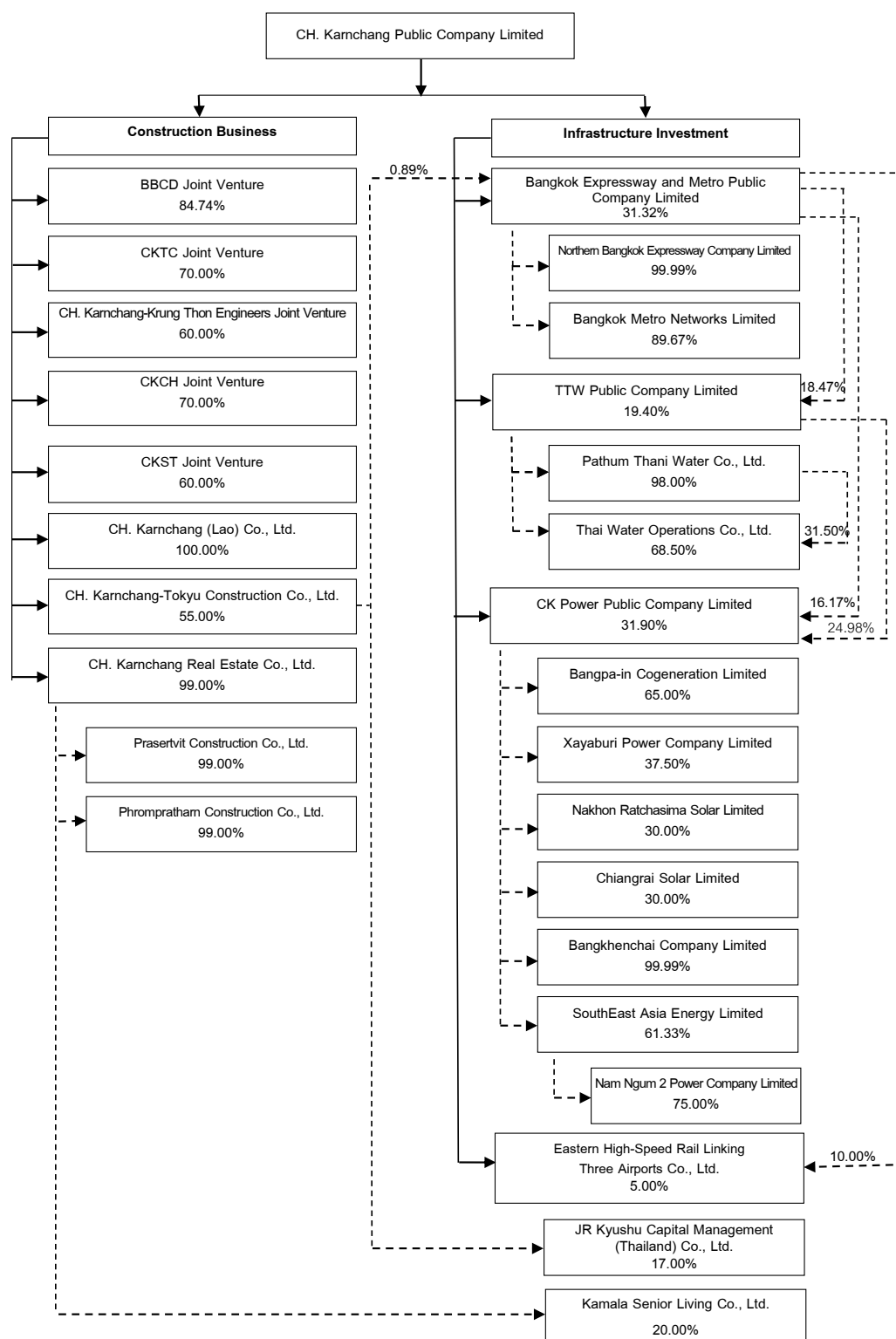
- 1) Construction Business; and
- 2) Infrastructure Investment;

1.3.2 Information on Shareholding Structure of Company Group



Business Operations of the Company, Subsidiaries, Associated Companies and Related Companies, divided into:

**Organization Chart of CH. Karnchang Public Company Limited
(As at December 31, 2019)**





Details of Business Operations of the Company, Subsidiaries, Associated Companies, Related Companies and Joint Ventures

Joint Venture/Company Name	Shareholding Ratio	Nature of Work
<u>Construction Business</u>		
1. CH. Karnchang (Lao) Co., Ltd.	100.00%	Construction of the Nam Ngum 2 Hydroelectric Power Project and the Xayaburi Hydroelectric Power Project
2. CH. Karnchang Real Estate Co., Ltd.	99.00%	Trading of Land, Allocation of Land and Residential Buildings
3. Phrompratharn Construction Co., Ltd.	99.00% of shares held by CH. Karnchang Real Estate Co., Ltd.	Construction
4. Prasertvit Construction Co., Ltd.	99.00% of shares held by CH. Karnchang Real Estate Co., Ltd.	Construction
5. CH. Karnchang-Tokyu Construction Co., Ltd.	55.00%	Construction of All Kinds
6. Joint Venture BBOD comprising Bilfinger + Berger AG, CH. Karnchang Public Company Limited and Dyckerhoff & Widmann AG	84.74%	Construction of the (Bang Na - Bang Pli - Bang Pakong) Expressway
7. CKTC Joint Venture comprising CH. Karnchang Public Company Limited and Tokyu Construction Co., Ltd.	70.00%	Operations for Construction Project of the MRT Purple Line, Bang Yai - Rat Burana, Bang Yai - Bang Sue Section; Contract 1: Elevated Structures (East)
8. CH. Karnchang-Krung Thon Engineers Joint Venture comprising CH. Karnchang Public Company Limited and Krung Thon Engineers Company Limited	60.00%	Operations for Construction of Phra Ong Chao Chaianuchit Canal Conduit System - Bang Phra Reservoir and Appurtenant Structures Contract 1 Project, Project for Diversion of Water from Eastern Chao Phraya River Basin - Bang Phra Reservoir, Chon Buri Province



Joint Venture/Company Name	Shareholding Ratio	Nature of Work
9. CKCH Joint Venture comprising CH. Karnchang Public Company Limited and Ch. Thavee Construction Co., Ltd.	70.00%	Construction of Double Track Railroad, Chira Junction - Khon Kaen Section
10. CKST Joint Venture comprising CH. Karnchang Public Company Limited and Sino-Thai Engineering & Construction Public Company Limited	60.00%	Construction of the MRT Orange Line Project (East Section), Thailand Cultural Centre - Min Buri Section, Contracts 1, 2 and 5: Construction of Manholes and Electric Conduits for the MRT Line; Contracts 1 and 2: Construction of Piping Installation for the MRT Line, Contract 2.

Infrastructure Investment

Joint Venture/Company Name	Shareholding Ratio	Nature of Work
1. Bangkok Expressway and Metro Public Company Limited	31.32%	Expressway and Metro Services, including Commercial Development in connection with the Metro and Expressway Systems
2. Northern Bangkok Expressway Company Limited	99.99% of shares held by Bangkok Expressway and Metro Public Company Limited	Construction and Management of the Udon Rattaya Expressway
3. Bangkok Metro Networks Limited	89.67% of shares held by Bangkok Expressway and Metro Public Company Limited	Commercial Development Business
4. TTW Public Company Limited	19.40%	Tap Water Production and Distribution for the Provincial Waterworks Authority in Nakhon Pathom Province and Samut Sakhon Province



Joint Venture/Company Name	Shareholding Ratio	Nature of Work
5. Pathum Thani Water Co., Ltd.	98.00% of shares held by TTW Public Company Limited	Tap Water Production and Distribution in Pathum Thani and Rangsit
6. Thai Water Operations Co., Ltd.	68.50% of shares held by TTW Public Company Limited and 31.50% of shares held by Pathum Thani Water Co., Ltd.	Administration and Management of Tap Water Production and Distribution Systems and Wastewater Treatment System
7. CK Power Public Company Limited	31.90%	Holding Company by holding shares in other companies engaging in electricity production and distribution businesses
8. Bangpa-in Cogeneration Limited	65.00% of shares held by CK Power Public Company Limited	Construction and Management of Two Cogeneration Power Projects for Production of Electricity and Steam, namely, BIC 1 with the production capacity of 117.5 MW for electricity and that of 20 tons per hour for steam; and BIC 2 with the production capacity of 120 MW within Bang Pa-in Industrial Estate to generate and distribute electricity to the Electricity Generating Authority of Thailand (EGAT) and industrial operators in Bang Pa-in Industrial Estate
9. Xayaburi Power Company Limited	37.50% of shares held by CK Power Public Company Limited	Construction and Operation of the Xayaburi Hydroelectric Power Project



Joint Venture/Company Name	Shareholding Ratio	Nature of Work
10. Nakhon Ratchasima Solar Limited	30.00% of shares held by CK Power Public Company Limited	Construction and Operation of the Project for Electricity Generation by Solar Energy, with a production capacity of 6 MW, to generate and distribute electricity to the Provincial Electricity Authority (PEA)
11. Chiangrai Solar Limited	30.00% of shares held by CK Power Public Company Limited	Construction and Operation of the Project for Electricity Generation by Solar Energy, with a production capacity of 8 MW, to generate and distribute electricity to PEA
12. Bangkhenchai Company Limited	99.99% of shares held by CK Power Public Company Limited	Construction and Operation of the Project for Electricity Generation by Solar Energy, with a production capacity of 8 MW, to generate and distribute electricity to PEA
13. SouthEast Asia Energy Limited	61.33% of shares held by CK Power Public Company Limited	Investment and Development of Power Production Business in the Lao People's Democratic Republic (Lao PDR)
14. Nam Ngum 2 Power Company Limited	75.00% of shares held by SouthEast Asia Energy Limited	Production and Distribution of Electricity from the Hydroelectric Power Project, as the concessionaire from the government of the Lao PDR under the concession for the Nam Ngum 2 Hydroelectric Power Project, with a production capacity of 615 MW
15. Kamala Senior Living Co., Ltd.	20.00% of shares held by CH. Karnchang Real Estate Co., Ltd.	Development and management of the elderly residential project located at Tambon Kamala, Amphoe Kathu, Phuket Province
16. JR Kyushu Capital Management (Thailand) Co., Ltd.	17.00% of shares held by CH. Karnchang-Tokyu Construction Co. Ltd.	Holding Company by holding shares in other companies engaging in businesses of hotels and serviced apartments for rent



Joint Venture/Company Name	Shareholding Ratio	Nature of Work
17. Eastern High-Speed Rail Linking Three Airports Company Limited	5.00% 10.00% of shares held by Bangkok Expressway and Metro Public Company Limited	Operation of the High-Speed Rail Linking Three Airports (Don Mueang-Suvarnabhumi-U-Tapao) Project

1.4 Relationship with Business Group of Major Shareholders

The Company's core business operations have no material relationship or connection with other business operations of the major shareholders.



2. Nature of Business Operations

CH. Karnchang Public Company Limited is operating the primary business of construction by accepting engagements from government agencies, state enterprises and private entities, in the form of main contractor or sub-contractor, and in collaboration with foreign contractor companies in the form of joint ventures for construction projects which cannot be separated into work portions or volumes for the respective joint venture members. Each joint venture member is responsible for profit or loss in accordance with the ratio as agreed upon in respect of every work portion. The joint investment may also be in the form of consortium, in case such construction project can be separated into work portions and volumes for the respective members who shall be independently responsible for profit or loss. The works of this nature are mostly various projects of the government.

Based on the vision and policy, the Company focuses on personnel development for enhancement of management potential and for business expansion to ensure the Company's sustainable growth, opportunities and superior capabilities beyond being a construction company alone. The Company has thus invested in regional, comprehensive infrastructure project development business, currently, including transportation system, mass rapid transit system, water infrastructure system, energy system, etc. Details of both business operations are as follows:

1) Construction Business

The construction business operations of the Company, its subsidiaries and joint ventures can be divided into two natures, namely:

(A) Main Contractor: The Company directly submits proposals in its own name, as contractor through bidding process or negotiation, to project owners. In case of a large-scale project, which requires specialized foreign companies for joint operation, the Company submits proposals in cooperation with specialized foreign companies in accordance with the requirements of the project owners. In the acceptance of projects in this manner, the Company does not solely carry out the entire construction work, but subcontracts parts of such work. In the nomination of sub-contractor(s), the Company takes into account the creditability and previous achievements of the sub-contractors, without reliance upon or adherence to any particular sub-contractor.

(B) Sub-contractor: The Company accepts work from other contractors that were awarded the work directly from project owners. The work of this nature would mostly be related to the production process utilizing large sized and sophisticated machinery, usually operated by foreign companies, and requiring construction contractors with various capabilities and fields of experience. A single main contractor does not have adequate experience and skills to proceed with all steps of the work. In this respect, the Company would consider accepting engagement as sub-contractor from main contractors with reputation and good financial standing only, and would accept parts of such subcontract work by taking into account the Company's sufficient capabilities.



Such work of this nature allows the Company to have the opportunity to accept transfer of technology in respect of engineering, production process and management, as well as business alliance with sufficient capability and readiness to carry out large-scale projects which require more advanced technology in the future.

2) Infrastructure Investment

In addition to the construction business, the Company also has invested in regional, comprehensive infrastructure project development business. Currently, the Company has invested in transportation system, mass rapid transit system, water infrastructure system, and energy system. These projects are differently carried out in the form of Build- Operate-Transfer (BOT) or Build- Transfer- Operate (BTO) or Build-Own-Operate (BOO) or Build-Own-Operate-Transfer (BOOT), etc. For such projects, with a long concession period and high valued investments, the Company establishes associated companies and related companies to carry out various arrangements.

Based on the said manner of the infrastructure investment, the definition of each respective form can be described below.

Build-Operate-Transfer (BOT): Private entity shall be granted the right under a concession agreement from the government for investment in construction and implementation to derive returns within a specified period and during the implementation, the ownership of the property shall remain vested in the private entity. After the end of the concession period, the ownership of the invested property shall be transferred to the government in consideration of the grant of the concession.

Build-Transfer-Operate (BTO): Private entity shall carry out the design, investment and construction of property, the ownership of which shall be transferred to the government immediately after the construction completion. The private entity shall be granted the right to utilize such invested property under the concession agreement to derive returns within a specified period. During the period the Company is still entitled to utilize such property under the concession period, the Company records such property in the form of the right to utilize, which is amortized throughout the concession period.

Build-Own-Operate (BOO): Private entity shall carry out construction and management by its own investment. The ownership of the invested property is vested in the private entity. However, the private entity shall have an agreement with the government to guarantee revenue on a long term basis, whereby the government agency shall purchase goods during the term of the agreement and upon expiration of the concession period, such property shall remain vested in the investing company.



Build-Own-Operate-Transfer (BOOT) : Private entity shall be granted the right of concession by the government for financing, design, construction, and service operations during the specified period of time, provided that the ownership of the property shall be transferred to the government upon the end of such specified period of time.

**Engagement Ratio of CH. Karnchang Public Company Limited and its Subsidiaries
Based on Engagement**

Unit: Million Baht

Value of Work	2016		2017		2018		2019	
	Million Baht	%	Million Baht	%	Million Baht	%	Million Baht	%
Main Contractor	45,705.06	97.20	35,899.69	95.15	29,292.30	93.96	23,002.94	92.77
Sub-contractor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Income (project management income, dividend, etc.)	1,314.48	2.80	1,830.99	4.85	1,883.27	6.04	1,793.57	7.23
Total	47,019.54	100.00	37,730.68	100.00	31,175.57	100.00	24,796.51	100.00



Revenue Structure (Consolidated Financial Statements)

Unit: Million Baht

Products	Operated by	% Share holding of the Company	2016		2017		2018		2019	
			Revenues	%	Revenues	%	Revenues	%	Revenues	%
Revenues from Construction Services	CH. Karnchang Public Company Limited	-	17,179.81	36.54	12,718.49	33.71	10,916.31	35.02	9,782.88	39.45
	CH. Karnchang (Lao) Co., Ltd.	100.00	24,181.04	51.42	14,252.18	37.77	6,281.59	20.15	4,265.83	17.20
	CH. Karnchang-Tokyu Construction Co., Ltd.	55.00	1,948.82	4.14	2,807.85	7.44	1,216.34	3.90	1,166.93	4.71
	CKTC Joint Venture	70.00	79.13	0.17	16.89	0.05	9.26	0.03	6.46	0.03
	CKCH Joint Venture	70.00	2,313.73	4.92	5,205.42	13.80	6,456.78	20.71	2,075.78	8.37
	CH. Karnchang-Krung Thon Engineers Joint Venture	60.00	2.54	0.01	-	-	-	-	-	-
	CKST Joint Venture	60.00	-	-	898.86	2.38	4,412.02	14.15	5,705.06	23.01
Total Revenues from Construction Services			45,705.06	97.20	35,899.69	95.15	29,292.30	93.96	23,002.94	92.77
Construction Revenue from Public Sector			6,525.10	14.28	10,793.59	30.07	13,926.98	47.54	9,825.35	42.71
Construction Revenue from Private Sector			39,179.96	85.72	25,106.10	69.93	15,365.32	52.46	13,177.59	57.29
Revenue from Sales of Construction Materials	CH. Karnchang Public Company Limited	-	-	-	1.00	0.00	3.50	0.01	6.86	0.03
	Construction Material Supply Co., Ltd.	99.99	62.75	0.13	22.00	0.06	-	-	-	-
	CKCH Joint Venture	70.00	-	-	0.12	0.00	0.14	0.00	-	-
	CKST Joint Venture	60.00	-	-	-	-	-	-	-	-
	CKTC Joint Venture	70.00	0.47	0.00	-	-	-	-	-	-
Total Revenue from Sales of Construction Materials			63.22	0.13	23.12	0.06	3.64	0.01	6.86	0.03
Interest Income			355.42	0.76	738.05	1.96	816.48	2.62	876.19	3.53
Dividend Income			464.63	0.99	464.64	1.23	464.71	1.49	464.64	1.87
Other Income ⁽¹⁾			431.21	0.92	605.18	1.60	598.44	1.92	445.88	1.80
TOTAL ⁽²⁾			47,019.54	100.00	37,730.68	100.00	31,175.57	100.00	24,796.51	100.00

Remarks: (1) Other income comprises profit sharing from gain on sales of investments in subsidiaries and associated companies, revenue from reversal of provision for doubtful debts, gain on exchange, miscellaneous income, etc.

(2) The figures of revenue from the respective companies as indicated in the foregoing table have been net of connected transactions.



2.1 Description of Products and Services

2.1.1 Construction Business

The Company has experience and expertise in engineering and construction of all categories, such as, infrastructure construction work, e.g., roads, bridges, elevated roads, expressways, building and industrial factory construction work, or mechanical and electrical equipment work, namely, installation of equipment and machinery for various factories, etc. Considering the previous revenue structure and present projects, the construction may be divided into four primary categories as follows:

1. Building construction work can be divided into two major categories, namely, medium and high level buildings, with a height of 15 or more stories. The building construction work comprises three major systems, i.e., structure, interior and exterior designs, and system work, including electricity, water supply, air-conditioning, elevator, drainage and fire extinguishing systems. Furthermore, the Company also improves the efficiency and expands the capabilities of the Company in turnkey construction projects. In this regard, the Company shall be responsible for the design and construction of the structural system, decoration as well as the entire system work for the project owner or employer in accordance with the design and period as agreed upon in the contract. The policy to enhance the capabilities for such turnkey projects allows the Company's customers to obtain full scale services.

2. Road, national highway and other roadwork construction comprise the country's basic infrastructure work owned by the government to accommodate the expansion of the national economy in the future. In the past, various government infrastructure services have not yet grown in line with the private sector requirements, thereby resulting in the increased expansion of the national highway system, as evidenced by a number of new projects, such as, traffic lane expansion projects, interchange construction projects, etc. In this regard, the Company also foresees a good trend for construction work of such nature, therefore, the Company has developed its capabilities and competition strategies to the extent that the Company has presently become one of the leading company groups in the construction of such special highways as construction of expressway projects and elevated roads, etc.

3. Infrastructure construction work involves the development of the national infrastructure system, which was included in the National Economic Development Plan No. 7 (1992-1996) and continued in the National Economic Development Plans No. 8 (1997-2001), No. 9 (2002-2006), No. 10 (2007-2011), No. 11 (2012-2016), and No. 12 (2017-2021). In addition, the Office of the National Economic and Social Development Council (NESDC) formulated the 20-Year National Strategy Framework (2017- 2036), as the master plan of the national development with the Sustainable Development Goals (SDGs), as well as the national reforms in line with the Thailand 4.0 Policy, divided into 6 primary strategies, comprising:



- (1) Strategy for national security;
- (2) Strategy for underpinning competitiveness;
- (3) Strategy for competency development and enhancement of teachers;
- (4) Strategy for creating equitable and fair society;
- (5) Strategy for environmentally-friendly growth;
- (6) Strategy for balancing and development of public administration system.

Investment in development of infrastructure and logistics referring to development of infrastructure in the fields of transportation, support of development of transportation system, development of logistics, development of energy, development of digital economy-information technology system, and research and development of tap water system, are part of the strategy for underpinning competitiveness. In this connection, the Company always plays a role in collaboration with the public sector for investment in the expansion of infrastructure system, which serves as a fundamental requirement to the national development. The development of various infrastructure systems may be divided into such categories as transportation, energy, communications, water system and other infrastructure systems. With the long experience and work achievements of the Company, the Company always has advantages and opportunities to accept a variety of infrastructure construction projects.

4. Such construction which could not be categorized comprises other construction work outside of the foregoing categories, namely, medium to small-sized construction projects, which, due to the Company's experience and previous quality performance, were awarded to the Company, e.g., project for land improvement phase 1 in Suvarnabhumi Airport, the Ground Improvement for the 1st Midfield Satellite Aprons and the 3rd Runway Project of New Bangkok International Airport Company Limited, the Construction of Drainage Canal and Road with Facilities Phase 1 Project, Drainage System Project in Suvarnabhumi Airport, Samut Prakan Province, and the Construction of Phra Ong Chao Chaiyanuchit Canal Conduit System - Bang Phra Reservoir and Appurtenant Structures Contract 1 Project, etc.

In the participation in the bidding for government construction works, bidders are generally required to complete the registration as permitted contractors prior to participating in any bidding for projects of such government agencies as the Department of Highways, the Department of Royal Irrigation, etc. The registration of contractors also involves the rating of the capabilities of the respective contractors to identify the size of projects in which these contractors would be qualified to participate. At present, the Company has already registered as contractor with various agencies and is rated as type 1 contractor. As for the initial qualifications for such registration, the government agencies shall take into account three primary requirements, namely, experience and achievements; financial position; including the number and qualifications of personnel. The government agencies



generally categorize the preliminary qualifications into five levels, and each level shall be eligible to submit bids for construction at different project values. However, when the Company is rated as type 1 contractor, the Company is then eligible to bid for all types of projects. In the past, the Company has not been restricted to participate in bidding for various construction projects since the Company is fully qualified under the requirements in all respects.

2.1.2 Infrastructure Investment

The Company has invested in infrastructure project development business by participating in bidding for various concession projects of the government, which involve the infrastructure systems, and has also established various companies for investment in and management of such projects, as follows:

1. Bangkok Expressway and Metro Public Company Limited (BEM) which was incorporated by the amalgamation under the Public Limited Companies Act B.E. 2535 (1992) between Bangkok Expressway Public Company Limited (BECL) and Bangkok Metro Public Company Limited (BMCL) on December 30, 2015, and assumed all assets, rights, obligations, and responsibilities of both companies by virtue of the law. As at December 31, 2019, the registered and paid-up capital amounted to Baht 15,285,000,000, divided into a total of 15,285,000,000 ordinary shares, at the par value of Baht 1 each. The main businesses are to provide the expressway and rail mass rapid transit services, as well as commercial development in connection with the expressway and metro systems, which will serve as the foundation in business expansion through extension of routes and service network in both expressway and metro systems in the future, and can also expand to other businesses with good growth and yield rates, such as, other infrastructure projects, commercial development, or real estate development, both in the country and overseas, etc. In this regard, BEM and one of its subsidiaries, i.e., Northern Bangkok Expressway Company Limited (NECL), were granted concession for construction and operation of the expressways, comprising the Si Rat Expressway (Sectors B and C), the Si Rat Expressway (Sector D), the Si Rat - Outer Ring Road Expressway, and the Udon Rattaya Expressway. BEM was also granted concession for provision of the rail mass rapid transit service for two projects, namely, 1) the M.R.T. Chaloem Ratchamongkhon Line Project, Hua Lamphong Station - Bang Sue Station Section, Hua Lamphong Section - Lak Song Station Section, and Bang Sue Station - Tha Phra Station Section; and 2) the M.R.T. Chalong Ratchadham Line Project (Khlong Bang Phai Station - Tao Poon Station). BEM holds shares in its subsidiaries, as follows:

1.1 Northern Bangkok Expressway Company Limited (NECL)

NECL's registered capital amounted to Baht 6,000 Million, divided into 294 million ordinary shares and 306 million preferred shares, at the par value of Baht 10 each, Baht 5,250 Million of which were paid-up. As at December 31, 2019, BEM held shares representing 99.99 percent of its registered capital. NECL executed an agreement with the Expressway Authority of Thailand for construction and operation of the Udon Rattaya Expressway for a period of 30 years from September 27, 1996. The



Udon Rattaya Expressway's route is northbound, connecting with the Si Rat Expressway at Chaeng Watthana Road, passing Bang Phun, Chiang Rak, and ending at Bang Sai.

1.2 Bangkok Metro Networks Limited (BMN)

BMN's registered capital amounted to Baht 254 Million, divided into 25.4 million ordinary shares, at the par value of Baht 10 each, Baht 254 Million of which were paid-up. As at December 31, 2019, BEM held shares in BMN representing 89.67 percent of its registered capital.

At present, BMN is a sole representative of BEM in management of commercial development in the MRT Blue Line Project currently operated by BEM which has granted the right to BMN to serve as its representative in management of commercial development, namely, supply and procurement of advertising media in various forms in the areas of the metro stations and inside the trains, lease of retail shops in the metro stations of the M.R.T. Chaloe Ratchamongkhon Line Project, and the basement level of the park and ride facility at Lat Phrao Station, as well as provision of service and maintenance of telecommunication system equipment inside the metro stations and tunnels.

2. TTW Public Company Limited (TTW) operates the business of generation and distribution of water to the Provincial Waterworks Authority (PWA) in the vicinity of West Bangkok, covering the areas of two provinces, namely, Nakhon Pathom Province in three districts, i.e., Amphoe Nakhon Chai Si, Amphoe Sam Phran, Amphoe Phutthamonthon, and Samut Sakhon Province in two districts, i.e., Amphoe Krathum Baen and Amphoe Mueang Samut Sakhon.

TTW has executed the Water Purchase Agreement with the Provincial Waterworks Authority (PWA) for a period of 30 years on a BOO basis and TTW was granted concession for the tap water business operation by the Ministry of Natural Resources and Environment. TTW has distributed the water to the PWA since January 5, 2004.

Currently, TTW has two water treatment plants, namely, 1) Banglen Water Treatment Plant located in Amphoe Banglen, Nakhon Pathom Province, with the production capacity of 440,000 cubic meters per day; and 2) Krathumbaen Water Treatment Plant located at Tambon Khlong Maduea, Amphoe Krathum Baen, in Samut Sakhon Province, with the initial production capacity of 100,000 cubic meters per day, serving as the reserve water production plant. Currently, TTW's total maximum production capacity for the two plants accounted for 540,000 cubic meters per day, with the minimum off-take quantity to which the PWA has committed amounting to 354,000 cubic meters per day. TTW holds shares in its subsidiaries and associated companies, as follows:

2.1 Pathum Thani Water Co., Ltd. (PTW) is TTW's subsidiary, with the registered capital amounting to Baht 1,200 Million, divided into 12 million ordinary shares, at the par value of Baht 100 per share, with the paid-up capital amounting to Baht 1,200 Million. As at December 31, 2019, the Company's shareholding proportion in PTW represented 98 percent of the registered capital (another two percent of its shares were held by the Provincial Waterworks Authority). PTW operates



the business of production and distribution of water to the PWA in the vicinity of Pathum Thani - Rangsit on a Build-Own-Operate-Transfer (BOOT) basis for a period of 25 years. PTW commenced its business operation in 1998 onwards. Currently, PTW's production capacity accounted for 488,000 cubic meters per day, with the minimum off-take quantity to which the PWA has committed amounting to 358,000 cubic meters per pay.

2.2 Thai Water Operations Co., Ltd. (TWO) is TTW's subsidiary, with the registered capital amounting to Baht 60 Million, divided into 600,000 ordinary shares, at the par value of Baht 100 per share, with the paid-up capital amounting to Baht 60 Million. As at December 31, 2019, the Company's shareholding proportion in TWO represented 68.50 percent of the registered capital (another 31.50 percent of its shares were held by PTW). TWO operates the business of management and maintenance of tap water production system and wastewater treatment system for TTW, PTW, the Bang Pa-in Industrial Estate, the Amata City Chonburi Industrial Estate, and the Amata City Rayong Industrial Estate.

2.3 CK Power Public Company Limited (CKP) which is a listed company on the Stock Exchange operates the main business as holding company by holding shares in other companies operating the business of production and distribution of electricity. CKP has the registered capital in the total amount of Baht 9,240 Million, divided into 9,240 million ordinary shares, at the par value of Baht One per share, with the paid-up capital amounting to Baht 8,129 million. As at December 31, 2019, TTW's shareholding percentage in CKP represented 24.98 percent of the registered capital.

3. CK Power Public Company Limited (CKP), which operates the main business as holding company by holding shares in other companies operating the business of production and distribution of electricity from various kinds of energy, both in the country and overseas. CKP's core revenue under the consolidated financial statements is derived from revenue from sales of electricity and steam, and project management income. As at December 31, 2019, CKP invested by holding shares in other companies operating the business of production and distribution of electricity from various kinds of energy, e.g., hydroelectric power plants, cogeneration power plants, and solar power plants, with the total installed production capacity of 2,167 MW, comprising the installed production capacity of 2,164 MW from the power plants with commercial operation, and the installed production capacity of 3 MW from the power projects under construction. The details of investments in each project are as follows:

3.1 SouthEast Asia Energy Limited (SEAN): CKP holds shares in SEAN representing 61.33 percent of its registered and paid-up capital. SEAN invests in the development of power production business in the Lao PDR and provides consulting, including other services relating to the power production project. Currently, SEAN holds shares in Nam Ngum 2 Power Company Limited (NN2) representing 75 percent of its registered and paid-up capital. Therefore, SEAN's core revenue under the consolidated financial statements is derived from the dividend from revenue from sales of electricity of NN2.



NN2 is a generator and distributor of electricity from the Nam Ngum 2 Hydroelectric Power Plant, whereby NN2 was granted concession by the Lao PDR. The Concession Agreement is being operated on a BOOT (Build-Own-Operate-Transfer) basis, that is, NN2 will design, develop, construct and operate the hydroelectric power project from the Nam Ngum 2 Hydroelectric Power Plant, with the installed production capacity of 615 MW, and with a concession period of 25 years from the Commercial Operation Date ("COD"). Upon expiration of the concession period, NN2 shall deliver such Nam Ngum 2 Hydroelectric Power Plant to the Lao PDR. In this regard, NN2 has the right under the agreement to request an extension of time for the Concession Agreement, subject to the terms and conditions to be agreed upon. Under the Concession Agreement, NN2 is obliged to pay the consideration for the concession and taxes to the Government of the Lao PDR according to the schedule and at the rate as specified in the Concession Agreement.

NN2 produces and distributes electricity from the Nam Ngum 2 Hydroelectric Power Plant to the Electricity Generating Authority of Thailand ("EGAT") under the Power Purchase Agreement, with the supply targets to be purchased by EGAT from NN2 of 2,310 GWh (million units) per year at the fixed tariff, and with a concession period of 25 years from the COD. The electricity will be delivered for distribution in Thailand through EGAT's transmission system. NN2 initially commenced the electricity production and distribution (Initial Operation Date or "IOD") to EGAT on March 26, 2011 and the COD was January 1, 2013.

3.2 Xayaburi Power Company Limited (XPCL): CKP holds shares in XPCL representing 37.5 percent of its registered and paid-up capital. XPCL is a company registered in the Lao PDR and is awarded the concession by the Government of the Lao PDR for the design, development, construction and operation of the Xayaburi Hydroelectric Power Plant for a period of 31 years from the Commercial Operation Date ("COD").

The Xayaburi Hydroelectric Power Plant is a large run-of-river hydropower project on the Mekong River downstream, within the boundary of the Lao PDR, approximately 80 kilometers south of Luang Prabang Province, and approximately 160 kilometers from Amphoe Chiang Khan, Loei Province. Its installed capacity is 1,285 MW, with its production capacity to sell approximately 1,220 MW of electricity to EGAT under the Power Purchase Agreement for 29 years from the COD, and 60 MW of electricity to Electricité du Laos (EdL) under the Power Purchase Agreement between EdL and XPCL, for the period under the Concession Agreement.

The Xayaburi Hydroelectric Power Plant commenced the production and distribution of electricity during the initial period (Unit Operation Period or "UOP") to EGAT on April 4, 2019, with its COD commencing on October 29, 2019.

3.3 Bangpa-in Cogeneration Limited (BIC): CKP holds shares in BIC representing 65 percent of its registered and paid-up capital. BIC is a generator and distributor of electricity and steam from the cogeneration power system by using natural gas as fuel, comprising two projects, namely, the Bangpa-in Cogeneration Power Plant No. 1 (BIC1) and the Bangpa-in Cogeneration Power Plant



No. 2 (BIC2), both located in the Bang Pa-in Industrial Estate, Amphoe Bang Pa-in, Phra Nakhon Si Ayutthaya Province. BIC1 has the installed production capacity of 117.5 MW for electricity and 20 tons per hour for steam, executing the Power Purchase Agreement with EGAT for 90 MW for a period of 25 years from the Commercial Operation Date. The remaining electricity and steam will be sold to the industrial operators in the Bang Pa-in Industrial Estate. The Commercial Operation Date of BIC1 was on June 28, 2013. BIC2 has the installed production capacity of 120 MW for electricity, executing the Power Purchase Agreement with EGAT for 90 MW for a period of 25 years from the Commercial Operation Date. The remaining electricity will also be sold to the industrial operators in the Bang Pa-in Industrial Estate. The Commercial Operation Date of BIC2 was on June 29, 2017.

3.4 Bangkhenchai Company Limited (BKC): CKP holds shares in BKC representing 99.99 percent of its registered and paid-up capital. BKC has invested in the Bangkhenchai Solar Power Plant, located in Amphoe Pak Thong Chai, Nakhon Ratchasima Province, employing the thin film photovoltaic module technology, with the installed production capacity of 8 MW. BKC executed the Power Purchase Agreement for the Very Small Power Producer ("VSPP") with the Provincial Electricity Authority ("PEA") on July 28, 2009, for a period of five years from the Commercial Operation Date which is automatically renewable for another five years each, and which remains enforceable until the Agreement is terminated. According to such Power Purchase Agreement, PEA agrees to purchase power at the maximum volume of 8 MW, and the Bangkhenchai Solar Power Plant will receive the adder at the rate of Baht 8 per kilowatt-hour (unit) for a period of 10 years from the Commercial Operation Date. BKC commenced the production and distribution of electricity to PEA on August 10, 2012.

Moreover, BKC started to invest in construction of five solar rooftop power plants and one solar farm power plant, with the total installed production capacity of 6.7 MW, for production and distribution of electricity to the private operators. Each of such projects is bounded by the power purchase agreement for a period of 25 years from the Commercial Development Date. The following are such mentioned projects:

- The solar rooftop project in Amphoe Phachi, Phra Nakhon Si Ayutthaya Province ("Phachi Solar Power Plant"), with the installed capacity of 0.9 MW, commencing its electricity distribution in February 2019;
- The solar rooftop project in Amphoe Banglen, Nakhon Pathom Province ("Banglen Solar Power Plant"), with the installed capacity of 1.0 MW, commencing its electricity distribution in May 2019;
- The solar rooftop project in Amphoe Sam Phran, Nakhon Pathom Province ("Phutthamonthon Sai 5 Solar Power Plant"), with the installed capacity of 1.0 MW, commencing its electricity distribution in June 2019;



- The solar rooftop project in Amphoe Mueang Samut Sakhon, Samut Sakhon Province (“Mahachai Solar Power Plant”), with the installed capacity of 0.7 MW, commencing its electricity distribution in June 2019;
- The solar rooftop project in Amphoe Krathum Baen, Samut Sakhon Province (“Krathum Baen Solar Power Plant”), with the installed capacity of 0.5 MW, commencing its electricity distribution in July 2019; and
- The solar farm project in Amphoe Khlong Preng, Chachoengsao Province (“Khlong Preng Solar Power Plant”), with the installed capacity of 2.7 MW, which was currently pending preparation for construction.

3.5 Nakhon Ratchasima Solar Limited (NRS): CKP holds shares in NRS representing 30 percent of its registered and paid-up capital. NRS has invested in the Nakhon Ratchasima solar power plant, located in Amphoe Dan Khun Thot, Nakhon Ratchasima Province, with the installed production capacity of 6 MW, and also executed the Power Purchase Agreement for the Very Small Power Producer (“VSPP”) with PEA for a period of five years from the Commercial Operation Date which is automatically renewable for another five years each, and which remains enforceable until the Agreement is terminated. According to such Power Purchase Agreement, PEA agrees to purchase power at the maximum volume of 6 MW, and the Nakhon Ratchasima solar power plant will receive the adder at the rate of Baht 8 per unit for a period of 10 years from the Commercial Operation Date, and commenced the production and distribution of electricity to PEA on March 8, 2012.

3.6 Chiangrai Solar Limited (CRS): CKP holds shares in CRS representing 30 percent of its registered and paid-up capital. CRS has invested in the Chiangrai solar power project, located in Amphoe Mae Chan, Chiang Rai Province, with the installed production capacity of 8 MW and also executed the Power Purchase Agreement for the Very Small Power Producer with PEA for a period of five years from the Commercial Operation Date which is automatically renewable for another five years each, and which remains enforceable until the Agreement is terminated. According to such Power Purchase Agreement, PEA agrees to purchase power at the maximum volume of 8 MW, and the Chiangrai solar power plant will receive the adder at the rate of Baht 8 per unit for a period of 10 years from the Commercial Operation Date, and commenced the production and distribution of electricity to PEA on January 17, 2013.

2.2 Marketing and Competition

(a) Overall in 2019, the Company continued to mainly emphasize the large-scale projects of the public sector, despite the fact that the large-scale projects of the public sector, especially in terms of communication and transportation, which in 2019, were not resulted in the expected bidding, due to the establishment of a new government under various ministers which caused such various projects (particularly mega projects) to be additionally considered.



Still, the company executed the engagement agreements for a total of five projects, with the total value of Baht 10,254.20 Million namely.

(Million Baht)

No.	Project	Organization	Value (Vat inclusive)
1	Construction and Improvement of the Structures of the Si Rat - Outer Ring Road Expressway and Repair of the Structures of the Si Rat Expressway	Bangkok Expressway and Metro Public Company Limited (BEM)	834.26
2	Improvement of Machinery and Equipment for the Tap Water Production and Distribution System for the Banglen Water Treatment Plant (Phase 1)	TTW Public Company Limited	374.17
3	Repair of the Structures of the Si Rat Expressway Period 4, Phase 3, and Improvement of the Si Rat – Outer Ring Road Expressway	Bangkok Expressway and Metro Public Company Limited (BEM)	249.58
4	Construction of Medical and Public Health Service Integration Center for Chulalongkorn Hospital, the Thai Red Cross Society	Chulalongkorn Hospital, the Thai Red Cross Society	2,160.00
5	Rama III - Dao Khanong - Western Outer Ring Road Expressway Project Contract 4	Expressway Authority of Thailand	6,636.19

Other than the foregoing projects for which the Company won the bids and executed the agreements, the Company, in collaboration with its business alliances, also succeeded in the bid for the High-Speed Rail Linking Three Airports Project, with the value of civil work amounting to approximately Baht 160,000 Million, on a PPP basis in the Eastern Economic Corridor (EEC), with the Company's investment proportion in such project accounting for five percent.

(b) The Company not only has an interest in local projects, but also in overseas project on a PPP basis, namely, the Rangoon expressway construction project in the Republic of the Union of Myanmar, in alliance with its affiliated companies and local alliances, with the value amounting to approximately USD 300 Million, for the concession period (management and collection of tolls) of 35



years, with the proposal scheduled to be submitted in the first quarter of 2020, which the Company has initially passed consideration of the required qualifications.

With respect to the construction industry outlook 2020, it is anticipated that there would be various projects for which the government would not be able to drive bids in 2019, including new projects under the 2020 annual budget. Those projects have passed the required procedures of the government sector and are ready for bidding in the first - second quarter of 2020, including the PPP-based projects, with the total value in which Baht 167,272.14 Million, the Company has sufficient potential to participate in competitions for all such projects.

2.2.1 Significant Policies and Marketing for Products or Services

A. Competition Strategies

- **Use of Advanced and Highly Efficient Construction Technology:** At present, the construction techniques have remarkably developed, introducing choices for use of appropriate technology to save time, minimize production costs and control the work efficiency and quality. In this respect, the Company continues to select and use appropriate, modern and safe technology, as well as the Company's work experience which is an essential factor minimize the production costs and increase profits. For example, in the expressway and elevated road construction projects, the Company utilized the technology of pre-casting system of concrete segments from such countries as Germany and the United States of America.

- **Appropriate Revenue Structure Management:** The Company has policies to manage its revenue structure and affiliated companies to be in line with the fluctuations of the economy as the construction work of the public and private sectors would usually expand at a fluctuating rate. In other words, during a highly growing economy with high demand for private sector construction, the government would minimize the inflation rate by way of restrictions on the expenditure budgets of the government agencies. During the economic downturn, the government would increase expenditure budgets to stimulate the economic expansion. In this regard, the Company sets policies to focus on various types of construction projects in line with the economic circumstances. In the construction business, the Company would focus on large-scale projects of the government and private entities, while the affiliated companies would focus on small to medium-scale projects of the government and private entities. The joint ventures would focus on large-scale construction projects from the government, which require use of advanced construction technology. Furthermore, the Company also additionally invested in various infrastructure concession projects, such as, TTW Public Company Limited, Bangkok Expressway and Metro Public Company Limited, CK Power Public Company Limited (CK Power Public Company Limited invests by holding shares in SouthEast Asia Energy Limited, Bangpa-in Cogeneration Limited, Xayaburi Power Company Limited, Nakhon Ratchasima Solar Limited, Chiangrai Solar Limited, and Bangkhengchai Company Limited). The Company derived



dividends from these companies, which serve to minimize risks from the fluctuation of economic circumstances due to the fact that the nature of construction works of the government and private entities usually grow at a fluctuating rate and the Company's revenue solely relies on construction business, and also serve to render the Company's revenue to become more constant.

- **Provision of Service to Maximum Benefits to Customers:** The Company promotes policies for development of personnel and teamwork, including study, research and development on advanced technology on a regular basis so as to achieve safe and highly efficient work and management system in response and giving rise to benefits to customers in terms of quality and satisfaction, and timely work completion.

- **Regular Personnel Quality and Management System Development:** The Company emphasizes the policies for development of personnel and management procedures to ensure versatile and flexible work structures, including procedures in response to the fluctuating business circumstances. This also gives rise to the opportunity to exchange advanced technology with foreign investors to render the management flexible and develop personnel to have more knowledge and skills.

B. Characteristics of Customers and Relationships among Customers, the Company and Subsidiaries

The construction clientele of the Company and its subsidiaries can be divided into two groups, namely government agencies or state enterprises, and private sector. The characteristics of the Company's customers could not be divided into definite ratios given the fact that the customers are different in terms of periods and nature of their projects. However, considering the projects in the past, most of the Company's customers are the government agencies and state enterprises in the country. The target customer group of the Company and its subsidiaries at present include the government agencies, state enterprises and large-sized private entities. As at December 31, 2019, more than 62.2 percent of the Company group's revenue structure in the future for backlog projects represented the works for the public sector, and 37.8 percent of the same represented the works for the private sector. In this regard, the work from the private sector would mostly constitute extension projects from the government concession operations of affiliated companies, e.g., Bangkok Expressway and Metro Public Company Limited and TTW Public Company Limited, etc.

Concession Business: This business depends on concession contracts of companies in the group. The customer under the concessions granted to TTW Public Company Limited and Pathum Thani Water Co., Ltd. is the Provincial Waterworks Authority, as a government agency, and the customers under the concessions granted to Bangkok Expressway and Metro Public Company Limited are the public using the services, as well as the customer under the concessions granted to SouthEast Asia Energy Limited, Xayaburi Power Company Limited, Bangpa-in Cogeneration Limited is the



Electricity Generating Authority of Thailand, the customer under the concessions granted to Nakhon Ratchasima Solar Limited, Chiangrai Solar Limited, and Bangkhengchai Company Limited, is the Provincial Electricity Authority and the Concession Agreement of Xayaburi Power Company Limited served its customers, comprising the Electricity Generating Authority of Thailand and Electricité du Laos.

**Summary of Top 10 Major Customers
as at December 31, 2019**

Name of Employers		% of Total Revenues from Construction Services (Consolidated Financial Statements) As at December 31, 2019
1	Bangkok Expressway and Metro Public Company Limited	33.14
2	Mass Rapid Transit Authority of Thailand	26.02
3	Xayaburi Power Company Limited	18.54
4	State Railway of Thailand	9.02
5	Department of Highways	7.39
6	TTW Public Company Limited	0.50
7	Metropolitan Electricity Authority	0.29
8	Mae Fah Luang University	0.14
9	Chulalongkorn Hospital – The Thai Red Cross Society	0.10
10	Expressway Authority of Thailand	0.04
11	Others	4.82
Total		100.00

C. Distribution and Channels

Given that the construction business mainly entails direct approach to customers, with a Business Development Department having duty to be mainly responsible for monitoring and following up on information and details in respect of investment plans for new projects of the public and private sectors by planning and setting up strategies to have access to and analyze the information of the target groups and competitors in the same industry, as well as establishing good relationship with government agencies and private entities in order to increase the Company's opportunities for competitions. The fact that the Company focuses on bidding for construction and concession projects from government agencies, whether in the form of main contractor or sub-contractor, and that the Company's previous achievements, which have been acceptable and satisfactory to customers, serve as a channel to approach and be recognized by all target customers, for which the Company participated in bidding for



their projects, and some construction projects were awarded to the Company through the recommendation by the Company's existing customers.

2.2.2 Competition in Construction Industry

A. Trend of Growth and Development of Construction Industry

The construction industry in 2019 did not achieve the expected growth, due to the government's inability to drive various projects under the operation plan or the budget, particularly the rail transport system projects of both the State Railway of Thailand and the Mass Rapid Transit Authority of Thailand. Meanwhile, as for other projects such as large-sized building or special building work, e.g., hospital buildings which had a few competitors, the Company was able to succeed in the bid and execute one project.

B. Industrial Structure Relating to Competition

In general, construction contractors may be divided into three groups as follows:

1) Small and medium-sized contractors: The contractors in this group shall have the capacity to accept construction work projects with low value, the majority of these works shall be derived from private entities or small-sized projects of the public sector, which requires moderate technology and investment funds. This group includes a number of contractors, thereby resulting in a rather high competition in pricing and being highly vulnerable to impacts from fluctuation in the industry.

2) Large-sized contractors: The contractors in this group have goals in respect of their acceptance of various large-scale projects, requiring a rather high construction technology, from the public and private sectors, and have capabilities to carry out various types of works in such projects. Certain contractors also have companies in the same group serving as producers of construction materials to be used in such projects, and are well prepared in terms of their personnel's expertise and experience in diversified works and high professional standard, including tools and machinery. This group includes a small number of contractors and the competition in this group is moderate. Certain contractors also accept work overseas, including creation of works by way of investment for concession, namely, CH. Karnchang Public Company Limited, Italian-Thai Development Public Company Limited and Sino-Thai Engineering and Construction Public Company Limited.

Company	As at December 31, 2019 (Unit: Million Baht) (Consolidated Financial Statements) (Source: Stock Exchange of Thailand)	
	Total Assets	Total Revenues
1. CH. Karnchang Public Company Limited	82,585.59	26,602.76
2. Italian-Thai Development Public Company Limited	103,789.90	63,213.04



3. Sino-Thai Engineering and Construction Public Company Limited	49,207.39	33,614.69
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3) Foreign contractors: The contractors in this group are large-sized companies with advanced technology, mostly comprising companies from Japan, China and Europe, such as, Kajima Corporation, Obayashi, Kumagai, Siemens, Bilfinger, and China State. The business operations of these companies focus on accepting large-scale projects, requiring a rather high construction technology, in cooperation with large-sized construction companies in Thailand. Such cooperation is neither certain nor specific to establish a long-term business alliance, but the cooperation shall be selective on a case by case basis.

2.2.3 Market Share

In 2019, the Company succeeded in the bid for and executed the Contract for the Rama III - Dao Khanong - Western Outer Ring Road Expressway Project, Contract 4, representing construction of the cable-stayed bridge crossing the Chao Phraya River which required a high level of experience in work performance and complicated construction method, let alone two competitors which were joint ventures of Thai and foreign contractors.

The Company's main competitors not only were Thailand's large contractors, but also included overseas contractors, especially from China which played a more key role in projects, for instance, the Rama III - Dao Khanong - Western Outer Ring Road Expressway Project with a total of four contracts, three of which were successfully bid by Chinese contractors (in alliance with Thai contractors), and moreover, the Bangkok - Nakhon Ratchasima Hi-Speed Railway Project with a total of 14 contracts, all of which were bid by Chinese contractors.

Characteristics of Customers and Relationships

The Company has mainly focused on its customers which were government agencies in respect of construction projects of communication and transportation infrastructure, including construction projects of hospital buildings, etc.

With regard to the private sector projects, the Company has obtained concessions from its affiliated companies with the value accounting for approximately 14 percent of the projects executed in 2019 by the Company.

2.3 Procurement of Products or Services

2.3.1 Construction Materials, Products and Services

Significant construction materials and products produced in Thailand comprise cement, steel rods, structural steel, stones, sands, etc. The materials in architecture are, for example, sanitary



ware, ceramic, granite, ceiling and wall, steel doors, aluminum doors and windows, wood doors and windows, PVC and equipment, as specified in the details of the construction contract. The Thailand Industrial Standards of the project owner shall be taken into account. The Company does not purchase construction materials exclusively from any particular distributor since the procurement procedure requires checking of price, quality, delivery of goods and reliability at all times to ensure obtaining the best distributor, both in respect of quality, price and service. The Company shall conduct evaluation of the distributor at least twice a year. Each procurement and engagement requires approval of the project owner and supervisor. The Company is also required to execute a procurement contract to ensure the best conditions and the price can be valid until the project completion. As for the service, the Company shall be responsible for the quality of the goods and service for a period of at least two years or under a contract with the project owner.

Construction materials and products from overseas import: The Company has a policy to purchase this type of materials via a local distributor, by taking into account the after sale service and experience of an agent. In case the materials are required to be directly purchased from overseas, the Company shall open letters of credit (L/C). Such materials from overseas shall meet the standard per the requirements of the project owner, such as, ASTM, BS, JIS, API, etc. In this regard, the terms and conditions of the L/C shall be carefully specified to minimize risks.

The Company has procured products and services under the quality management system, including the criteria for selection of manufacturers, suppliers and contractors, as well as regular review and inspection of product quality based on the performance of current manufacturers, suppliers and contractors, in order to confirm and assure at all times that the products and services after delivery to project owners are correct and complete in accordance with the agreed terms and conditions.

In procuring goods, products and services for use in various construction projects, the Company has selected suppliers/contractors with potential, experience, performance and qualifications for each work and checked prices, quality and delivery of goods that meet standards as required by owners in purchase orders for such goods, products and services.

The Company gives priority to raw materials which have environmental impact, for example, materials made of asbestos. With this reason, the Company then avoids using such materials and uses other materials which have no environmental impact instead. In the past, the Company had never received any report or complaint relating to violation of environmental laws.

In procuring products and services for construction in various projects of the Company based on categories of both domestic and overseas products, the Company has benefited from cooperation from various potential business partners which are major and retail manufacturers and suppliers of construction materials. Given the Company's improved operational results and continued business growth, the Company has more channels to procure and select goods, products and equipment in the



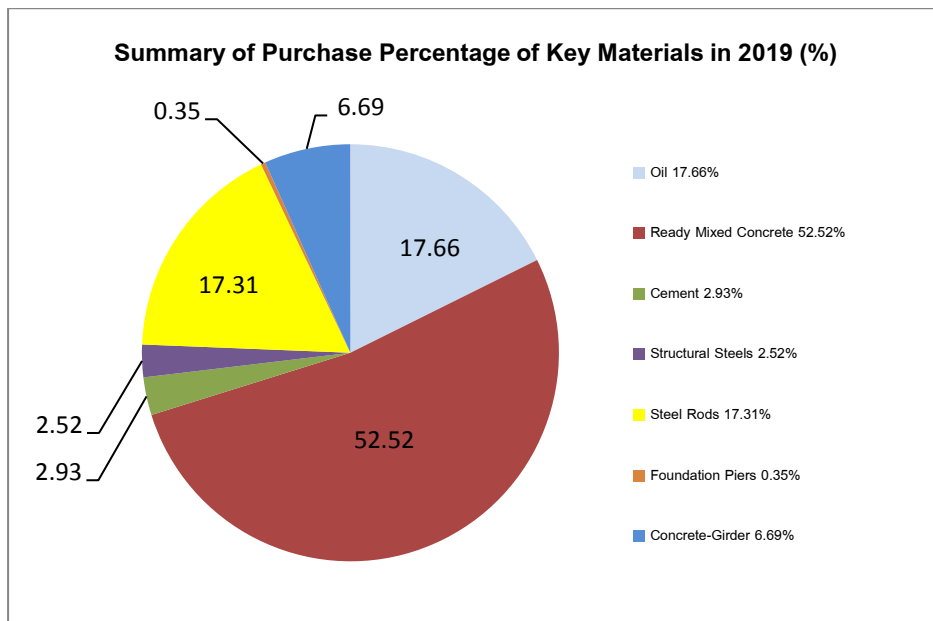
construction from higher quality standard and qualified manufacturers and suppliers in line with the growth of the manufacturing industry. As a result, the Company is confident in its ability to supply quality goods, products and services in accordance with the requirements and objectives of project owners.

In addition, the Company has enhanced its potentials in respect of procurement of products and services, by introducing the ERP (Enterprise Resource Planning) system since 2009, to ensure that the procurement of products and services is improved, with a more systematic control and recording process, for example, process for issuance of purchase orders and inventory management, thereby resulting in an efficient inventory management and reduction of waste materials in construction projects.

In 2019, there was a slowdown in Thailand's economy; purchase order volume of key materials of all categories decreased and no purchase order was placed on certain categories, due to completion and termination of many projects. Prices of key materials of many categories declined, such as, ready-mixed concrete (cement), oil, steel rods, etc. However, as for the production capacity for goods in respect of key materials, it is expected that they remained sufficient for demand for domestic utilization, resulting from the private sector's confidence that in 2020, the government would implement the economic stimulus policy to generate the motivation in manufacturers for continuous production of goods.

Summary of Purchase Value of Key Materials in 2015 - 2019:

No.	Description	2019 (Baht)	2018 (Baht)	2017 (Baht)	2016 (Baht)	2015 (Baht)
1	Oil	301,000,000	452,100,000	359,000,000	120,000,000	94,000,000
2	Ready Mixed Concrete	895,000,000	2,056,200,000	1,579,000,000	725,000,000	853,000,000
3	Cement	50,000,000	94,900,000	108,000,000	32,000,000	27,000,000
4	Structural Steel	43,000,000	114,800,000	134,000,000	562,000,000	44,000,000
5	Steel Rods	295,000,000	1,808,900,000	539,000,000	690,000,000	1,087,000,000
6	Foundation Piles	6,000,000	13,150,000	8,000,000	3,000,000	19,000,000
7	Segment-Girder	114,000,000	25,900,000	242,000,000	243,000,000	11,000,000
8	Concrete Sleeper	250,000	-	84,000,000	228,000,000	133,000
Total		1,704,250,000	4,565,950,000	3,053,000,000	2,603,000,000	2,135,000,000





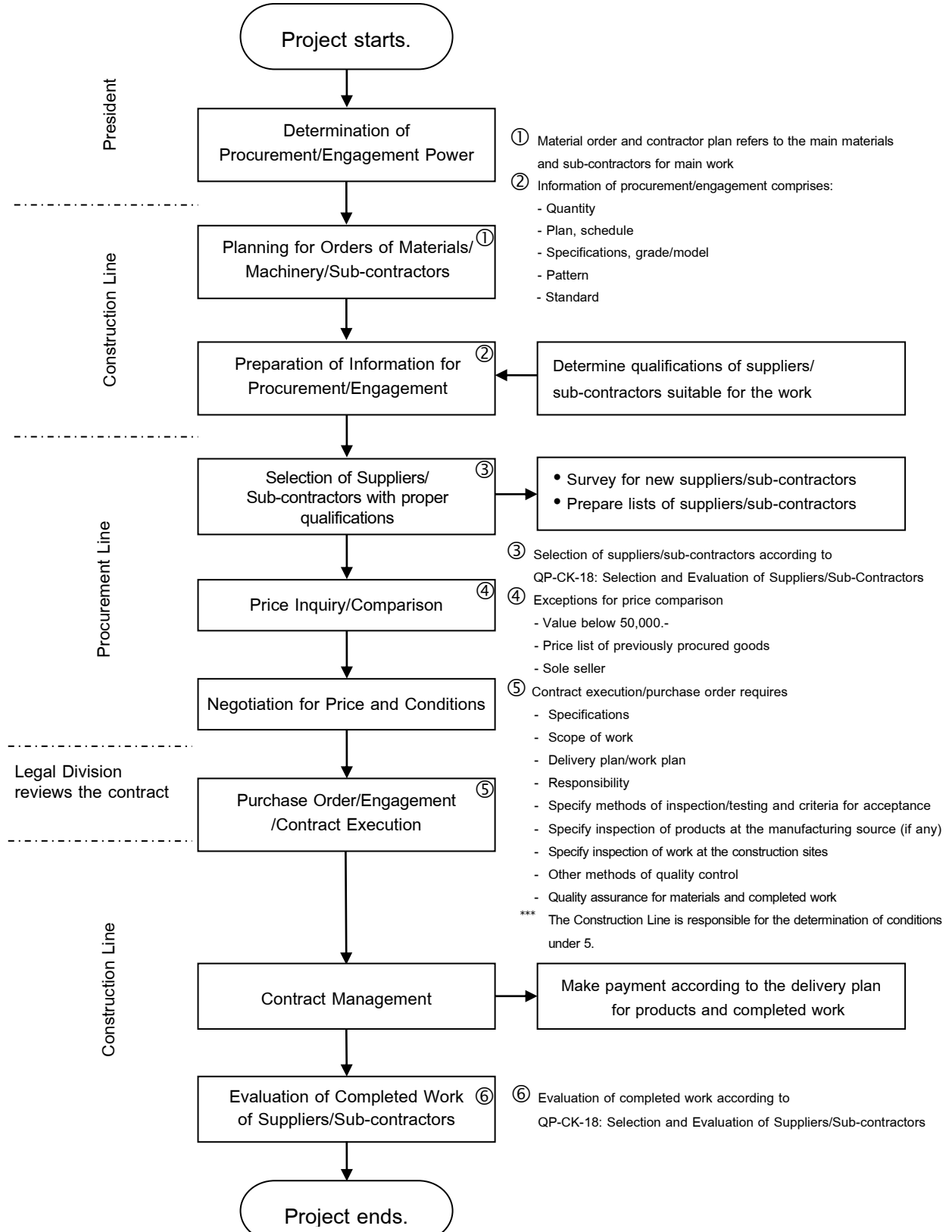
Description of Procurement of Raw Materials

The Company procures raw materials from local and overseas sources as described above. The guidelines for procurement are as per the detailed procurement flow chart as follows:

Procurement

Procedures

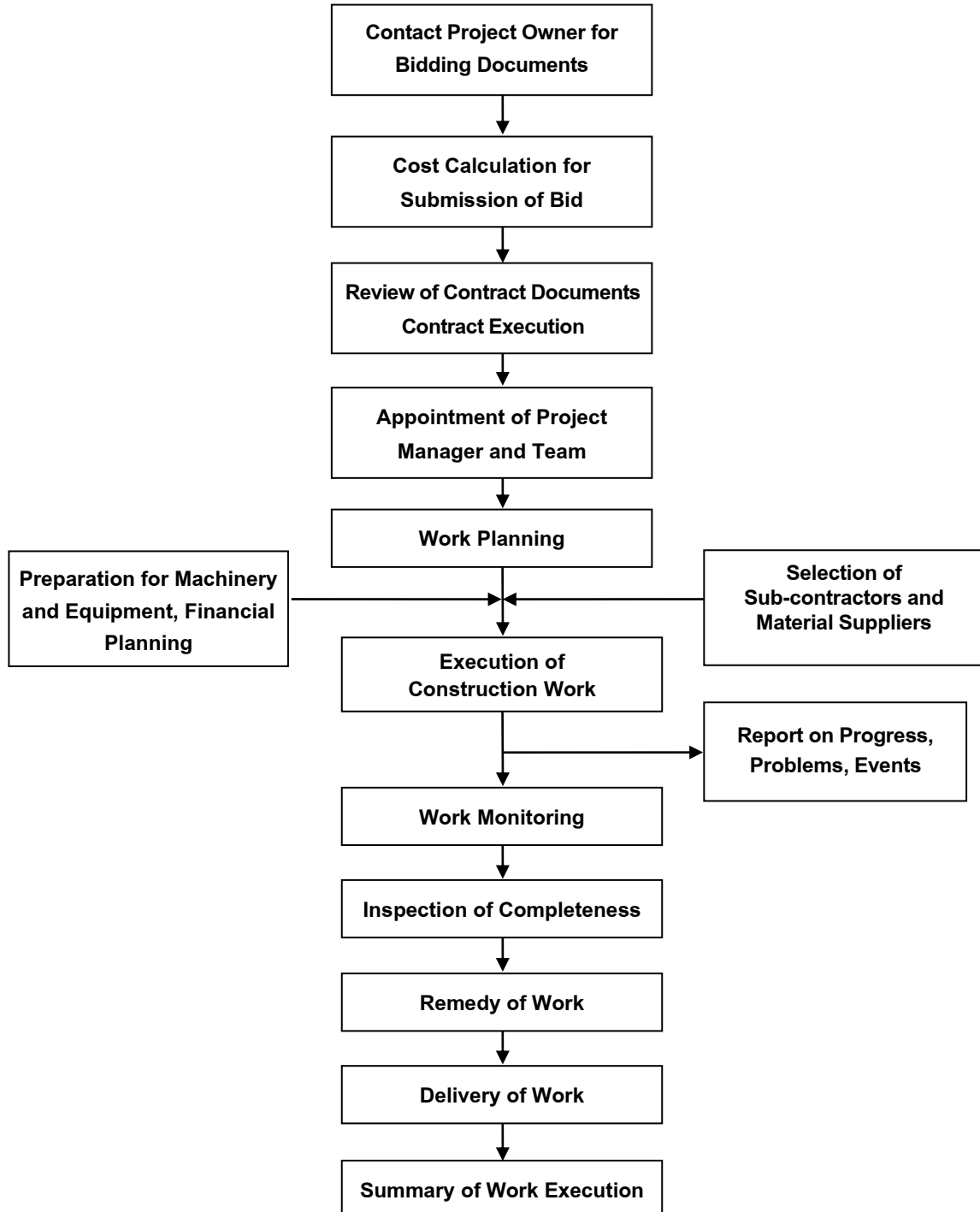
1. Guidelines for Procurement/Engagement





2.3.2 Procedures for Production and Disposal of Unused Raw Materials

(1) The production procedures for construction work can be summarized as follows:





A. Procedures for Acceptance of Work: The Business Development Department shall be responsible to contact and procure construction work, which can be done in two manners, namely, direct contact from customers or submission of proposals to customers. Such information shall be derived from updates and news from various sources. Normally, the Company shall accept construction works by two methods as follows:

- Negotiation: The Company shall accept construction work through negotiation process without bid submission. The acceptance of construction work in this manner may be a result of either direct contact from customers or the Company's direct proposal of work to customers. The majority of work accepted by this method is usually such work from the existing customers with good relationships with the Company or those recognizing the Company's previous achievements or new customers with recommendation from the Company's existing customers.

- Bidding: The Company shall be informed of news regarding invitation to bid from various sources and participate in the bidding process in accordance with the following procedures:

- Purchase of drawing and specifications and the bidding documents, as well as downloading documents in case of e-bidding;
- Cost estimation;
- Bidding.

The signing of a construction contract would take place after conclusion of prices and conditions.

B. Procedures during Implementation: After the Company has signed a construction contract, it shall be the duty and responsibility of the Construction Project Department to proceed as follows:

Appointment of Project Manager: The project manager shall serve as the project management center, and shall be responsible for the project in all respects, e.g., supervision of work to ensure timely completion and control of expenses within the specified budget, etc.

Planning and Preparations for Construction by Project Manager:

- Construction Schedule Planning: The work schedule should be planned in line with the conditions and delivery schedule;
- Resource Planning: Employment of staff should be prepared in line with the nature and volume of work, including engagement of minor contractors, procurement of material suppliers and planning for utilization of materials and machinery;



- **Preparation of Temporary Office:** During the construction, the production and delivery of work shall take place at the site of the customer or project owner, and it is the duty of the project manager to prepare various public utilities required for the work performance, such as, water, electricity, and staff quarters, etc.

- **Preparation of Detailed Work Plan:** The project manager shall prepare step by step work plans in line with timeframe to facilitate the work supervision so as to progress in accordance with the schedule and meet the standards required by the project owner.

Construction: During the construction, supervisors and foremen in the respective divisions shall jointly monitor and supervise the quality and progress of work to be in accordance with the schedule and timeframe, as well as ensure safety for operating staff and the public.

Monitoring and Inspection: The progress of work, costs, various overheads and budgets used in the construction must be verified, and the project manager shall receive reports from the relevant divisions.

Report on Progress of Work: This is a report on the details of the work performed, utilization of construction materials, costs, quality, quantity and progress of work, including various problems, which would be reported by the project manager to supervisor at the Head Office. In case there are problems, the supervisor will provide assistance and support to solve such problems.

Inspection of Work Completeness: This is the final inspection of work completeness prior to delivery. Generally, during the execution, the work would be inspected on a monthly basis. If any stage of such work fails to pass the inspection, the re-inspection would be scheduled. When the work passes the inspection, the completeness of the corrected work would be inspected prior to delivery of the work to the employer.

C. **Post-Completion Procedures:** At this stage, the Company would provide training to the employer, deliver necessary documents, e.g., As-Built Drawings, material quality and workmanship warranty documents, and other documents as specified in the contract to the employer. The employer would inspect the work completeness before returning the retention money and the performance bond to the Company after the expiration of the warranty period.

(2) Disposal of Unused Raw Materials

The Company greatly emphasizes the significance of the environment and social development, along with the operations with work safety standard and environment in line with the relevant laws and regulations.



The Company and the subsidiaries have arranged for work safety and environmental standards for every project in line with the regulations, rules, laws and international standards, which at present renders the Company to receive the ISO 9001:2015.

Based on the aforesaid activities, the carrying out of various projects does not cause any impact on the society and environment, as well as reducing work-related accident statistics to an acceptable level. For instance, wastewater and effluents have been properly treated to ensure the sanitary condition before emission; unused materials and wastes from construction have been regularly collected and properly disposed of, i.e., hazardous materials shall be disposed of or handled by specialist. Unused materials, such as, steel rods, structural steel, sanitary ware, office equipment, shall be returned at the Company's central store for further use in other projects. Scrap of materials, such as, iron scraps, metal scraps, used tyres, in good condition, used engine oil, shall be put for sale to those wishing to recycle them for further use in proper work. This includes ongoing training for staff on safety and environment. Expenses in carrying out such various activities are considered one of the Company's costs. The Company has obtained various prizes, for example:

- In 2000, outstanding award for minimizing environmental impact from the Mass Rapid Transit Authority of Thailand for Lumpini Station, Joint Venture BCKT;
- In 2000, honorable award for minimizing environmental impact from the Mass Rapid Transit Authority of Thailand for Sukhumvit Station, Joint Venture BCKT;
- In 2001, outstanding award for minimizing environmental impact from the Mass Rapid Transit Authority of Thailand for Sam Yan Station, Joint Venture BCKT;
- In 2003, maximum construction work safety achievement with 5,000,000 working hours without lost time accident in Nakhon Pathom - Samut Sakhon Water Project, Joint Venture TWCK;
- In 2015, outstanding award for administration and management of safety, occupational health and working environment from the Mass Rapid Transit Authority of Thailand for construction of the MRT Green Line Project, Bearing - Samutprakan Section, Contract 1;
- In 2016, TCA Concrete Practice Award 2016: Silver Medal from Thailand Concrete Association for construction of the Xayaburi Run-of-River Project.
- In 2017, the ASEAN Outstanding Engineering Achievement Project Award from the member countries of ASEAN Federation of Engineering Organizations (AFEO) in terms of expertise in various fields of engineering and continued support of engineering works beneficial to the society and the country, together with the organization management works in relation to engineering work, and continued support of activities of the Engineering Institute of Thailand.



2.4 Undelivered Work

The details of undelivered work of the Company, its subsidiaries and joint ventures with the value exceeding 10 percent of the total revenue in the consolidated financial statements for the period ended December 31, 2019, are as follows:

Project Name	Nature of Work	Project Value (Million Baht)	Expected Year of Project Completion	% of Undelivered Work	Value of Undelivered Work (Million Baht)
<u>CH. Karnchang (Lao) Co., Ltd.</u>					
1) Engineering, Procurement and Construction Contract for the Xayaburi Hydroelectric Power Project in the Lao People's Democratic Republic	Xayaburi Hydroelectric Power Plant	94,622	2021	4.1	3,879
<u>CKST Joint Venture</u>					
1) Contract E1: Underground Civil Works, Thailand Cultural Centre - Ram Khamhaeng 12 Section, the MRT Orange Line (East Section) Project	MRT	18,388 [*]	2024	52.9	9,727
2) Contract E2: Underground Civil Works, Ram Khamhaeng 12 - Hua Mak Section, the MRT Orange Line (East Section) Project	MRT	19,137 [*]	2024	61.4	11,750
3) Contract E5: Depot and Park & Ride, the MRT Orange Line (East Section) Project	MRT	4,265 [*]	2024	48.6	2,073
<u>CH. Karnchang Public Company Limited</u>					
1) MRT Blue Line, Hua Lamphong to Bang Khae and Bang Sue to Tha Phra: M&E Equipment Procurement, Construction and Management Contract	Supply and Installation of trains and the M&E Systems	21,393	2020	14.1	3,016
2) MRT Blue Line, Hua Lamphong - Bang Sue: Maintenance Services and E&M Systems	Maintenance Services on Infrastructure	4,048	2027	82.2	3,327
3) The Construction of Rama 3 - Dao Khanong - Western Outer Ring Road Expressway Project: Contract 4 (Civil Work)	Expressway	6,202	2023	99.9	6,196

* The aforesaid project value has not yet included the provisional sum.



3. Risk Factors

CH. Karnchang Public Company Limited has a vision of becoming the leader in construction business and basic infrastructure developer, and considers it necessary to manage risks in its business under the changes in internal and external factors which might affect its operations. Risk management is considered a key instrument in the business administration to ensure efficient achievement, and is also regarded as a key factor in the good corporate governance. Therefore, the Company arranges for systematic risk management, monitoring and measures to continuously minimize risks. The Corporate Governance and Risk Management Committee is appointed to consider at the policy level, while management manages the overall risk management process of the organization, with a working team to perform daily routine works on behalf of the Corporate Governance and Risk Management Committee, in order to monitor and assess risks as well as prepare the risk management report at the unit level for submission to the Board of Directors for acknowledgement.

The Company has prepared a handbook on risk management and risk management plan as guidelines in the operations, as well as monitoring, assessment, and review of risks in line with both internal and external circumstances. The risk factors which might give rise to investors' investment risks are as follows:

3.1 Risk from Major Shareholders Exceeding 25 Percent

As at September 4, 2019, the Company's major shareholder group was the Trivisvavet Group, holding shares in aggregate representing 31.19 percent of its registered and paid-up capital. Such shareholding percentage might enable the Trivisvavet Group to make material decisions in shareholders' meetings, as well as to seek resolutions on any other matters that require a majority vote of the shareholders' meeting, except such matters which shall be passed by three-fourths of votes of the shareholders' meeting under the laws or the Company's Articles of Association. Therefore, other shareholders of the Company might be at the risk being unable to collect votes to counterbalance and inspect such matters proposed by the major shareholders.

However, the Company realized the significance of power counterbalancing, and then clearly and transparently determined a scope of authority and responsibilities of various committees, as well as formulated measures for execution of connected transactions with directors, major shareholders, executives, controllers, including persons who might have a conflict of interests, whereby such persons shall not have the right to vote on such transactions. The Company also appointed the Audit Committee to independently serve the Board of Directors to ensure transparency and shareholders' confidence in their ability to review performance and counterbalance in the capacity as minor shareholders' representative, as well as help scrutinizing various matters for submission of the same to shareholders' meetings. The Company discloses information and complies with applicable rules and



regulations of the SEC Office and the Stock Exchange, such as, connected transactions and transactions on acquisition and disposition of assets of the Company, etc., for the utmost benefit of the Company and all shareholders.

3.2 Risk from Reliance on Customers in the Company Group Invested by the Company

The Company not only operates the construction business, but also invests in basic infrastructure development business on a regional level. Currently, the Company has invested in transportation and mass rapid transit systems, namely, Bangkok Expressway and Metro Public Company Limited (BEM), water infrastructure system, namely, TTW Public Company Limited (TTW), and power system, namely, CK Power Public Company Limited (CKP).

Therefore, in the Company's revenue structure, other than works for public and external private sectors, the Company has also accepted construction works from the companies invested by the Company. In 2019, the Company's revenue from construction services from BEM, Xayaburi Power Company Limited (whose shares were held by CKP), Bangpa-in Cogeneration Limited (whose shares were held by CKP), and TTW Public Company Limited, represented 52.18 percent of the revenue structure in 2019. Revenues from construction services are strategically responsible for the Company's sustainable and stable growth by integrating the construction business with investments in basic infrastructure projects for the national development, along with risk management and increase in long-term returns to shareholders from dividend. Moreover, the Company is a construction company with capabilities and competency to complete works at reasonable prices. The Company's acceptance of works from companies in the group then represented risk diversification in response to decreasing works for public or private sector, which would enable the Company to generate revenues from construction services from the company group invested by the Company in various projects. Furthermore, the approval of transactions on engagement of companies and company group comply with the regulations of the Stock Exchange of Thailand.

3.3 Risk from Management and Risk from Delays in Projects

The Company realized the risk from management and therefore, determined guidelines to prevent any flaws which might occur, by implementing the quality management system of ISO 9001:2015 to maintain the operation standards both in projects and in the Company's head office, taking into account the continued improvement of quality management system. The Company group also set out guidelines for staff improvement to ensure that staff have knowledge, skills, ethics and accountability towards the organization, including all stakeholders, so as to minimize and prevent damage which might be caused by such risk.



The Company obtained the international quality system standard accreditation of ISO 9001:2015, with the scopes of activities in the business of design, construction, and construction management for roads, bridges, buildings, landscape architecture, underground structure and tunneling, expressway, public transportation system, railway, and tap water production system, including raw water piping and tap water distribution systems, wastewater treatment plant, cogeneration power plant, hydroelectric power development, dam, high voltage transmission line and substation, oil piping, pipe installation, and construction of depot equipped with oil control system, mining work, rock quarry and mill.

Generally, risks from delays in various projects might be caused by delays on the part of employers or contractors or by events without any liable party.

Delays on the part of employers included, for example, site delivery, review and approval on various matters relating to construction work. These delays might affect the construction period and costs. However, the Company minimized risks from such delays through cooperation and coordination with employers to ensure successful completion of the construction works.

Delays on the part of contractors included, for example, shortages of construction materials. The Company prevented such problem by entering into forward agreements for purchase - sale of various materials, as evidenced by the signed agreements for purchase - sale of cements and metals to accommodate the Company's projects, of which contracts have already been executed.

Delays caused by any events without any liable party included, for example, natural perils. In the execution of a contract, there generally is a requirement for the contractor to take out insurance for various construction projects.

Based on the Company's past experience, the Company has never encountered any events caused by delays on the part of the Company group, but risks from delays caused by the Company's contractual party, such as, in the Bang Na - Bang Pli - Bang Pakong Expressway Construction Project, and the Company group rectified such circumstance by requiring the employer to promptly resolve such problems and the Company also accelerated the construction to meet the specified schedule.

3.4 Risk from Exchange Rate

Given the fact that the Company group earned income and incurred costs in certain projects in foreign currencies, the fluctuation of the foreign currencies against Baht would affect the Company's costs or performance. The Company has managed the risk from exchange rate by matching revenue with expenses in foreign currencies, i.e., Foreign Currency Deposit (FCD). When the project incurs any expenses in foreign currencies, the Company shall use funds in the FCD account to pay such expenses.



However, at present, there are two projects deriving income in foreign currency, namely, the Xayaburi Hydroelectric Power Construction Project and the Nabong Substation Construction Project in the Lao People's Democratic Republic (the Lao PDR). While there are two projects incurring certain costs in foreign currencies, namely, (1) the Xayaburi Hydroelectric Power Construction Project; and (2) the MRT Blue Line Project, Contract 6, which requires procurement of certain equipment and services from overseas. The proportion of revenues denominated in foreign currencies as compared to the total revenues in the consolidated financial statements represented 2.8 percent; and the proportion of costs denominated in foreign currencies as compared to the total expenses in the consolidated financial statements represented 15.3 percent as at December 31, 2019.

Details of assets and liabilities denominated in foreign currencies as at December 31, 2019 in the consolidated financial statements can be summarized as follows:

Unit: Million

Description	As at December 31, 2019		
	USD	YEN	EURO
Assets			
Bank deposits	12.44	8.61	19.68
Trade accounts receivable and retention money	0.01	-	-
Total	12.45	8.61	19.68
Liabilities			
Short-term loans from financial institutions	32.93	-	-
Trade accounts payable and retention for construction	0.96	44.49	5.76
Total	33.89	44.49	5.76
Assets (Liabilities), net	(21.44)	(35.88)	13.92
Assets (Liabilities), net (Million Baht)*	(646.65)	(9.88)	468.85

Remark: * Average exchange rate, The Bank of Thailand at the close of December 30, 2019.



3.5 Risk from Construction Material Price, Labor Cost and Fluctuation of Oil Price

The management of construction work contract in each project to gain the gross profit depends on the precise projection of the project cost and the control of the cost actually incurred within the specified projection. The factors of cost projection depend on not only construction material price and labor cost which fluctuate by the demand and supply circumstances, but also oil price, which is indirect cost towards the operating costs.

However, the Company group managed such risk through construction contracts in two manners as follows:

- In case of a construction contract with construction price adjustment in accordance with an escalation factor (K), such K factor would vary depending on the changing production costs, whereby such adjustment may not cover all increased costs of construction materials and labor, but would cover an increase of the construction material and labor prices beyond the projection, thereby giving rise to only a slight impact on the construction cost. As for the projects of the Company group, most customers were government sector, as at December 31, 2019, representing 62.2 percent of the remaining project value to be recognized as revenue in the future;

- In case of a construction contract with fixed costs or lump sum, whereby it does not specify or it is not possible to identify a K factor, which would mostly apply to turnkey projects, provisional sums would also be included to accommodate the case where the construction material costs would be included in the total project value. Most customers in this category were private sector, as at December 31, 2019, representing 37.8 percent of the remaining project value to be recognized as revenue in the future.

3.6 Risk from Changes of Government's Policies

Given the fact that the Company group's revenue structure in the future from the total value of projects in hand which would be recognized as revenue in the future, as at December 31, 2019, representing 62.2 percent, amounting to Baht 23,294 Million, involves works for the government sector. The Company group's revenue therefore relates to the national budget spending, which depends on the economic growth rate and investment climate, including the political stability. As for the government projects for which the contracts have already been signed, the Company group did not have any risk from economic and political circumstances since such projects would be supported by the allocated budgets in the form of tied budgets, which represent guarantee of budgets to be spent by the government in such projects. Nevertheless, in respect of the government projects which were awarded to the Company group, but the contracts have not yet been signed, the government may hold a new bidding for such project based on the justifications of each project.



The Company group reengineered to expand its channel of revenue sources by way of project investment and management. The Company group thus expanded its investments to business activities which would derive more definite revenue, such as, the Company's investments in Bangkok Expressway and Metro Public Company Limited, which manages the expressway projects and the metropolitan rapid transit projects; Pathum Thani Water Co., Ltd., through TTW Public Company Limited, which produces tap water for sale to the Provincial Waterworks Authority for distribution to the public in Pathum Thani Province; TTW Public Company Limited, which produces tap water for sale to the Provincial Waterworks Authority for distribution to the public in Samut Sakhon Province and Nakhon Pathom Province; CK Power Public Company Limited, which operates a business by holding shares in concession companies, e.g., SouthEast Asia Energy Limited, which generates electricity for distribution to the Electricity Generating Authority of Thailand; Nakhon Ratchasima Solar Limited, Chiangrai Solar Limited, Bangkhengchai Company Limited, which operate a business of solar cell power production plant; Bangpa-in Cogeneration Limited, which operates a business relating to public utilities on energy; and Xayaburi Power Company Limited, which would generate electricity for distribution to the Electricity Generating Authority of Thailand, and Electricité du Laos etc. These projects are long-term concession projects which would not be affected by changes of government's policies.

3.7 Risk from Investments in Subsidiaries, Associated Companies, Joint Operation, Related Companies and Other Companies

The Company group's structure comprises several subsidiaries, associated companies, including Joint Operation, related companies and other companies which accorded with the Company group's nature of business, namely, investment and construction of several projects, which are being implemented by different groups of investors. However, most Joint Operation are established with the objectives to carry out a few projects, and would be dissolved upon completion of the projects. In this respect, the number of companies or legal entities in the group would decrease accordingly. Risks that might be caused by investments in subsidiaries, associated companies, Joint Operation, related companies and other companies would be limited to the investments in each respective organization. In each investment, the Company would carefully conduct feasibility study of each project or company in addition to the consideration of the rate of return to be derived in the future. The Company might appoint third party advisors or specialists to serve in certain projects prior to submission of such matter to the Executive Board and the Board of Directors.

In this regard, the investment portfolios in the Company group generated share of profit and dividend income as follows:



(Unit: Thousand Baht)

Company Name	Consolidated Financial Statements	
	Share of Profit (Loss) from	
	Investments in Associated Companies	
	During the Year	
	<u>2019</u>	<u>2018</u>
Bangkok Expressway and Metro Public Company Limited	1,560,376	1,479,706
CK Power Public Company Limited	250,884	178,402
Kamala Senior Living Co., Ltd.	<u>(5,015)</u>	<u>(478)</u>
Total	<u>1,806,245</u>	<u>1,657,630</u>

(Unit: Thousand Baht)

Company Name	Separate Financial Statements	
	Dividend Income from Investment	
	During the Year	
	<u>2019</u>	<u>2018</u>
Bangkok Expressway and Metro Public Company Limited	712,218	603,476
CK Power Public Company Limited	56,176	45,456
TTW Public Company Limited	464,446	464,446
CH. Karnchang-Tokyu Construction Co., Ltd.	-	27,500
Other companies	<u>190</u>	<u>269</u>
Total	<u>1,233,030</u>	<u>1,141,147</u>



3.8 Risk from Loans to Subsidiaries, Associated Companies, Joint Operation, Related Companies and Other Companies

CH. Karnchang Public Company Limited had risks from loans to subsidiaries, associated companies, related companies and Joint Operation, namely, loans were provided for use as working capital. As at December 31, 2019, the Company had a balance of loans and accrued interest receivable in respect of subsidiaries, associated companies, related companies and Joint Operation in the amount, net of allowance for doubtful accounts, of Baht 12,551,56 Million, representing 17.17 percent of the total assets of the Company's separate financial statements, and as at December 31, 2018, the Company had a balance of loans and accrued interest receivable in respect of subsidiaries, associated companies, related companies and Joint Operation in the amount, net of allowance for doubtful accounts, of Baht 14,316,83 Million, representing 18.49 percent of the total assets under the separate financial statements. Such loans are to carry interest at the Minimum Loan Rate plus 0.25 percent (MLR + 0.25%) per annum during the construction period and the Minimum Loan Rate (MLR) from the Commercial Operation Rate (within the year 2019) The Loans are to be repaid or before than 2031. Moreover,

1) Subsidiaries were obligated to extend a fund to one associated company for use in development and management of the elderly residential project, with the remainder amounting to Baht 229 Million.

2) As at December 31, 2019, the Company provided guarantee for one of its subsidiaries, namely, CH. Karnchang (Lao) Co., Ltd. for credit facilities extended by banks and financial institutions in the total amount of Baht 19,953 Million for use in its construction projects.

Nevertheless, the Company has policies on management of risks that might occur from loans to subsidiaries, associated companies and Joint Operation, by accelerating and closely monitoring the debt repayment and significantly taking into account the necessity and justification of transactions as well as the Company's benefits. Such policies need to be approved by the Company's Audit Committee to scrutinize any possible consequences.

3.9 Risk from Interest Rate

As a result of the construction business and the infrastructure development business, the financial management is then essential for the business operations in order to have appropriate costs and liquidity for the business operations. The Company group does not have a policy for speculation from financial management, with the financial management in line with the business costs. The policy for financial risk management is then formulated as follows:



The Company group has established the business goal based on risk management system in terms of interest rate to make sure that it is in line with the core business of construction and long-term investment in infrastructure which generate clear income, the Company group has then managed the proportion of the financial cost structure to mostly stay at fixed interest rate which is consistent with the operating cost and clear income, due to the fact that work quality, comprehensive management of the Company group have been generally acknowledged; the Company's construction business is acceptable to the financial institutions, not to mention the fact that TRIS Rating affirmed the Company's credit rating and issue rating as at April 4, 2019 at "A with stable out look" level; as such, the Company group has been extended credits in various forms by the financial institutions; and debt instruments, for risk management in terms of interest rate, in 2019, the Company offered for sale debentures in the total amount of Baht 10,000 Million for three series, i.e., No. 1 with a three-year maturity term in an amount of Baht 3,000 Million at an interest rate of 2.46 percent; No. 2 with a five-year maturity term in an amount of Baht 3,500 Million at an interest rate of 2.49 percent; and No. 3 with a ten-year maturity term in an interest rate of 3.66 percent. Moreover, the Company repaid debentures in 2019 in the total amount of Baht 6,650 Million, comprising matured debentures for three series in the total amount of Baht 4,500 Million, and debentures with early redemption for two series in the total amount of Baht 2,150 Million at the interest rates of 4.19 percent and 4.32 percent, respectively. Under the consolidated financial statements as at December 31, 2019, the Company group had a burden of interest-bearing debts which consisted of a burden of debt bearing a fixed interest rate of 92.26 percent and that bearing a float interest rate of 7.74 percent.

Emerging Risks

1. Risk from Technological Changes

Innovations have rapidly played a role in running various businesses, especially during the last decade, which was both an opportunity and a threat to the competitiveness, depending on the each organization's preparation for coping with technological changes. Despite the fact that the construction industry was still less affected by technology than other industries, the Company has recognized the significance of adaptation for such technological changes to sustainably maintain its business competitiveness. To that effect, the Company has formed a work team, in which knowledgeable and expert personnel are included, to follow up, analyze, assess impacts from such changes having a material effect upon the Company's business, and report to the high-ranking management to ensure a prompt response to any such changes. Furthermore, the Company has employed new technology for improvement of the current business operations.



2. Risk from Cyber Threats

Business operations and communication in organizations and between organizations nowadays rely more increasingly on technology; therefore, this poses a risk from cyber threats which may impact on security of commercial data and reliability of the Company. In 2019, the Company invested in an internal communication network system for linkage of data in business operations to boost work efficiency and secure data from loss and theft. Furthermore, the Company implements the firewall security measures to prevent any unauthorized persons from entering the network; has a backup system in place and uses new technology to help data storage in order to increase work efficiency and data security; and provides training for staff to be aware of data security risks.

3. Risk from Overseas Competitors

Owing to the current economic and social conditions with a worldwide declining growth rate, the Company has foreseen a risk from more fierce competition from its overseas competitors which have started to play a role in large-scale construction projects in the Southeast Asia, as a region with relatively high growth rate in infrastructure investment. The Company's many overseas competitors have high technological capabilities and advantages in financial costs; however, with the reputation for quality of construction works over the past 47 years and the strengths of the business alliances within the region, the Company believes in its competitiveness in construction business and the Company remains committed to business operations based on the vision with an aim of creating the regional strength through presentation of construction works which emphasize quality and timely completion to the contractual parties, while facilitating sustainable progress for the society and communities in which the Company has performed work. Nevertheless, to maintain the competitive advantage, the Company focuses on continuous improvement and development of the organization's potential and considers opportunities for joint investment with local and foreign trade partners whose core values are compatible with that of the Company in order to increase the strengths, improve the weaknesses, and ensure the greater competitiveness.



4. Assets for Business Operations

4.1 Summary of Property, Plant and Equipment

As at December 31, 2019, the Company and its subsidiaries had property, plant and equipment based on the book value, as follows:

Type of Assets	Nature of Ownership	Cost (Thousand Baht)	Net Value* (Thousand Baht)	Obligations
(1) Land and Improvements	Owner	6,040,896	5,497,089	(1)
(2) Buildings and Structures	Owner	2,241,253	1,447,489	N/A
(3) Building Improvement	Owner	111,748	70,112	N/A
(4) Machinery and Equipment	Owner	6,941,418	3,165,182	N/A
(5) Equipment, Furniture and Vehicles	Owner	654,926	96,162	N/A
(6) Assets under Construction	Owner	887,936	887,936	N/A
Total Property, Plant and Equipment		16,878,177	11,163,970	

Remark * Net value refers to the book value at cost less the accumulated depreciation costs and provision for loss from impairments.

- (1) The Company had restrictions on the sale, distribution, transfer, or creation of any obligations for of the Company's partial land under the Company's loan and debenture conditions.

4.1.1 Land and Improvements

Details of Land	Ownership	Number of Title Deeds	Area (Rai-Ngan-Square wah)	Cost** (Thousand Baht)
1. Bangkok	CH. Karnchang Plc.	38	30-0-39	875,388
2. Nonthaburi	CH. Karnchang Plc.	4	2-1-48	6,356
3. Pathum Thani	CH. Karnchang Plc.	7	31-1-11	280,362
4. Pathum Thani	CH. Karnchang-Tokyu Construction Co., Ltd.	1	30-0-0	7,844
5. Samut Prakan	CH. Karnchang Plc.	14	410-2-76	1,417,934
6. Chon Buri	CH. Karnchang-Tokyu Construction Co., Ltd.	1	0-0-18	2,880
7. Saraburi	CH. Karnchang Plc.	11	202-2-48	114,419
8. Phra Nakhon Si Ayutthaya	CH. Karnchang Plc.	67	1,367-1-64	2,015,300
9. Chachoengsao	CH. Karnchang Plc.	20	301-1-34	151,945
10. Prachin Buri	CH. Karnchang Plc.	21	537-1-11	141,199
11. Prachuap Khiri Khan	CH. Karnchang Plc.	3	13-0-76	35,000
12. Loei	CH. Karnchang Plc.	5	29-0-18	34,432
13. Samut Sakhon	CH. Karnchang Plc.	5	49-3-2	957,837
Total				6,040,896



Remark: ** The cost refers to the original cost of land, together with cost of land improvement.

4.1.2 Office Buildings

Details of Buildings	Ownership	Location	Cost (Thousand Baht)
1. Office building, materials store, canteen, laboratory	CH. Karnchang Plc.	Bangkok	462,904
2. Office building, staff residence, materials store	CH. Karnchang Plc.	Phra Nakhon Si Ayutthaya	840,137
3. Office building, materials store, tool center	CH. Karnchang-Tokyu Construction Co., Ltd.	Pathum Thani	21,507
4. Temporary building	CH. Karnchang-Tokyu Construction Co., Ltd.	Chon Buri	400
5. Office building, warehouse building	CH. Karnchang Plc.	Loei	22,502
6. Office building, materials store, canteen	CH. Karnchang (Lao) Co., Ltd.	Lao PDR	631,617
7. Office building, asphalt plant	BBCD Joint Venture	Samut Prakan	3,297
8. Office building, residential building, parking area, canteen	CKCH Joint Venture	Khon Kaen	219,814
9. Office building, residential building, parking area, canteen	CKST Joint Venture	Bangkok	39,075
Total			2,241,253

4.2 Real Estate for Investment

As at December 31, 2019, the Company and its subsidiaries had real estate for investment based on the book value, as follows:

Type of Assets	Nature of Ownership	Net Value* (Thousand Baht)	Obligations
1. Land	Owner	603,325	None
2. Building Offices for Rent	Owner	144,903	None
Total		748,228	

Remark: * Net value refers to the book value at cost less the accumulated depreciation costs and provision for loss from impairments.



4.3 Intangible Assets

As at December 31, 2019, the Company and its subsidiaries had intangible assets based on the book value, as follows:

Type of Assets	Nature of Ownership	Net Value* (Thousand Baht)	Obligations
1. Computer Software	Owner	34,323	None

Remark: * Net value refers to the book value at cost less the accumulated depreciation costs.

4.4 Investment in Other Companies

Investment Policy

The Company has a policy to invest in such businesses which are relevant to the Company's primary business as follows:

Infrastructure Concession Projects: The Company considers that the results of operation of such business shall result in return, and enhance the Company's long-term cash flow, namely, the water production and distribution concession project in Pathum Thani Province for the Provincial Waterworks Authority, the MRTA Initial System Project, Chaloem Ratchamongkhon Line, and the water production and distribution project in Nakhon Pathom and Samut Sakhon Provinces for the Provincial Waterworks Authority, projects of design, development, construction and operation of the Nam Ngum 2 Hydroelectric Power Project and the Xayaburi Hydroelectric Power Project for production and distribution of electricity to the Electricity Generating Authority of Thailand, project of design, development, construction and operation of the Small Power Producers (SPP) for production and distribution of electricity and steam to the Electricity Generating Authority of Thailand and industrial operators in Bang Pa-in Industrial Estate, and project of business for production of electricity from solar power, etc.

Construction Business, including Joint Operation: The Company also jointly invested with other investors with expertise in specific areas in major infrastructure construction projects, namely, expressway construction projects and the MRTA projects, which require specific techniques or know-how. In addition to the financial return to be received by the Joint Operation and the Company, the Company will also benefit from new technology transfer from such Joint Operation. Furthermore, it is clear that the Joint Operation in the Company group earn satisfactory rates of return on investment.

In respect of associated companies and related companies, the Company shall appoint its representatives to serve as directorship in the Company's shareholding proportion. As for investment in joint operations, the Company shall appoint its representatives to participate in the management and operations, whereby the roles and responsibilities shall be clearly allocated among other Joint Operation. However, the Company does not have any specific criteria as to its representation in the management of the Joint Operation.



The investment value of the Company and its subsidiaries has been indicated in Note to the Financial Statements Number 13-15.



5. Legal Disputes

The Company or the subsidiaries have no legal disputes, to which the Company or the subsidiaries are a party or respondent, and which would give rise to negative impact on the assets of the Company or of the subsidiaries by more than 5 percent of the shareholders' equity as at the most recent accounting year end, and there is no lawsuit which would significantly affect the Company's business operations. In addition, the Company has no material lawsuit which is not resulted from the Company's ordinary course of business.

In 2000, Joint Venture BBBD claimed the increased costs from the Expressway Authority of Thailand (the employer), whereby the employer's consulting engineer considered the Joint Venture's claim and issued a letter confirming and accepting the certification of such increased costs. The Arbitral Tribunal then issued its arbitral award requiring the employer to pay the increased costs, together with interest, to the Joint Venture. Subsequently, the employer issued a letter notifying the Joint Venture that the employer had considered the matter and deemed it appropriate to comply with such arbitral award. On this ground, the Joint Venture recorded such amount as its assets and revenue in the financial statements for 2001 in proportion to the Company group's participation in the Joint Venture, representing approximately Baht 2,500 Million.

Due to the delay in payment of such costs, the Joint Venture filed a lawsuit against the employer with the Civil Court to enforce compliance with the said arbitral award. On December 30, 2003, the Civil Court adjudged enforcing compliance with the arbitral award, by requiring the Expressway Authority of Thailand (the employer) to make such payment to the Joint Venture in accordance with the arbitral award. Later in January 2004, the employer filed an appeal with the Supreme Court.

On February 15, 2007, the Supreme Court adjudicated reversing the Civil Court's judgment which enforced the arbitral award requiring the employer to make such payment to Joint Venture BBBD. The Joint Venture therefore recorded an allowance for doubtful accounts in full for accounts receivable for - claims for additional costs as expenses in profit or loss for 2006 in proportion to the Company group's participation in the Joint Venture, representing approximately Baht 2,500 Million.

Subsequently, after the thorough study of the details of the judgment of the Supreme Court, the Company's management filed a lawsuit against the employer with the Civil Court on February 11, 2008 to claim the costs paid by Joint Venture BBBD from the employer on charge of undue enrichment, bringing the costs included interest calculated until the date of the plaint to approximately Baht 3,400 Million (in proportion to the Company group's participation in the Joint Venture).

On September 15, 2011, the Civil Court adjudged requiring the employer to make payment to Joint Venture BBBD in the amount of Baht 1,750 Million (in proportion to the Company group's participation in the Joint Venture), together with interest at the rate of 7.5 percent per annum from such principal from February 15, 2007 until the employer would make such payment to Joint Venture BBBD in full. The employer and Joint Venture BBBD filed their appeals with the Appeal Court.

On December 27, 2013, the Appeal Court adjudicated reversing the Civil Court's judgment, thereby dismissing Joint Venture BBBD's plaint on the grounds that at the time when the Plaintiff and the Defendant executed the turnkey contract in dispute, both parties were well aware that the Defendant was not yet ready to deliver the construction site under the contract to the Plaintiff, and as a result, several problems subsequently arose after the date of execution of the contract, which were raised by the Plaintiff to request an extension of time for the construction period and claim the



increased costs. Therefore, it must be deemed that the Plaintiff executed the turnkey contract in dispute with the Defendant whereby the Plaintiff agreed to accept potential risks relating to burden of additional costs for design and construction of the expressway project, and as such, the Plaintiff may not demand the Defendant to return the expressway project to the Plaintiff under Section 411 of the Civil and Commercial Code despite the fact that the Defendant had accepted the delivery of the project from the Plaintiff before the Supreme Court rendered the judgment, in which case, it was deemed that the Defendant had accepted the project in good faith. Furthermore, as the Supreme Court did not adjudge that the turnkey contract in dispute was null and void, but only refused to enforce compliance with the arbitral award, and the Court of First Instance did not have jurisdiction over such issue, it was then no longer required to decide on other issues in the Defendant's appeal, particularly the issues as to whether or not the Plaintiff had power to file its plaint; the Plaintiff's plaint was barred by prescription; and the Plaintiff's plaint was repeated, since the Appeal Court's judgment would not change. Thus, the Defendant was not required to return the expressway project to the Plaintiff on charge of undue enrichment nor pay additional costs, together with interest, nor deliver any interest from toll revenue to the Plaintiff under the plaint. Therefore, the Court of First Instance's judgment was opposed to the Appeal Court's opinion.

Subsequently, in February 2014, Joint Venture BBBD filed an appeal with the Supreme Court to demand the employer to pay all increased costs, together with interest, until the payment would be made in full.

On June 22, 2017, the Supreme Court adjudicated dismissing Joint Venture BBBD's plaint under the Appeal Court. Currently, the Company is studying to find out guidelines and legal issues for further litigating the case. For that reason, the Company has had the legal advisor study various guidelines for proceeding with such case for submission to the management for consideration in the near future.



6. General Information and Other Significant Information

6.1 General Information

(1) Company Profile

Company Profile	:	CH. Karnchang Public Company Limited
Head Office	:	587 Viriyathavorn Building, Sutthisarnvinitchai Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok 10400
Telephone	:	66(0)2277-0460, 66(0)2275-0026
Fax	:	66(0)2275-7029
Website	:	www.ch-karnchang.co.th
Business Category	:	To operate the business of general contract construction for government agencies, state enterprises and private entities, in the form of main contractor, subcontractor or joint venture or consortium.
Registration No.	:	0107537002575
Registered Capital	:	Baht 1,693,899,970
Divided into Ordinary Shares	:	1,693,899,970 shares
Par Value	:	Baht 1 per share
Paid-up Capital	:	Baht 1,693,896,872

(2) The Company invests in each of its subsidiaries as follows:

Company Name	Business Category	Total Number of Shares	Par Value	Shares Held by the Company	Share-holding Ratio	Type of Shares
1. CH. Karnchang Real Estate Co., Ltd. The head office is located at No. 587 Sutthisarnvinitchai Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok Telephone 66(0) 2275-0026 Fax 66(0) 2275-7029	Trading of Land, Allocation of Land and Residential Buildings	1,600,000	Baht 100	1,584,000	99.00%	Ordinary Shares
2. Phrompratharn Construction Co., Ltd. The head office is located at No. 587 Sutthisarnvinitchai Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok Telephone 66(0) 2275-0026 Fax 66(0) 2275-7029	Contract for Construction	1,000,000	Baht 100	990,000 shares held by CH. Karnchang Real Estate Co., Ltd.	99.00%	Ordinary Shares



Company Name	Business Category	Total Number of Shares	Par Value	Shares Held by the Company	Shareholding Ratio	Type of Shares
3. Prasertvit Construction Co., Ltd. The head office is located at No. 587 Sutthisarn Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok Telephone 66(0) 2275-0026 Fax 66(0) 2275-7029	Contract for Construction	200,000	Baht 100	198,000 shares held by CH. Karnchang Real Estate Co., Ltd.	99.00%	Ordinary Shares
4. CH. Karnchang-Tokyu Construction Co., Ltd. The head office is located at No. 587, 7 th - 8 th Floors, Viriyathavorn Building, Sutthisarn Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok Telephone 66(0) 2275-3651-5 Fax 66(0) 2275-3657	Contract for All Kinds of Construction	2,000,000	Baht 100	1,099,999	55.00%	Ordinary Shares
5. CH. Karnchang (Lao) Co., Ltd.* The head office is located at Ban Xiang Yuen, Chantaburi District, Vientiane	Operation of Business of Construction of the Nam Ngum 2 and Hydroelectric Power Dam					

Remark: *CH. Karnchang (Lao) Co., Ltd. has paid-up share capital of USD 1,000,000, 100% of which is invested by CH. Karnchang Public Company Limited.

(3) The Company also invests in other companies through a shareholding ratio of at least 10 percent of the number of shares sold in each company as follows:

Company Name	Business Category	Total Number of Shares	Par Value	Shares Held by the Company	Shareholding Ratio	Type of Shares
1. TTW Public Company Limited The head office is located at No. 30/130 Moo 12, Buddhamonthon 5 Road, Tambon Rai Khing, Amphoe Sam Phran, Nakhon Pathom Province Telephone 66(0) 2019-9484-89 Fax 66(0) 2420-6064	Supply and Development of Projects for Production and Distribution of Tap Water	3,990,000,000	Baht 1	774,077,400	19.40%	Ordinary Shares



Company Name	Business Category	Total Number of Shares	Par Value	Shares Held by the Company	Share-holding Ratio	Type of Shares
2. Bangkok Expressway and Metro Public Company Limited The head office is located at No. 587 Sutthisarn Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok Telephone 66(0) 2354-2000 Fax 66(0) 2354-2000	Provision of Services of Expressways and Mass Rapid Transit Railway System, and Commercial Development relating to Metro and Expressway Systems	15,285,000,000	Baht 1	4,787,121,829	31.32%	Ordinary Shares
3. CK Power Public Company Limited The head office is located at No. 587, 19th Floor, Viriyathavorn Building, Sutthisan Winitchai Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok Telephone 66(0) 2691-9720-34 Fax 66(0) 2691-9723	Operation of Business by Holding Shares in Other Companies (Holding Company)	8,129,382,039	Baht 1	2,592,961,348	31.90%	Ordinary Shares

(4) The Company also invests in the form of joint venture as follows:

Joint Venture Name	Nature of Work	Investment Ratio
1. BBGD Joint Venture comprising Bilfinger Berger AG, CH. Karnchang Public Company Limited and Dyckerhoff & Widmann AG The head office is located at No. 587 Sutthisarnvinitchai Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok Telephone 66(0) 2275-0026, Fax 66(0) 2275-7029	Construction of the (Bang Na - Bang Pli - Bang Pakong) Expressway	84.74%
2. CKTC Joint Venture comprising CH. Karnchang Public Company Limited and Tokyu Construction Co., Ltd. The head office is located at No. 587 Sutthisarnvinitchai Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok Telephone 66(0) 2275-0026, Fax 66(0) 2275-7029	Operations for Construction Project of the MRT Purple Line, Bang Yai - Rat Burana, Bang Yai - Bang Sue Section; Contract 1: Elevated Structures (East)	70.00%
3. CH. Karnchang-Krung Thon Engineers Joint Venture comprising CH. Karnchang Public Company Limited and Krung Thon Engineers Company Limited The head office is located at No. 587 Sutthisarnvinitchai Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok Telephone 66(0) 2275-0026, Fax 66(0) 2275-7029	Operations for Construction of Phra Ong Chao Chaiyanuchit Canal Conduit System - Bang Phra Reservoir and Appurtenant Structures Contract 1 Project, Project for Diversion of Water from Eastern Chao Phraya River Basin - Bang Phra Reservoir, Chon Buri Province	60.00%
4. CKCH Joint Venture comprising CH. Karnchang Public Company Limited and Ch. Tawee Construction Co., Ltd. The head office is located at No. 587 Sutthisarnvinitchai Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok Telephone 66(0) 2275-0026, Fax 66(0) 2275-7029	Operations for Double Track Railroad Construction Project, Chira Junction - Khon Kaen Section	70.00%



Joint Venture Name	Nature of Work	Investment Ratio
5. CKST Joint Venture comprising CH. Karnchang Public Company Limited and Sino-Thai Engineering & Construction Public Company Limited The head office is located at No. 587 Sutthisarn Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok Telephone 66(0) 2275-0026, Fax 66(0) 2275-7029	Construction of the MRT Orange Line Project (East Section) Contracts 1, 2 and 5: Construction of Manholes and Electric Conduits for the MRT Line; Contracts 1 and 2: Construction of Piping Installation for the MRT Line, Contract 2.	60.00%



Securities Registrar	:	Thailand Securities Depository Co., Ltd. 93 Ratchadaphisek Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok 10400 Telephone 0-2009-9000, Fax 0-2009-9991
Auditors	:	Miss Siraporn Ouannunkun CPA License No. 3844 Mr. Chatchai Kasemsrithanawat CPA License No. 5813 Miss Chonlaros Suntiasvaraporn CPA License No. 4523 EY Office Limited 33 rd Floor, Lake Rajada Office Complex, 193/136-137 New Rajadapisek Road, Klongtoey District, Bangkok 10110 Telephone 0-2264-0777 Fax 0-2264-0789-90
Legal Advisors	:	The Legists Group 990 Abdulrahim Place, 9 th Floor, Room 901-1 Rama IV Road, Silom Subdistrict Bangrak District, Bangkok 10500 Telephone 0-2636-1111 Fax 0-2636-0000
	:	Weerawong, Chinnavat & Peangpanor Ltd. 540 Mercury Tower, 22 nd Floor Ploenchit Road, Lumpini Subdistrict Pathumwan District Bangkok 10330 Telephone 0-2264-8000 Fax 0-2657-2222
Debenture Holder Representatives	:	CIMB Thai Bank Public Company Limited 44 Langsuan Road, Lumpini Subdistrict Patumwan District, Bangkok 10330 Telephone 0-2638-8112, 0-2626-7218, 0-2626-7503 Fax 0-2626-7543
	:	Bank of Ayudhya Public Company Limited AA Floor No. 1222, Rama III Road Bang Phongphang Subdistrict, Yan Nawa District Bangkok 10120 Telephone 0-2296-3582 Fax 0-2683-1298

6.2 Other Significant Information

None.