TTCL

TTCL Public Company Limited

Annual Report 2018

Joy of Engineering and Achievement with All Our Might

VISION

TTCL is to be
"First Class International Engineering Company" with
"Build up warmth and trust"....
"Stay young"....
"Unite in Harmony"....
"Speak our mind"

MISSION

JOY OF ENGINEERING AND ACHIEVEMENT WITH ALL OUR MIGHT

TTCL aims to be a company where everybody works with joy of engineering and achievement

Contents

2
Overall policy and business operations

4
Company Profile

6
Financial Highlights

9
Message from President & CEO

10
Report of the Audit Committee

12
Report of the Nomination and Remuneration Committee

14
The Report of Risk Management Committee

16
Report of the Corporate Governance Committee

18
The Nature of Business and Services

22
Organization

23
Subsidiary Companies and Affiliates

24
Board of Directors

26
Audit Committee / Nomination and Remuneration Committee / Risk Management Committee / Corporate Governance Committee

27
Board of Management

28
Board of Directors & Board of Management

41
Roles & Responsibilities

55
Board Meeting Attendance

56
Shareholders and Number of Shares

57
Securities Holding Report of Board of Directors and Management as of 31 December 2018

59
Remuneration of Board of Directors/ Sub-Committee/ Managements

60
Achievements in 2018

61
Marketing & Competition

65
Sales Structure

66
New Business Development Plan

67
Risk Management

69
Good Corporate Governance

89
Internal Control and Risk Management

91
Occupational Health, Safety and Environmental System

99
Corporate Social Responsibility and Sustainable Development

152
Auditor Remuneration

153
Connected Transactions

160
The Company's Dividend Policy

160
Dividend Policy of the subsidiary

161
The Board of Director's Report on their Responsibilities for Financial Reports for the year 2018

162
Management Discussion and Analysis

167
Consolidate and Separate Financial Statements

251
Form 56-2 Checklist

252
GRI Content Index

Overall policy and business operations

Vision, goals, objectives, and operations strategies

The business goal of the Company is as follows.

1. **To maintain leadership in Integrated EPC business in Thailand**

   The Company aims to provide Integrated EPC business as its core business and maintains leadership in Integrated EPC business in Thailand. The Company will focus on developing the capability of its personnel continually as well as maintaining the quality of service in terms of design and construction to meet international standards while completing and delivering the work on time. This is to ensure its ability to compete with International EPC Contractors.

2. **To become one of the international provider of Integrated EPC**

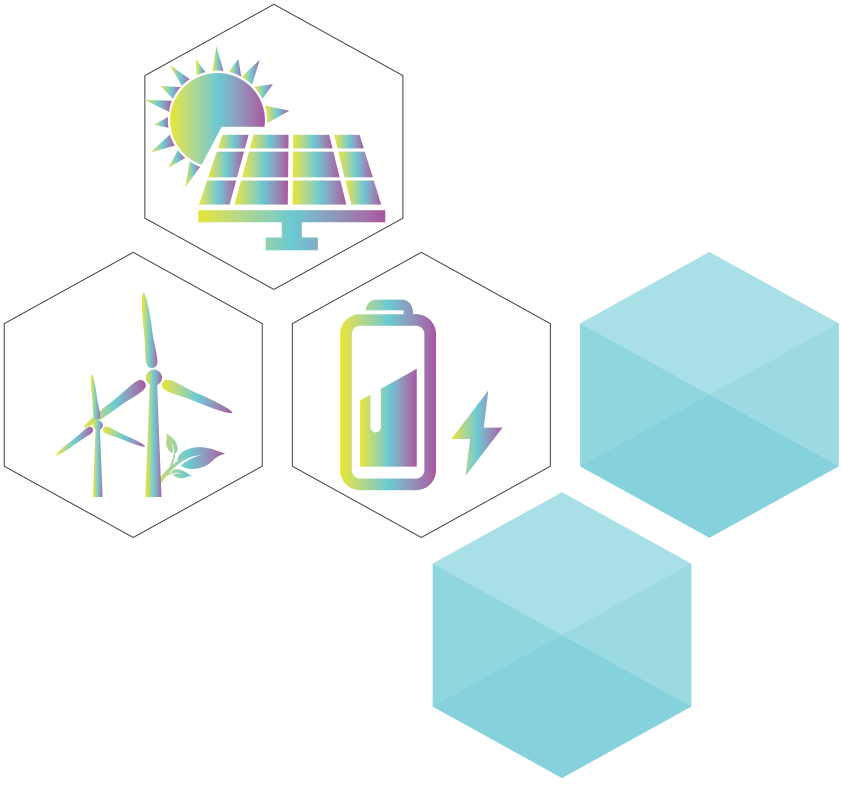
   The Company commits to design and do the construction works for customers' satisfaction in quality of the projects. The ability to control project are evident from the repeatedly awards from customers. The Company aims to become one of the international providers of Integrated EPC. This will be achieved by expanding into international markets to work on large scale projects with value from 200-500 million US Dollars to create opportunity for the business growth in the future.

3. **Seeking for business opportunities by investing in potential projects which will be returned a good benefit.**

   The company plans to co-develop or co-invest in Power & Energy Related Projects through joint venture entities of which JV partners could be the client or the technology license's owner. Besides nomination as exclusive EPC and O&M Contractor of the project, the dividend payment from investment can be expected over the project's lifetime.

To achieve the vision, goals and objectives, the Company has defined the following key strategies.

1. Strengthen the core to raise the status of the Company as a Regional EPC Contractor and increase its services abroad.
2. To retain existing partners by quality delivering and providing the engineering services up to standard for partners satisfaction.
3. Strategic of maintenance a good relationship with the manufacturers, supplier of machinery, equipment, and construction materials with the selection of outsourcing quality and responsible subcontractors in relation with the Company performance and delivering quality works to the customers on time.
4. Utilization of advanced engineering design programs to enable the Company to produce accurate designs, reduce errors.
5. The Company has complied with the OHSAS 18001 standard for the safety of all parties and the Company has been certified ISO 9001 ISO 14001 and TIS 18001 from Intertek Industry and Certification Services (Thailand) Ltd.
6. Maintain the relationship with target customers.



Company Profile

TTCL Public Company Limited (TTCL), the first integrated Engineering, Procurement and Construction (Integrated EPC) company in Thailand, was incorporated on 24 April, 1985 with a startup capital of THB 20 million. TTCL was formed by the joint venture of 2 leading international engineering and construction companies from Japan and Thailand, Toyo Engineering Corporation (TEC) and Italian-Thai Development Public Company Limited (ITD), with the shareholder stake of 49% and 51% respectively. TTCL has experiences and expertises in providing integrated design and engineering, procurement of machinery & equipment, and construction (Integrated EPC) of turnkey projects for industrial and process plants, mainly in energy, petrochemical, chemical and power industries.

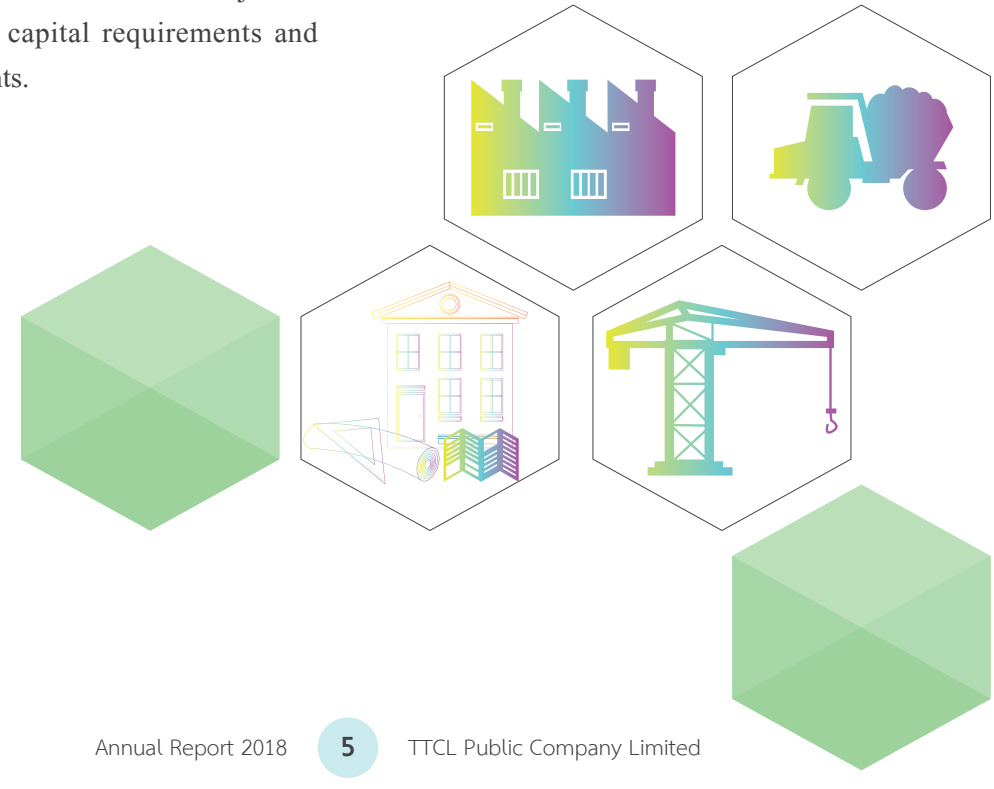
The Company has succeeded in the design and construction of more than 200 projects, demonstrating the Company's reputation and trust among customers in terms of quality design and construction, scheduled delivery of work, and safety in operations.

The Company has observed an increasing and continual growth in demand of Integrated EPC services from both domestic and overseas customers, especially for energy, petrochemical and power industries. The Company's competitive advantage in terms of cost and specialized engineering teams for operating mega projects and complex technologies enable TTCL to expand its international businesses to overseas markets, particularly Asia Economics Community Countries (AEC), United Arab Emirates and Qatar. In June 2009, TTCL issued an initial public offering and became a listed Company in the Stock Exchange of Thailand, thereby enhancing the Company's financial strength and credibility to international investors.

As a leading provider of Integrated EPC for more than 30 years, the Company has succeeded in the design and construction of more than 200 projects, demonstrating the Company's reputation and trust among customers in terms of quality design and construction, scheduled delivery of work, and safety in operations. Besides, the Company increased its paid-up capital to THB 560 million with the objective to support the working capital requirements and investment in power plants.

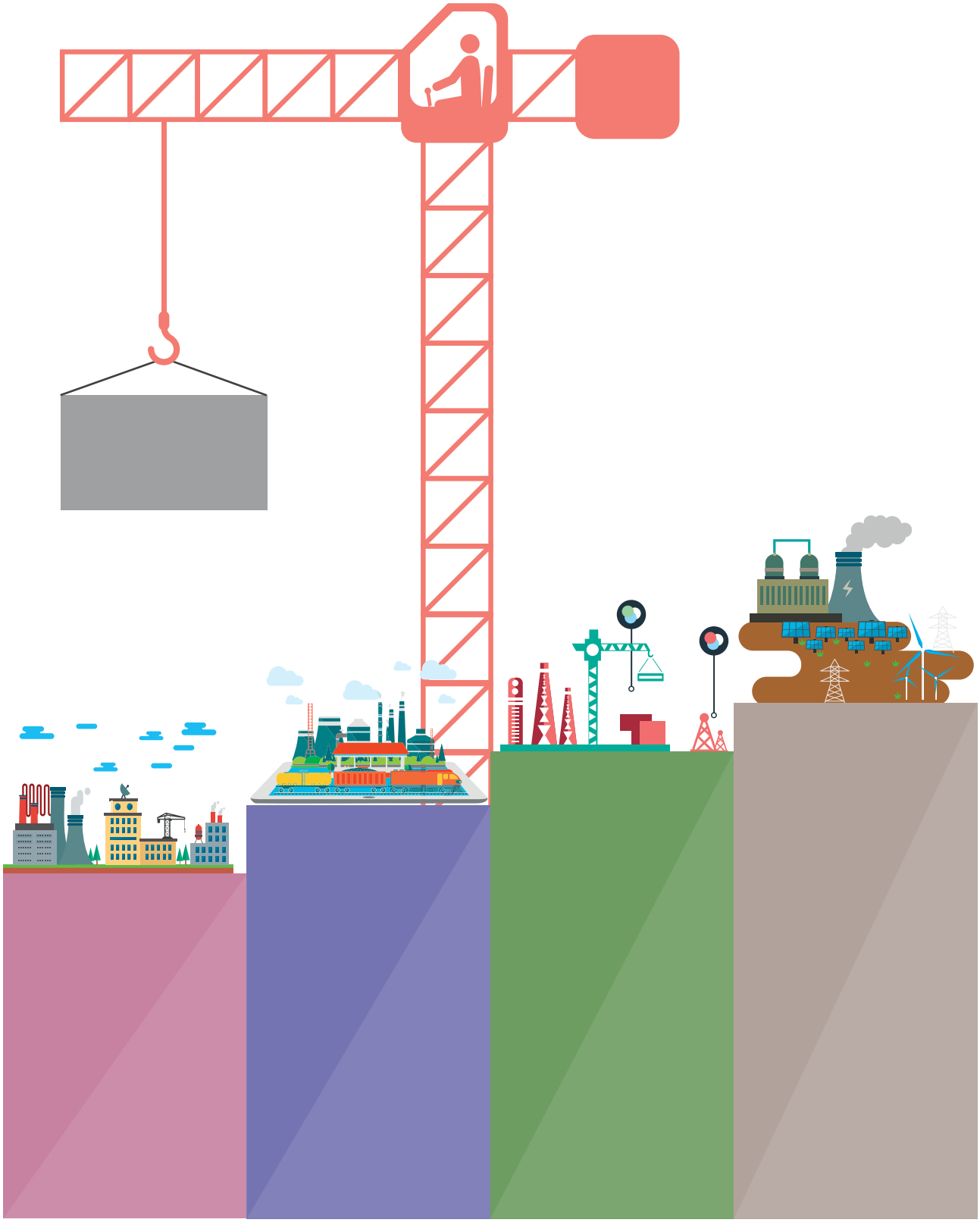
In 27 April 2018, the Annual General Meeting of Shareholders of the Company resolved to approve the increase of the Company's registered capital of THB 336 million from the existing registered capital of THB 560 million to THB 896 million by issuing 336 newly issued ordinary shares with a par value 1 Baht to support the exercise of TTCL-W1 of 112 million shares, the issuance and allocation to the existing shareholders" (Right Offering) of 168 million shares and the allocation to the specific persons (Private Placement) of 56 million shares.

In August 2018, the Company has issued and offered of 56 million newly issued ordinary shares to specific persons (Private Placement) to Sojitz Corporation ("Sojitz), in which Sojitz has become a major shareholder instead of TEC as they sold the Company's shares since the beginning of the year 2018. The objective of increase capital is for enhancing the business collaboration in the future. Thus, at present, the Company's paid-up capital was changed to THB 616 million.



Financial Highlights

Year Ended Result	2016	2017	2018
Profit (Unit : Million Baht)			
Construction and service revenues	19,389.00	9,692.95	7,353.97
Revenues from operating the power plant	635.45	754.16	973.91
Total Revenues	20,024.45	10,447.11	8,327.89
Gross Profit	1,481.00	851.84	(101.52)
Net Profit	445.53	95.03	(2,009.76)
Financial Ratio			
Gross Profit Margin (%)	7.40	8.15	(1.22)
Net Profit Margin (%)	2.22	0.91	(24.13)
Return on Assets (%)	1.73	0.40	(10.38)
Return on Equity (%)	7.03	2.32	(67.06)
Earnings Per Share (Baht per Share)	0.71	0.09	(3.41)



Message from President & CEO

Dear Shareholders

2018 was the challenging year for TTCL. A provision for doubtful debt to the construction project in Laos was the main cause of net loss for the period. Despite the provision in accordance with Accounting Standard, we are in the process of arbitration and seeking for settlement in accordance to the EPC contract. Under this extraordinary circumstance, the Board of Directors proposed the shareholder to consider and approve non-payment of dividend for the year 2018.

Conversely, 2018 was a fairly interesting year for us. We have welcomed a new partnership with Sojitz Corporation, a leading and prominent Japanese based trading company, who had acquired 56 million shares or equivalent to 10% of shareholding through Private Placement in August 2018. The company's capital increased to THB 616 million, and fully paid up.

Moreover, TTCL has secured THB 16 billion new construction contracts in 2018, which the projects are mainly located in Thailand, Vietnam and Myanmar. The operation of power plant in Myanmar has provided stable income throughout the year without having any interruption.

For the outlook in the year 2019, the volatile global economic and local political climates remain uncertain. However, we maintain our business focus on Myanmar power sector in which TTCL is looking forward to conclude Power Purchase Agreement for a 388 MW Gas-Fired Power Plant in Yangon by the first half of 2019. Furthermore, TTCL is currently bidding for new construction projects together with Sojitz Corporation, our major shareholder, to broaden our customer base in the new market.

Finally, I would like to express my sincere gratitude to our shareholders and our employees for your unwavering support throughout this challenging time. I strongly believe that our managements and staffs as a team will overcome any challenges together and we will look at our success for the forthcoming year in the most meaningful way.

Mr. Hironobu Iriya
President and Chief Executive Officer

Report of the Audit Committee

POL. LT. SIVARAKS PHINITCHAROMNA
CHAIRMAN OF AUDIT COMMITTEE

Dear Shareholders

The Audit Committee, who composed of three independent directors, was appointed by a resolution of the Board of Directors. Pol. Lt. Sivaraks Phinitcharomna was appointed as the chairman. Mr. Gumthorn Utarnwuthipong and Mr. Ryuzo Nagaoka were appointed as committee members. Mr. Ryutaro Nishio, Deputy General Manager (Finance) - Finance & Accounting Division was the secretary to the Committee.

In 2018, the Audit Committee conducted 9 meetings to consider and provide opinions on the following issues:

1. Reviewed quarterly and yearly financial statements to insure conformity with generally accepted accounting principles as well as disclosure properly on related parties and connected transactions, which attended by The Company's Chairman, the management and the external auditor. Note that there was one formal meeting between Audit Committee and the auditor without an attendance of the management in 2018.

2. Reviewed internal control systems and followed up corrective actions by the internal audit department through creating a risk-based audit plan for every three years covering all risks and all activities of the Company. Note that a high-risk related activity must be scrutinized on a yearly basis while monitoring and assuring that the Company had sufficient internal control systems performing in according with a risk-based audit plan. Human resources development was upgraded with a more effective and efficient controlling method.

3. Reviewed the result of risk management to confirm that the process was sufficient and constantly improved including extending to a newly-established subsidiary, associated and related company.

4. Reviewed whether the Company had followed and complied with the best practice on corporate governance issued by the Stock Exchange of Thailand including any regulations related to The Company's business.

5. Reviewed and provided opinions on connected transactions and those that may cause the conflict of interest including the acquisition or disposal on assets. The responsible management must report with sufficient disclosure.

6. Reviewed the independence of auditor, screened, recommended and appointed including proposed audit fee and compensation.

7. Conducted a meeting with the internal audit head on a regular basis in order to seek advices including considered performance and gave credit to the internal audit head.

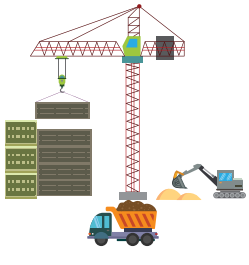
8. The Audit Committee had conducted self-evaluation on performance as required by Audit Committee Charter for the year 2018. They were satisfied with the result and reported it to the Board of Directors.

The Audit Committee had unlimited access to the Company information by requesting advices and discuss matters with management, internal and external auditor including external consultant without restriction. The Audit Committee received report from related management along with internal audit and auditor reports in addition with upholding on corporate governance policy. The Audit Committee therefore had opinions that the financial statements for the year ended 31 December 2018 were accurate and completed per principle of materiality compliant with the generally accepted accounting principles and adequately information disclosure. Risk management was effectively complied with The Company's policy. The internal control systems of the Company were sufficient with no major deficiency. The rules and regulations of Security Exchange Commission and Stock Exchange of Thailand were properly conformed including other related rules and regulations. Connected transactions that may cause conflict of interest were normal business transactions with general commercial terms and to the best benefit of the Company. The Company engaged financial and legal advisors in order to provide opinions on significant asset acquisition and disposal as well.

In 2018, Audit Committee had satisfied with the result of independent evaluation and qualification of the auditor. Therefore, the Committee recommended Board of Directors to consider Mr. Vichien Khingmontri, Certified Public Accountant No. 3977, Mr. Prasit Yuengsrikul, Certified Public Accountant No. 4174 or Ms. Amornrat Pearmpoonvatanasuk, Certified Public Accountant No. 4599 from PricewaterhouseCoopers ABAS Limited, to be the Company's auditor for another year. The audit fee will be THB 4 million same as prior year. The appointment has been preceded to the general shareholders' meeting for approval.

On behalf of Audit Committee

(Pol. Lt. Sivaraks Phinitcharomna)
Chairman of Audit Committee



Report of The Nomination and Remuneration Committee

Dr. Ryuzo Nagaoka
Chairman of the Nomination and Remuneration Committee

The Nomination and Remuneration Committee (NRC) has been proposed and appointed by the President and CEO since November 12, 2010. The committee consists of 3 members of TTCL Board of Directors of which 2 members are from TTCL Independent Director.

Roles and responsibilities specified in the Nomination and Remuneration Committee Charter are accessible on the Company's website at http://www.ttcl.com/sustainability/corporate_governance/charters. The Charter defines recruitment, screening and nomination of the candidates in the position of directors and high executive level as well as proposal for remuneration policies and other benefits for the company's board of directors and the committee.

In 2018, the NRC held four meetings to consider important matters and reported the meeting results including comments and recommendations regularly to the Board of Directors for acknowledge and consideration which are summarized as follows;

1. To consider on 2018 fixed remuneration for Board of Directors, Audit Committee and Board of Management based on previously practiced criteria suitable for their responsibility and linked the remuneration to TTCL overall performance against listed companies of the same Industry and comparable business size.

2. No special bonus for 2017 Company operation to Board of Directors, Audit Committee and Board of Management.

3. No 2018 fixed remuneration for committee members except Audit Committee.

4. Nomination and re-appointment of 3 directors, Mr. Hironobu Iriya, Mr. Piriya Wongphayabal and Mr. Tiwa Jaruke who retired by rotation in December 2017 to hold their directorship for another term to the Board's consideration before nominating their names to the shareholders' meeting for approval.

5. Recruit and nominated qualified persons to the Board for appointment in place of members who resigned before completely their terms.

6. Encouraged TTCL to allow shareholders to propose agenda items and to nominate candidates with qualifications required by Securities and Exchange Commission (SEC) to be elected as 2019 director at least three months ahead of the Shareholders' meeting through Company Website.

7. Setting CEO performance appraisal criteria for evaluation in year 2018 and report to the Board of Directors.

8. Providing Self-Assessment for individual director and committee member and report to the Board of Directors.

9. Providing Group Assessment for Board of Directors and Committees and report to the Board of Directors.

10. The amendment of Charter of Nomination and Remuneration Committee to comply with the principle of good corporate governance.

11. Nomination and re-appointment of Nomination & Remuneration Committee who be vacated office for the second term at the end of year 2018 to resume an office as Nomination & Remuneration Committee of the Company for the third term until December 31, 2021.

12. To recommend the development program for the Board of Directors, Sub-Committee and Executives with a substantial understanding on fiduciary duties and good governance practices.

On behalf of Nomination and Remuneration Committee

Dr. Ryuzo Nagaoka
Chairman of the Nomination
and Remuneration Committee

The Report of Risk Management Committee

MR. GUMTHORN UTARNWUTHIPONG
CHAIRMAN OF RISK MANAGEMENT COMMITTEE

To Shareholders :

Risk Management Committee (RMC) has been appointed by the President and CEO which approved by the resolution of the Board of Director since November 12, 2010. The committee consists of 5 members which are 1 Independent Director and 4 Senior Executives and Management.

In the year 2018, the Risk Management Committee conducted four meetings to monitor and review the results of risk management. The risk management process has been systematically implemented through the Risk Management Working Group which consists of relevant managements and lead by one of risk management committee. The working group continually monitored both internal and external factors that may affect to company's operation and determined appropriate measures to prevent and control significant risks with the aim to contain that risks at acceptable level. Responsible person and monitoring method are also determined in order to ensure that risk management processes are efficient and effective in accordance with the company's policies and objectives.

Risk Assessment and Control Measures

The risk management working group and committee have identified and assessed company risks, covering 4 risk categories which are Strategic Risks, Operational Risks, Financial Risks and Compliance Risks. Risk assessment process also including review of identified risks for any change and identify new risks. In addition, risk control measures have been determined by considering current circumstance and company's direction. The risk management committee has considered and reported significant risks to the Board of Director through audit committee as follows; Risk of revenue from petroleum and petrochemical industrial cycle, Risk of increasing number of new competitor, Risk from political instability, including financial risk such as Risk form currency exchange, Risk of income from investment, Risk associated with capital adequacy, Risk associated with fund commitment and Risk associated with cash flow problem.

The Risk Management Committee encourages the adoption of risk management at all levels of the organization. Then the project risk management working group has been assigned to assess and monitor risk factors of the projects which may affect to project schedule, cost, compliance, occupational health and safety of concerned parties, environment, communities and company's reputation.

As the Company is a certified member of the Thailand's Private Sector Collective Action Coalition Against Corruption (CAC). The company shall apply the appropriate anti-corruption measures and ensure that they are arranged by considering current circumstances. Then the committee has assigned working group to assess corruption risk and review adequacy of anti-corruption measures by cooperated with relevant managements every 6 months. For conclusion, the majorities of company's corruption risks is in low level and have not changed from the previous year.

On behalf of Risk Management Committee

(Mr. Gumthorn Utarnwuthipong)
Chairman of Risk Management Committee

Report of the Corporate Governance Committee

MR. GUMTHORN UTARNWUTHIPONG
CHAIRMAN OF THE CORPORATE GOVERNANCE COMMITTEE

To Shareholders :

To align with corporate governance guidelines for listed companies, the President & CEO has nominated and appointed the Corporate Governance Committee to the Board of Directors through the Nomination & Remuneration Committee for approval since November 14, 2014. The present Corporate Governance Committee consists of 7 persons as follows:

1)	Mr. Gumthorn	Utarnwuthipong	Chairman
2)	Mr. Tiwa	Jaruke	Committee Member
3)	Ms. Kantika	Tanthuvanit	Committee Member
4)	Mr. Chamnarn	Atsanatam	Committee Member
5)	Ms. Jaruwan	Sookthauyart	Committee Member
6)	Ms. Saowaluck	Ngamdutsadee-Apirom	Committee Member
7)	Mr. Nuttapol	Sinkajohn	Committee Member

In 2018, the Committee held 4 meetings altogether, with attendance by most members. The results of the Committee's meetings are approved by President & CEO and reported regularly to the Board of Directors. The summaries of these meetings are as follows:

”

”

1. To agree and accept TTCL Mission of the year 2018, TTCL aims to be a Company when everybody works with “Joy of Engineering and Achievement with All our Might as presented by President & CEO and to propose to the Board of Directors for acknowledgement.

2. To review the Charter of the Board of Directors to be consistent with the principal of Good Corporate Governance.

3. To update the report on interest of Directors, Management and Related Person to be consistent with Company new organization of year 2018 for being pursuant with the notification of the Capital Market Supervisory Board No. Tor Chor. 2/2552 Re: Reporting of Interest of Directors, Executives, and Related Persons dated 26 January 2009.

4. To participate in the evaluation quality of Annual General Meeting 2018 organized by Thai Investors Association (TIA). The evaluation result scored 100 for 3 consecutive years

5. To participate the Corporate Governance Assessment in the CGR 2018 survey organized by Thai Institute of Directors Association (IOD). TTCL has been rated as “Excellent for 3 consecutive years.

6. To participate in SET Sustainability Awards by submitting the Sustainability Assessment Questionnaire. TTCL was selected to pass the SET Assessment criteria as one (1) of seventy-nine (79) companies in the Thailand Sustainability Investment (THSI) for the year 2018.

7. To conduct a self-assessment to review the performance of both individual and the Corporate Governance Committee as whole.

On behalf of Corporate Governance Committee.

(Mr. Gumthorn Utarnwuthipong)
Chairman of the Corporate Governance Committee

The Nature of Business and Services

Provided services can be classified into 2 main areas:

1. Construction and Service business
2. Power-Generation business

1. Construction and Service business

Construction and service business can be categorized into

1.1 Integrated Engineering, Procurement and Construction (Integrated EPC) and

1.2 Engineering, Procurement and Construction Management (EPCm) in which the nature and characteristics of works can be explained in full details as follows.

1.1. Integrated Engineering, Procurement and Construction (Integrated EPC)

Integrated EPC refers to a type of construction services in which contractor bears full responsibility to perform all duties starting from project's engineering design, procurement of machinery & equipment, and construction in order to meet clients' requirements. It represents the majority type of construction since as clients can enjoy benefits and efficiencies in quality and project costs control.

The Company is the first Thai engineering contractor who is capable of providing Integrated EPC services to conglomerate engaging in petrochemical, petroleum-related, and energy industries both domestic and overseas. The Company would act as the main contractor or, as the case may be, jointly co-operate with other contractors, either Thai or foreign partners, in form of joint-venture or consortium.

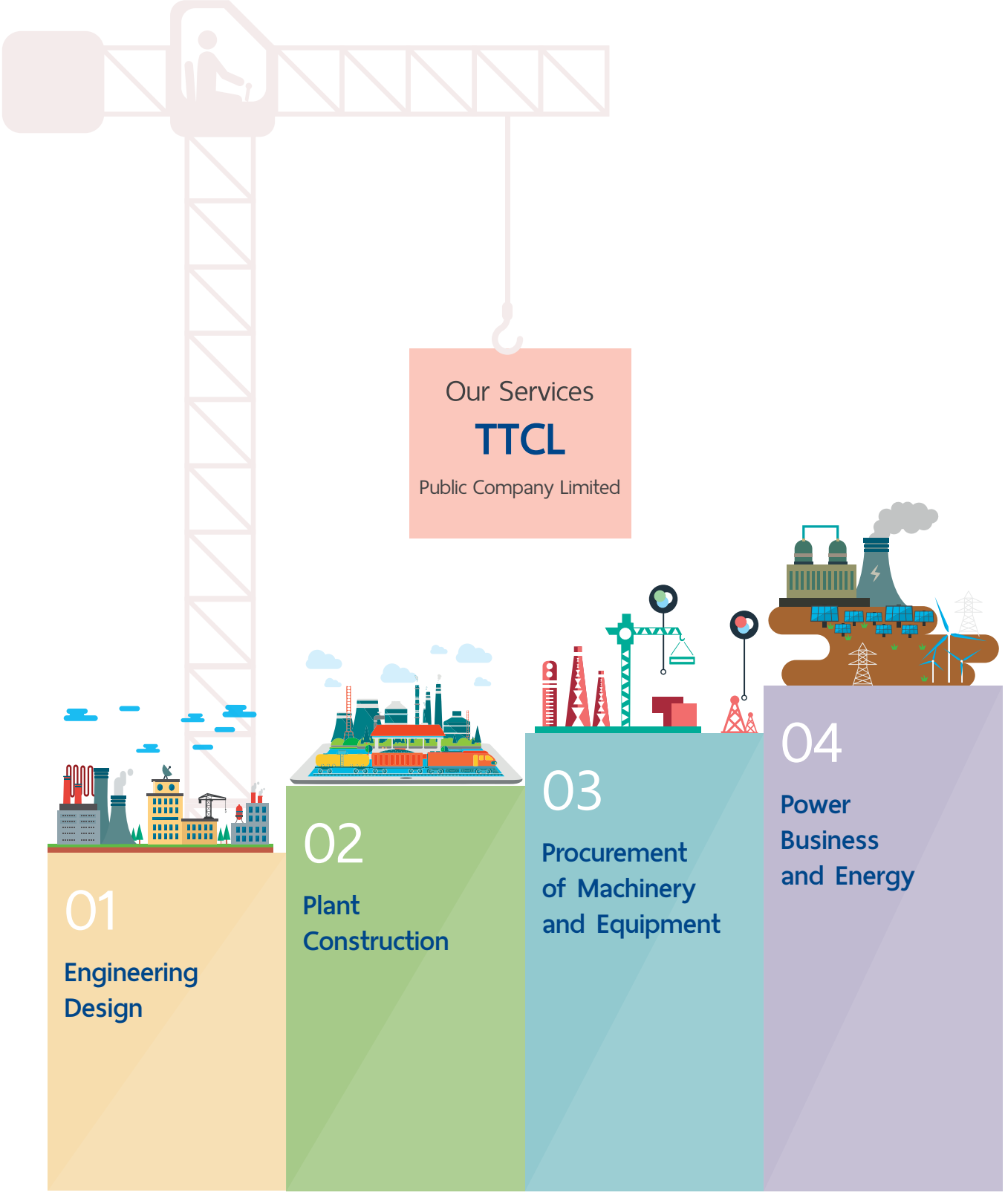
Large scale construction and yet complexity like Integrated EPC can be divided into 3 scopes i.e. Engineering, Procurement and Construction. With the capacity of an Integrated EPC contractor, this adds competitive advantage to the Company in the continuation of works among the areas. Details of each are described as follows:

1.1.1. Engineering Design

In providing the engineering design services, the Company's engineering team, consisting of all necessary engineering fields such as civil, mechanical, electrical and chemical, is capable of designing the whole industrial plant both in civil structures and utility systems, such as electricity, water, air conditioning, solid and wastewater treatment system, storage tanks, production processes, especially for petroleum, petrochemical and chemical plants, including measurement and control system required for the plant. The Company is equipped with eight disciplines of engineering fields that provide competitive advantage. This allows the Company to perform integrated services to the clients, costs-saving for additional design works and, yet, closely cooperate between design team and construction one. This advantage will enable the Company to control overall cost of the project for highest effectiveness.

The engineering design steps will commence with the client's objective and requirement analysis in every dimension before performing design works in full details. Key factors that need to be taken into consideration are:

- Plant's Safety both in Overall Scope and each Separate Units.
- Environmental Issues.


Our Services
TTCL
Public Company Limited
01
Engineering Design
02
Plant Construction
03
Procurement of Machinery and Equipment
04
Power Business and Energy

- Quality Output from Production Processes.
- Efficiency of production steps both in terms of Heat Balance and Material Balance.
- Manufacturing System, Machines and Equipment.
- Cost for Maintenance or Future Renovation.
- Foreseeable Obstacles during Construction Processes and Adjustment Plan for Risk Mitigation.
- Optimal Point of Technology Applied and Project's Costs.

1.1.2. Procurement of Machinery and Equipment

In providing the procurement services, the Company sources all necessary machines and equipment for the project from both domestic and overseas vendors/manufacturers. The Company also negotiates for price, purchase and delivery conditions, inspecting quality and specification" of machines and equipment to be conformed to the engineering design and project schedule as a whole.

From the Company's experiences, most clients are in the petroleum and petrochemical business which obtained promotion privileges from the Board of Investment ("BOI). This leads the Company to be acquainted with the process of procurement and import of the equipment from overseas for clients to comply with the requirements of BOI.

1.1.3. Plant Construction

In providing the construction services, the Company will assign an appropriate engineering team that best-fit with each project for an operation. Each project team will consist of a project manager, project engineers and lead engineers from various fields. All engineers in project team will work together and be jointly responsible in executing the project since the beginning of planning, performing and coordinating with client or client's representative, subcontractors, manufacturers and vendors of equipment and materials along with the design engineers. Project team will control and inspect the construction work, assuring that quality and timeline are met with the project schedule including budgetary and safety control.

Throughout the process of engineering design, procurement and construction execution, the Company has set up Quality Control Department in its organization consisting of expert in specific fields to inspect and follow up quality of work in every stage to ensure that the work in each detail has been completed and aligned with the required quality. For this stage, the Company will coordinate with client's representative to conduct the inspection together.

1.2. Engineering, Procurement and Construction Management (EPCm)

In providing engineering, procurement, construction project management (EPCm), the Company will act as the project manager assigned to the client. The Company is responsible for managing

the appropriate budget of the project and ensuring the project is on schedule. The Company aids customers to select contractors and oversees the work of contractors, advisees on the selection of the production and delivery of equipment and materials, and controls the delivery coordination of machinery and equipment according to schedule. In addition, the engineering, procurement and construction project management services may include feasibility studies for basic engineering as well.

In providing services as per contract signed the Company will assign a project manager and support team for each project. The support team will be selected from appropriate levels of personnel, type of project and work under the supervision of the project manager to ensure that the project is on schedule and according to budget provided. Project managers and support teams comply with the most important principle of project management i.e. to maintain the safety and quality of work.

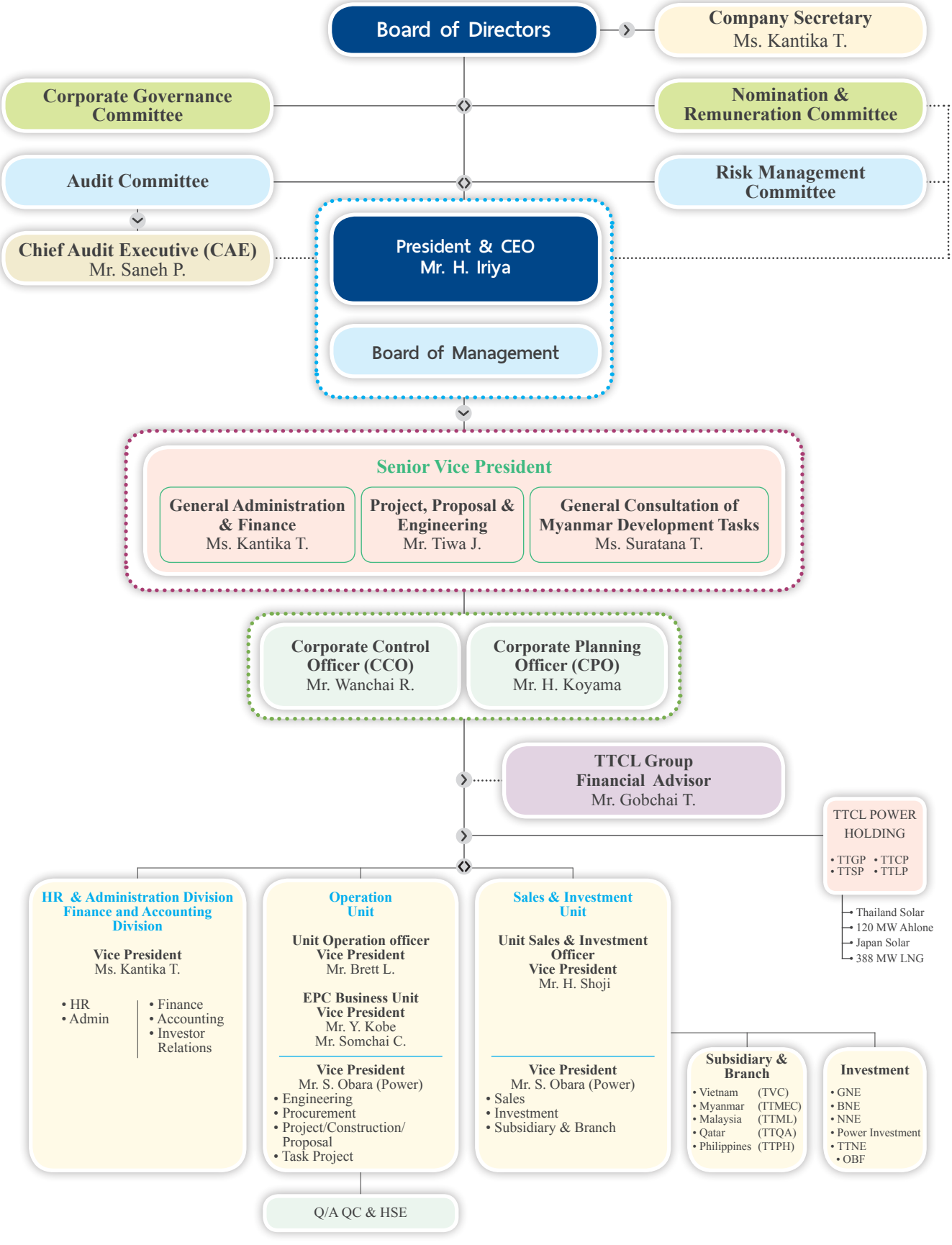
2. Power-Generation Business

The Company maximizes its knowledge and experiences in engineering with an aim to stabilize its long-term income by investing in power and energy businesses. The Company believes in the industries potentialities and being consistent with its investment policy.

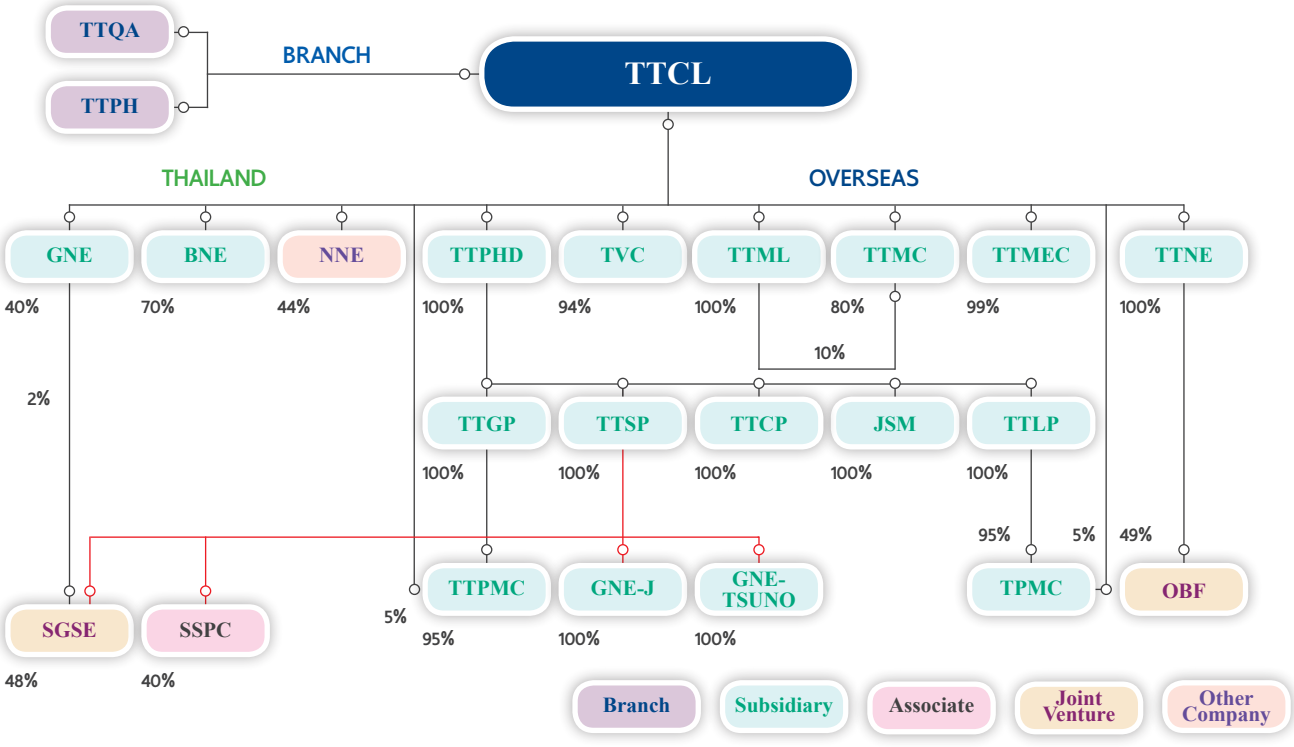
Mostly, the Company is also assigned as the main contractor for the above Projects, both developed by the Company or joint venture. To date, these projects include:

- 1.2 MW Biogas Power Plant, operated by Bio Natural Energy Co., Ltd. ("BNE")
- 110 MW Gas-fired power plant, operated by Navanakorn Electric Co., Ltd. ("NNE")
- 8 MW Solar power plant operated by Siam Solar Power Co., Ltd. ("SSPC")
- 120 MW Gas-Fired power plant, operated by Toyo Thai Power Myanmar Co., Ltd. ("TTPMC")
- 100,000 cbm Ethanol plant, operated by Orient Bio-Fuels Co., Ltd. ("OBF")
- 743.4 kW Solar Roof-Top, operated by Siam GNE Solar Energy Co., Ltd. ("SGNE")

Organization



Subsidiary Companies and Affiliates



As of 31st December 2018

Company Name	Abbreviation	Type of Business	Head Office	Paid-up Capital			Proportion of holding share (%) Direct+ Indirect
					Amount	%	
1. TTCL Plc. - Qatar Branch	TTQA	Construction and Engineering Service	Qatar	Baht	616,000,000	68.75	100.00
2. TTCL Plc. – Philippines Branch	TTPH	Construction and Engineering Service	Philippines	Baht	616,000,000	68.75	100.00
3. Global New Energy Co., Ltd.	GNE	Renewable Energy Development	Thai	Baht	60,000,000	100.00	40.00
4. Bio Natural Energy Co., Ltd.	BNE	Renewable Energy Development	Thai	Baht	5,000,000	100.00	70.00
5. Navanakorn Electric Co., Ltd. *	NNE	Electricity Generation	Thai	Baht	1,650,000,000	100.00	44.02
6. Siam GNE Solar Energy Co., Ltd.	SGSE	Electricity Generation	Thai	Baht	16,000,000	100.00	48.80
7. Siam Solar Power Plc.	SSPC	Electricity Generation	Thai	Baht	300,000,000	100.00	40.00
8. TTCL Power Holdings Pte. Ltd.	TTPHD	Investing in Energy Business	Singapore	USD	69,500,000	100.00	100.00
9. TTCL Vietnam Corporation Limited	TVC	Construction and Engineering Service	Vietnam	USD	1,500,000	100.00	93.34
10. TTCL Malaysia Sdn. Bhd.	TTML	Construction and Engineering Service	Malaysia	MYR	750,000	75.00	100.00
11. ToyoThai – Myanmar Corporation Co., Ltd.	TTMC	Construction and Engineering Service	Myanmar	USD	300,000	100.00	90.00
12. TTCL Myanmar Engineering and Corporation Co., Ltd.	TTMEC	Construction and Engineering Service	Myanmar	USD	50,000	16.67	99.00
13. TTCL New Energy Pte. Ltd.	TTNE	Investing in Renewable Energy Business	Singapore	USD	4,200,000	100.00	100.00
14. TTCL Gas Power Pte. Ltd.	TTGP	Investing in Energy Business	Singapore	USD	49,500,000	100.00	100.00
15. TTCL Solar Power Pte. Ltd.	TTSP	Investing in Energy Business	Singapore	USD	4,000,000	100.00	100.00
16. TTCL Coal Power Pte. Ltd.	TTCP	Investing in Energy Business	Singapore	USD	5,000,000	100.00	100.00
17. TTCL LNG Power Pte. Ltd.	TTLP	Investing in Energy Business	Singapore	USD	1	100.00	100.00
18. JSM Power Pte. Ltd.	JSM	Investing in Energy Business	Singapore	USD	1	100.00	100.00
19. Toyo Thai Power Myanmar Co., Ltd.	TTPMC	Electricity Generation	Myanmar	USD	51,587,300	100.00	100.00
20. TTCL Power Myanmar Co., Ltd.	TPMC	Electricity Generation	Myanmar	USD	7,500	0.0015	100.00
21. Global New Energy Japan Co., Ltd.	GNE-Japan	Operating and maintenance Solar Power Plant	Japan	JPY	200,500,000	100.00	100.00
22. Global New Energy Tsuno Co., Ltd.	GNE-Tsuno	Electricity Generation from Solar Power	Japan	JPY	100,000	100.00	100.00
23. Orient Bio-Fuels Co., Ltd.	OBF	Renewable Energy Business	Vietnam	USD	10,473,969.39	100.00	49.00

Remarks * Preferred Shares

Board of Directors

Mr. Hironobu Iriya
Chairman of Board of Directors

Mr. Tiwa Jaruke
Vice Chairman of Board of Director

Mrs. Nijaporn Charanachitta
Director

Ms. Kantika Tanthuvanit
Director

Dr. Seiichi Itakura
Director

Mr. Sivaraks Phinicharomna
Independent Director

Dr. Ryuzo Nagaoka
Independent Director

Mr. Kenichi Omine
Director

Mr. Gumthorn Utarnwuthipong
Independent Director

Audit Committee / Nomination and Remuneration Committee / Risk Management Committee / Corporate Governance Committee

Audit Committee

1. **Mr. Sivaraks Phinicharomna**
   Chairman
2. **Mr. Gumthorn Utarnwuthipong**
   Committee Member
3. **Dr. Ryuzo Nagaoka**
   Committee Member

Nomination and Remuneration Committee

1. **Dr. Ryuzo Nagaoka**
   Chairman
2. **Mr. Gumthorn Utarnwuthipong**
   Committee Member
3. **Mr. Tiwa Jaruke**
   Committee Member

Risk Management Committee

1. **Mr. Gumthorn Utarnwuthipong**
   Chairman
2. **Mr. Saneh Poorisat**
   Committee Member
3. **Ms. Suratana Trinratana**
   Committee Member
4. **Mr. Wanchai Ratinthorn**
   Committee Member
5. **Ms. Kantika Tanthuvanit***
   Committee Member

* Ms. Kantika Tanthuvanit was appointed as the Risk Management Committee Member instead of Mr. Gobchai Tanasugarn who resigned in August 2018.
The resolution will be effective on 1st January 2019 onwards.

Corporate Governance Committee

1. **Mr. Gumthorn Utarnwuthipong**
   Chairman
2. **Mr. Tiwa Jaruke**
   Committee Member
3. **Ms. Kantika Tanthuvanit**
   Committee Member
4. **Mr. Chamnarn Atsanatam**
   Committee Member
5. **Ms. Jaruwan Sookthauyart**
   Committee Member
6. **Ms. Saowaluck Ngamdutsadee-Apirom**
   Committee Member
7. **Mr. Nuttapol Sinkajohn**
   Committee Member

Board of Management

1. **Mr. Hironobu Iriya**
   President & CEO

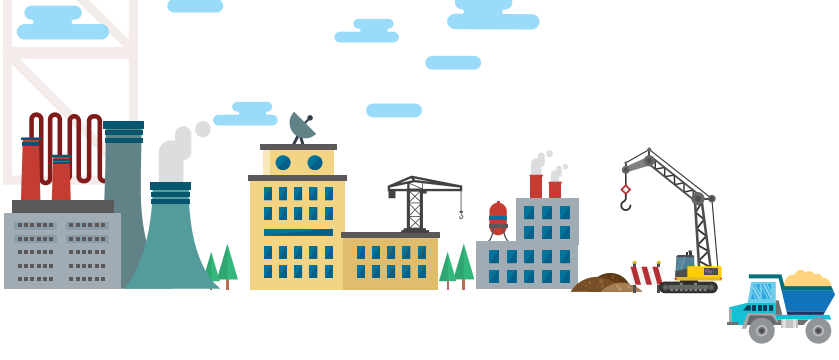
2. **Mr. Tiwa Jaruke**
   Senior Vice President
   Project, Proposal and Engineering

3. **Ms. Kantika Tanthuvanit**
   Senior Vice President
   General Administration & Finance

4. **Ms. Suratana Trinratana**
   Senior Vice President
   General Consultation of
   Myanmar Development Task

5. **Mr. Wanchai Ratinthorn**
   Corporate Control Officer (CCO)

6. **Mr. Hideto Koyama**
   Corporate Planning Officer (CPO)



Board of Directors & Board of Management

As at 31st December 2017

Name - Surname **Mr. Hironobu Iriya**

Type of Nominated Position : **Chairman of the Board of Directors, President & CEO**
Current Position : **Chairman of the Board of Directors, President & CEO (Authorized to Bind the Company)**

Years of Age : 64 years
Nationality : Japanese
Education : Bachelor's Degree Faculty of Engineering (Civil Engineering) Waseda University, Japan

Director Training
20 August 2008 : Director Accreditation Program (DAP) **by Thai Institute of Directors Association (IOD)**

Years of being Board of Directors : 11 years (2008 - Present)
Working Experience
27 September 2018 - Present : Chairman & Director, TTCL Power Myanmar Company Limited
18 May 2018 - Present : Director, TTCL LNG Power Pte. Ltd.
2015 - Present : Chairman of the Board of Directors TTCL Myanmar Engineering & Construction Company Limited
2014 - Present : Chairman of the Board of Directors, TTCL New Energy Pte. Ltd.
2013 - Present : Chairman of the Board of Directors, TTCL Solar Power Pte. Ltd.
: Chairman of the Board of Directors, TTCL Coal Power Pte. Ltd.
: Chairman of the Board of Directors, TTCL Power Holdings Pte. Ltd.
2012 - Present : Chairman of the Board of Directors, Toyo Thai Power Myanmar Company Limited
: Chairman of the Board of Directors, TTCL Gas Power Pte. Ltd.
: Chairman of the Board of Directors,ToyoThai-Myanmar Corporation Company Limited
2011 - Present : Chairman of the Board of Directors and Managing Director TTCL Malaysia Sdn. Bhd.
2009 - Present : Chairman of the Board of Directors and President Global New Energy Company Limited
2008 – Present : Chairman of the Board of Directors and President &CEO TTCL Public Company Limited
2007 - Present : Chairman of the Board of Directors and Managing Director Global Business Management Company Limited
2006 - Present : Chairman of the Board of Directors, Bio Natural Energy Company Limited
: Chairman of the Board of Directors TTCL Vietnam Corporation Limited
1997 - 2005 : Director, TTCL Vietnam Corporation Limited

Positions in other listed companies : None
Positions in non-listed companies : 15
Positions in competing /Involving Business Person : None
No. of Shareholding in TTCL (as of 31st December 2018) : 34,161,134 shares equivalent to 5.55% of total shares
Legal dispute in criminal cases (other than criminal case with petty offences) : None
Restrict Qualification by the Public Act. B.E. 2535 : None
Meeting Attendance in 2018
The Board of Directors' Meeting : 12 meetings from total of 12 meetings (100%)
The Annual General Shareholders' Meeting : 1 meeting from total of 1 meeting (100%)

Board of Directors

Name - Surname	**Mr. Tiwa Jaruke**
Type of Nominated Position	**: Vice Chairman of the Board of Directors** **: Senior Vice President Project, Proposal & Engineering** **: Nomination and Remuneration Committee** **: Corporate Governance Committee**
Current Position	**: Vice Chairman of the Board of Directors (Authorized to Bind the Company)** **: Senior Vice President Project, Proposal & Engineering** **: Nomination and Remuneration Committee** **: Corporate Governance Committee**
Years of Age	: 65 years
Nationality	: Thai
Education	: Bachelor's Degree Faculty of Engineering (Civil Engineering) Chiang Mai University
Director Training	
20 June 2016	: Ethical Leadership Program (ELP)
15-16 March 2016	: Financial Statements for Directors (FSD)
22 February 2008	: Director Accreditation Program (DAP)
24 July 2007	: Finance for Non-Finance Director (FND)
10 July 2007	: Understanding the Fundamental of Financial Statements (UFS) **by Thai Institute of Directors Association (IOD)**
Years of being Board of Directors	: 11 years (2008 - Present)
Working Experience	
October 2018 - Present	: Vice Chairman of the Board of Directors, TTCL Public Company Limited
2014 - Present	: Corporate Governance Committee, TTCL Public Company Limited
2013 - Present	: Director, TTCL Power Holdings Pte. Ltd.
2013	: Director, Senior Vice President Project & Proposal Petrochemical & Refinery Unit and Task Force TTCL Public Company Limited
2011 - Present	: Director, Deputy Managing Director, TTCL Malaysia Sdn. Bhd. : Senior Vice President Project, Proposal & Engineering Division TTCL Public Company Limited
2010 - Present	: Nomination and Remuneration Committee TTCL Public Company Limited
2009 - Present	: Director, Global New Energy Company Limited : Director and Managing Director, Bio Natural Energy Company Limited
2009 - 2010	: Senior Vice President, Proposal, Engineering and General Admin., TTCL Public Company Limited
2008 - September 2018	: Director, TTCL Public Company Limited.
2006 - Present	: Director, TTCL Vietnam Corporation Limited
Positions in other listed companies	: None
Positions in non-listed companies	: 5
Positions in competing /Involving Business Person	: None
No. of Shareholding in TTCL (as of 31st December 2018)	: 6,924,300 shares equivalent to 1.12% of total shares
Legal dispute in criminal cases (other than criminal case with petty offences)	: None
Restrict Qualification by the Public Act. B.E. 2535	: None
Meeting Attendance in 2018	
The Board of Directors' Meeting	: 11 meetings from total of 12 meetings (91.67%)
The Nomination and Remuneration Committee Meeting	: 3 meetings from total of 4 meetings (75%)
The Corporate Governance Committee Meeting	: 4 meetings from total of 4 meetings (100%)
The Annual General Shareholders' Meeting	: 1 meeting from total of 1 meeting (100%)

Board of Directors

Name - Surname	**Mrs. Nijaporn Charanachitta**
Type of Nominated Position	: **Director**
Current Position	: **Director (Authorized to Bind the Company)**
Years of Age	: 68 years
Nationality	: Thai
Education	: Master's Degree Faculty of Business Administration (Finance) University of Wisconsin, U.S.A.
	: Bachelor's Degree Faculty of Arts, Chulalongkorn University
Director Training	
2-22 March 2005	: Director Certification Program (DCP) **by Thai Institute of Directors Association (IOD)**
Years of being Board of Directors	: 11 years (2008 - Present)
Working Experience	
2007 - Present	: Director, TTCL Public Company Limited
	: Chairman of the Board of Directors, OHTL Public Company Limited
	: Chairman of the Board of Directors, Amari Company Limited
	: Chairman of the Board of Directors, Amari Hotel and Resort Company Limited
	: Director, Nomination and Remuneration Committee Charoong Thai Wire & Cable Public Company Limited
1994 - Present	: Director, Senior Executive Vice President Italian-Thai Development Public Company Limited
1983 - 1994	: Vice President Italian-Thai Development Public Company Limited
1979 - 1983	: Manager of Finance Italian-Thai Development Public Company Limited
Positions in other listed companies	: 2
Positions in non-listed companies	: 3
Positions in competing /Involving Business Person	: 1
No. of Shareholding in TTCL (as of 31st December 2018)	: 5,297,207 shares equivalent to 0.86% of total shares
Legal dispute in criminal cases (other than criminal case with petty offences)	: None
Restrict Qualification by the Public Act. B.E. 2535	: None
Meeting Attendance in 2018	
The Board of Directors' Meeting	: 11 meetings from total of 12 meetings (91.67%)
The Annual General Shareholders' Meeting	: 1 meeting from total of 1 meeting (100%)

Board of Directors

Name - Surname	**Ms. Kantika Tanthuvanit**
Type of Nominated Position	: **Director**
	: **Senior Vice President General Administration & Finance**
	: **Corporate Governance Committee**
	: **Risk Management Committee**
	: **Company Secretary**
Current Position	: **Director (Authorized to Bind the Company)**
	: **Senior Vice President General Administration & Finance**
	: **Corporate Governance Committee**
	: **Risk Management Committee**
	: **Company Secretary**
Years of Age	: 64 years
Nationality	: Thai
Education	: Bachelor's Degree Faculty of Business Administration Chiang Mai University
	: Postgraduate Faculty of Business Administration Center for Marketing and Management Studies, London United Kingdom
Director Training	
20 June 2016	: Ethical Leadership Program (ELP)
16-17 June 2016	: Company Secretary Program (CSP)
15-16 March 2016	: Financial Statements for Directors (FSD)
4-5 September 2008	: Effective Minute Taking (EMT)
7-8 August 2008	: Company Secretary Program (CSP)
22 February 2008	: Director Accreditation Program (DAP)
24 July 2007	: Finance for Non-Finance Director (FND)
10 July 2007	: Understanding the Fundamental of Financial Statement (UFS) **by Thai Institute of Directors Association (IOD)**
Years of being Board of Directors	: 3 years (2016 - Present)
Working Experience	
January 2019 - Present	: Risk Management Committee
July 2018 - Present	: Senior Vice President General Administration & Finance TTCL Public Company Limited
2016 - Present	: Director, TTCL Public Company Ltd.
2014 - Present	: Director, TTCL New Energy Pte. Limited
	: Corporate Governance Committee, TTCL Public Company Limited
2014 - June 2018	: Senior Vice President General Administration, TTCL Public Company Limited
2013 - Present	: Director, TTCL Power Holdings Pte. Ltd.
2011 - Present	: Director and General Manager Administration Division TTCL Malaysia Sdn. Bhd.
2011 - 2013	: Senior Vice President, General Administration & Finance TTCL Public Company Limited
2008 - Present	: Company Secretary, TTCL Public Company Limited
2007 - Present	: Director, Global Business Management Company Limited
1997 - Present	: Director, TTCL Vietnam Corporation Limited
Positions in other listed companies	: None
Positions in non-listed companies	: 5
Positions in competing /Involving Business Person	: None
No. of Shareholding in TTCL (as of 31st December 2018)	: 9,458,041 shares equivalent to 1.54% of total shares
Legal dispute in criminal cases (other than criminal case with petty offences)	: None
Restrict Qualification by the Public Act. B.E. 2535	: None
Meeting Attendance in 2018	
The Board of Directors' Meeting	: 12 meetings from total of 12 meetings (100%)
The Corporate Governance Committee Meeting	: 4 meetings from total of 4 meetings (100%)
The Annual General Shareholders' Meeting	: 1 meeting from total of 1 meeting (100%)

Board of Directors

Name - Surname	**Dr. Seiichi Itakura**
Type of Nominated Position	: **Director**
Current Position	: **Director (Authorized to Bind the Company)**
Years of Age	: 69 years
Nationality	: Japanese
Education	: Ph.D. of Environment and Energy Engineering Waseda University
	: Master of Electrical Engineering, Waseda University
	: Bachelor of Electrical Engineering, Waseda University
Years of being Board of Directors	: 1 years (2018 - Present)
Working Experience	
March 2018 - Present	: Director, TTCL Public Company Limited.
2015 - Present	: Consultant the technical study & investigation of Large Solar Power System & International Transmission Line (Super Grid) Softbank Group
2014 - Present	: Chief Technical Advisor Environment and Energy Technology Research Institute, Inc.
2014 - 2017	: Consultant the Quality Management of Refinery and Petrochemical Integrated Development (RAPID) Steam Cracker Complex Malaysian Project Toyo Engineering Corp.
2014 - 2016	: Consultant the technical study & investigation of Large Solar Power Station Japan Toyo Engineering Corp.
2011 - Present	: Invited Researcher, Waseda University Graduate School of Environment and Energy Engineering Environmental Research Institute
2009 - 2014	: Executive Officer (General Manager of Safety, Quality and Environment Management Unit, and General Manager of Audit Unit) Toyo Engineering Corp.
Positions in other listed companies	: -
Positions in non-listed companies	: 3
Positions in competing /Involving Business Person	: -
No. of Shareholding in TTCL (as of 31st December 2018)	: 110,000 Shares equivalent to 0.02% of total shares
Legal dispute in criminal cases (other than criminal case with petty offences)	: None
Restrict Qualification by the Public Act. B.E. 2535	: None
Meeting Attendance in 2018	
The Board of Directors' Meeting	: 10 meetings from total of 11 meetings (100%)
The Annual General Shareholders' Meeting	: 1 meeting from total of 1 meeting (100%)

Board of Directors

Name - Surname	**Mr. Kenichi Omine**
Type of Nominated Position	**: Director**
Current Position	**: Director (Authorized to Bind the Company)**
Years of Age	: 50 years
Nationality	: Japanese
Education	: Bachelor of Faculty of Science and Technology, Mechanical Engineering from Keio University, Tokyo, 1991
Years of being Board of Directors	: October 2018 - Present
Working Experience	
October 2018 - Present	: Director, TTCL Public Company Limited
April 2018 - Present	: General Manager, Plant Project Department Machinery & Medical Infrastructure Division, SOJITZ Corporation
April 2017- Present	: Director, Kawasaki Gas Turbine Services URS, LLC
April 2016 - March 2018	: General Manager, Plant Project Department Infrastructure & Environment Business Division, SOJITZ Corporation
April 2015 - March 2016	: Deputy General Manager, Plant Project Department Infrastructure & Environment Business Division, SOJITZ Corporation
May 2011 - Present	: Director, SENDZIMIR Japan, LTD.
October 2009 - March 2015	: Manager, Section 1, Plant Project Department 2 Infrastructure Project & Industrial Machinery Unit Machinery Division, SOJITZ Corporation
April 2004 - Present	: SOJITZ Corporation formed through merge of NISSHO IWAI Corporation and NICHIMEN Corporation
January 2002 - December 2006	: Manager of Plant and Machinery Department, NISSHO IWAI Corporation, Johannesburg Branch Office, South Africa
April 1991	: Joined NISSHO IWAI Corporation
Positions in other listed companies	: None
Positions in non-listed companies	: 2
Positions in competing /Involving Business Person	: None
No. of Shareholding in TTCL	: None
Legal dispute in criminal cases (other than criminal case with petty offences)	: None
Restrict Qualification by the Public Act. B.E. 2535	: None
Meeting Attendance in 2018	
The Board of Directors' Meeting	: 3 Meetings from total 3 meetings (100%)
The Annual General Shareholders' Meeting	: -

Board of Directors

Name - Surname	**Mr. Sivaraks Phinicharomna**
Type of Nominated Position	: **Independent Director & Chairman of Audit Committee**
Current Position	: **Independent Director & Chairman of Audit Committee**
Years of Age	: 68 years
Nationality	: Thai
Education	: Master's Degree Faculty of Public Administration Minnesota State University, U.S.A.
	: Bachelor's Degree Faculty of Political Science, Chiang Mai University
	: Certified Professional California Certified Public Accountant, Internal Revenue Service Enrolled Agent, Certified Internal Auditor, Certified Fraud Examiner, and Certificate of Accountancy, University of California Los Angeles U.S.A.
	: Master of QTRP H&R Block Tax Training School, California, U.S.A.
Director Training	
10-11 June 2015	: Chartered Director Class (CDC)
24-25 April 2014	: How to Measure the Success of Corporate Strategy (HMS)
3-4 March 2014	: Successful Formulation and Execution of Strategy (SFE)
14-15 October 2009	: Role of the Chairman Program (RCP)
14-15 February 2007	: Audit Committee Program (ACP)
21 May-18 June 2004	: Director Certificate Program (DCP)
17 May 2004	: Directors Accreditation Program (DAP) **by Thai Institute of Directors Association (IOD)**
Years of being Board of Directors	: 11 years (2008 - Present)
Working Experience	
2013 - Present	: Independent Director, Chairman of Audit Committee SRK Multimedia Public Company Limited
2010 - Present	: Independent Director, Audit Committee Ini3 Digital Plc.
2009 - Present	: Independent Director, Chairman of Audit Committee UA Withya Public Company Limited
2008 - Present	: Independent Director, Chairman of Audit Committee TTCL Public Company Limited
Previous Working Experience	
2001-2014	: Vice President – Internal Auditing, THAICOM Plc.
1999-2001	: Deputy Chief Financial Officers, DIGITAL PHONE Co., Ltd.
1996-1999	: Assistant Vice President-Finance & Accounting SHINAWATRA INTERNATIONAL, Plc.
1994-1996	: Vice President of Internal Auditing and System Development, STA, Plc.
1985-1994	: Assistant Financial Controller, LOS ANGELES BORG Region, BORG WERNER Inc., New Jersey, U.S.A.
Specialization	: Accounting & Finance, System Development, Auditing, Internal Auditing
	: Risk Management & Anti-Corruption
	: Consultant of Accounting System Committee and regular speaker of Federation of Accounting Profession of Thailand
	: Regular speaker of the Institute of Internal Auditors Thailand
	: Visiting Professors in various universities
Positions in other listed companies	: 1
Positions in non-listed companies	: 2
Positions in competing /Involving Business Person	: None
No. of Shareholding in TTCL (as of 31st December 2018)	: 104,670 shares equivalent to 0.02% of total shares
Legal dispute in criminal cases (other than criminal case with petty offences)	: None
Restrict Qualification by the Public Act. B.E. 2535	: None
Meeting Attendance in 2018	
The Board of Directors' Meeting	: 11 meetings from total of 12 meetings (91.67%)
The Audit Committee Meeting	: 9 meetings from total of 9 meetings (100%)
The Annual General Shareholders' Meeting	: 1 meeting from total of 1 meeting (100%)

Board of Directors

Name - Surname	**Mr. Gumthorn Utarnwuthipong**
Type of Nominated Position	**: Independent Director, Audit Committee**
	: Nomination and Remuneration Committee
	: Chairman of Risk Management Committee
	: Chairman of Corporate Governance Committee
Current Position	**: Independent Director, Audit Committee**
	: Nomination and Remuneration Committee
	: Chairman of Risk Management Committee
	: Chairman of Corporate Governance Committee
Years of Age	: 78 years
Nationality	: Thai
Education	: Master's Degree Faculty of Engineering (Plant Engineering) Darmstadt Institute for Hesse, Germany
	: Bachelor's Degree Faculty of Science (Chemical Engineering) Chulalongkorn University
Professional Training	: Certificate in Fertilizer Production from U.S.A.
	: Certificate in Fertilizer Production from USSR (UNIDO scholarship)
	: Certificate in Fertilizer Production from China
	: Certificate in Business Public Relations (Executive) from Thailand Public Relations Institute
	: Certificate in Agro-Economy (1st and 2nd workshop)
Director Training	
16-17 October 2018	: IT Governance and Cyber Resilience (ITG 9/2018)
6-7 June 2017	: Board Matters and Trends (BMT 3/2017)
2, 9, 16, 23 November 2016	: Advanced Audit Committee Program (AACP)
20 June 2016	: Ethical Leadership Program (ELP)
27-28 April 2016	: Driving Company Success with IT Governance (ITG)
8-9 March 2016	: Boards that Make a Difference (BMD)
27 November 2015	: Ethical Leadership Program (ELP)
17, 24 September 2015	: Risk Management Program for Corporate Leaders (RCL)
17-18 March 2015	: Director Certification Program Update (DCPU)
29 October 2014	: Anti-Corruption for Executive Program (ACEP)
13 Jan.-10 Mar. 2014	: Directors Certification Program (DCP)
13-14 June 2013	: Role of the Compensation Committee (RCC)
25 June 2009	: Monitoring of the Quality of Financial Reporting (MFR)
21 November 2008	: Monitoring the Internal Audit Function (MIA)
27 October 2008	: Monitoring the System of Internal Control and Risk Management (MIR)
26 September 2008	: Director Accreditation Program (DAP)
21-22 August 2008	: Audit Committee Program (ACP) **by Thai Institute of Directors Association (IOD)**
Years of being Board of Directors	: 11 years (2008 – Present)
Working Experience	
2010 - Present	: Nomination and Remuneration Committee Chairman of Risk Management Committee Chairman of Corporate Governance Committee TTCL Public Company Limited
2008 - Present	: Independent Director, Audit Committee, TTCL Public Company Limited

Previous Working Experience

1964 - 1973 : Chemical Fertilizer Company (State Enterprise)
- Plant Manager of Sulfuric Acid Plant
- Plant Manager of Ammonium Sulfate Plant
- Plant Manager of Liquid Ammonia Synthesis Plant
- Plant Manager of Air Separation Plant
- Secretary of Board of Director

1974 - 2005 : Thai Central Chemical PLC.
- Project leader and Coordinator between the Thai Government and Central Glass of Japan on the Construction of the first factory of TCCC
- Senior Vice President in Production
- Member of Board of Director and Board of Executive Director

Positions in other listed companies : None

Positions in non-listed companies : None

Positions in competing /Involving Business Person : None

No. of Shareholding in TTCL (as of 31st December 2018) : 114,700 shares equivalent to 0.02% of total shares

Legal dispute in criminal cases (other than criminal case with petty offences) : None

Restrict Qualification by the Public Act. B.E. 2535 : None

Meeting Attendance in 2018

The Board of Directors' Meeting	: 12 meetings from total of 12 meetings (100%)
The Audit Committee Meeting	: 9 meetings from total of 9 meetings (100%)
The Nomination and Remuneration Committee Meeting	: 4 meetings from total of 4 meetings (100%)
The Risk Management Committee Meeting	: 4 meetings from total of 4 meetings (100%)
The Corporate Governance Committee Meeting	: 4 meetings from total of 4 meetings (100%)
The Annual General Shareholders' Meeting	: 1 meeting from total of 1 meeting (100%)

Board of Directors

Name - Surname	**Dr. Ryuzo Nagaoka**
Type of Nominated Position	**: Independent Director, Audit Committee,** **: Chairman of Nomination and Remuneration Committee**
Current Position	**: Independent Director, Audit Committee,** **: Chairman of Nomination and Remuneration Committee**
Years of Age	: 83 years
Nationality	: Japanese
Education	: Doctorate's Degree Faculty of Engineering (Civil Engineering) University of Tokyo, Japan : Master's Degree Faculty of Engineering (Mechanical Engineering) University of Wisconsin, U.S.A. : Bachelor's Degree Faculty of Engineering (Mechanical Engineering) Keio University, Japan
Director Training	
11-12 September 2017	: Infrastructure Project Financing & Public Private Partnership (IPF) **by OMEGAWORLDCLASS**
5-6 July 2016	: Boards that Make a Difference (BMD)
1-7 November 2015	: Director Certification Program (DCP)
20 August 2008	: Director Accreditation Program (DAP) **by Thai Institute of Directors Association (IOD)**
Years of being Board of Directors	: 11 years (2008 - Present)
Working Experience	
2010 - Present	: Chairman of Nomination and Remuneration Committee TTCL Public Company Limited
2008 - Present	: Independent Director and Audit Committee, TTCL Public Company Limited
2004 - Present	: Managing Director, Nagaoka & Associates Inc.
Positions in other listed companies	: None
Positions in non-listed companies	: 1
Positions in competing /Involving Business Person	: None
No. of Shareholding in TTCL (as of 31st December 2018)	: 100,000 shares equivalent to 0.02% of total shares
Legal dispute in criminal cases (other than criminal case with petty offences)	: None
Restrict Qualification by the Public Act. B.E. 2535	: None
Meeting Attendance in 2018	
The Board of Directors' Meeting	: 11 meetings from total of 12 meetings (91.67%)
The Audit Committee Meeting	: 9 meetings from total of 9 meetings (100%)
The Nomination and Remuneration Committee Meeting	: 4 meetings from total of 4 meetings (100%)
The Annual General Shareholders' Meeting	: 1 meeting from total of 1 meeting (100%)

Board of Management

Name - Surname **Ms. Suratana Trinratana**

Current Position : **Senior Vice President, General Consultation of Myanmar Development Task,**
: **Risk Management Committee**

Years of Age : 54 years
Nationality : Thai
Education : Bachelor's Degree Faculty of Engineering (Mechanical Engineering) Prince of Songkla University

Director Training
August-December 2017 : The Executive Training Course version 25 (ETC) **by Capital Market Academy (CMA)**
25-26 October 2016 : Risk Management Program for Corporate Leaders (RCL)
20 June 2016 : Ethical Leadership Program (ELP) **by Thai Institute of Directors Association (IOD)**

Years of being Board of Directors : None
Working Experience
27 September 2018 - Present : Managing Director, TTCL Power Myanmar Co., Ltd.
18 May 2018 - Present : Director, TTCL LNG POWER PTE. LTD.
2017 - Present : Senior Vice President, General Consultation of Myanmar Development Task, TTCL Public Company Limited
15 May 2017 - Present : Director, Toyo Thai Power Myanmar Co., Ltd.
2015 - Present : Director, TTCL Myanmar Engineering & Construction Co., Ltd.
2015 - August 2018 : Managing Director, TTCL Myanmar Engineering & Construction Co., Ltd.
2014 - Present : Director, TTCL New Energy Pte. Ltd.
2014 - 2016 : Chief Operation Officer (COO), Vice President Operation Division TTCL Public Company Limited
2013 - Present : Director, TTCL Coal Power Pte. Ltd.
: Director, TTCL Solar Power Pte. Ltd.
: Director, TTCL Power Holdings Pte. Ltd.
2013 : Chief Operation Officer (COO), Vice President Operation Division Unit President Power Unit, TTCL Public Company Limited
2013 - 14 May 2017 : Managing Director, Toyo Thai Power Myanmar Co., Ltd.
2012 - Present : Director, TTCL Gas Power Pte. Ltd.
: Director and Managing Director, ToyoThai-Myanmar Corporation Co., Ltd.
2012 : Vice President, Operation Officer Sales and Procurement Division TTCL Public Company Limited
2011 - Present : Director and General Manager, Sales & Procurement Division TTCL Malaysia Sdn. Bhd.
: Director, Global New Energy Co., Ltd.
2010 - Present : Risk Management Committee, TTCL Public Company Limited

Positions in other listed companies : None
Positions in non-listed companies : 12
Positions in competing /Involving Business Person : None
No. of Shareholding in TTCL (as of 31st December 2018) : 15,835,948 shares equivalent to 2.57% of total shares
Legal dispute in criminal cases (other than criminal case with petty offences) : None
Restrict Qualification by the Public Act. B.E. 2535 : None
Meeting Attendance in 2018
The Risk Management Committee Meeting : 4 meetings from total of 4 meetings (100%)
The Annual General Shareholders' Meeting : 1 meeting from total of 1 meeting (100%)

Board of Management

Name - Surname	**Mr. Wanchai Ratinthorn**
Current Position	: **Corporate Control Officer (CCO), Risk Management Committee**
Years of Age	: 53 years
Nationality	: Thai
Education	: Bachelor's Degree Faculty of Engineering (Mechanical Engineering) King's Mongkut University of Technology Thonburi
Director Training	
20 June 2016	: Ethical Leadership Program (ELP) **by Thai Institute of Directors Association (IOD)**
Years of being Board of Directors	: None
Working Experience	
August 2018 - Present	: Director, TTCL Solar Power Pte. Ltd.
1 July 2018 - Present	: Corporate Control Officer (CCO), TTCL Public Company Limited
2017	: Chief Project Officer (CPO), TTCL Public Company Limited
2014 - 30 June 2018	: Vice President Project Execution Division TTCL Public Company Limited
2013	: Vice President Construction and Commissioning Division Unit President Petrochemical and Refinery Unit TTCL Public Company Limited
2012	: Vice President, Execution Officer, Construction and Commissioning Project Division TTCL Public Company Limited
2012 - Present	: Director, TTCL Gas Power Pte. Ltd.
2011 - Present	: Director and General Manager, Project and Proposal Division TTCL Malaysia Sdn. Bhd.
2011	: Vice President Project and Proposal Division TTCL Public Company Limited
2010 - Present	: Risk Management Committee TTCL Public Company Limited
Positions in other listed companies	: None
Positions in non-listed companies	: 2
Positions in competing /Involving Business Person	: None
No. of Shareholding in TTCL (as of 31st December 2018)	: 4,300,000 shares equivalent to 0.70% of total shares
Legal dispute in criminal cases (other than criminal case with petty offences)	: None
Restrict Qualification by the Public Act. B.E. 2535	: None
Meeting Attendance in 2018	
The Risk Management Committee Meeting	: 4 meetings from total of 4 meetings (100%)
The Annual General Shareholders' Meeting	: 1 meeting from total of 1 meeting (100%)

Board of Management

Name - Surname	**Mr. Hideto Koyama**
Current Position	: **Corporate Planning Officer (CPO)**
Years of Age	: 53 years
Nationality	: Japanese
Education	: Master's Degree Faculty of Engineering (Architectural Engineering) Tokyo University of Science, Japan
	: Bachelor's Degree Faculty of Engineering, Tokyo University of Science, Japan
Director Training	: None
Years of being Board of Directors	: None
Working Experience	
1 July 2018 - Present	: Corporate Planning Officer (CPO), TTCL Public Company Limited
2015 - Present	: Director, Global New Energy Tsuno Co., Ltd.
2015 - 2018	: Director, Global New Energy Togo Co., Ltd.
2015 - 31 August 2016	: Director, Hi-Grade Energy Co., Ltd.
2014 - 30 June 2018	: Vice President Sales and Business Development Division TTCL Public Company Limited
2013 - Present	: Director, TTCL Coal Power Pte. Ltd.
	: Director, TTCL Solar Power Pte. Ltd.
	: Director, Siam GNE Solar Energy Co., Ltd.
	: Director, Global New Energy Japan Co., Ltd.
2010 - Present	: Director, Global New Energy Co., Ltd.
Positions in other listed companies	: None
Positions in non-listed companies	: 8
Positions in competing /Involving Business Person	: None
No. of Shareholding in TTCL (as of 31st December 2018)	: 4,337,360 shares equivalent to 0.70% of total shares
Legal dispute in criminal cases (other than criminal case with petty offences)	: None
Restrict Qualification by the Public Act. B.E. 2535	: None
Meeting Attendance in 2018	
The Annual General Shareholders' Meeting	: 1 meeting from total of 1 meeting (100%)

Roles & Responsibilities

Board of Directors

List of Directors

As of December 31, 2018, the Board of Directors consists of:

Name	Position
1. Mr. Hironobu Iriya	Chairman of the Board of Directors
2. Mr. Tiwa Jaruke	Vice Chairman of the Board of Directors
3. Mrs. Nijaporn Charanachitta	Director
4. Ms. Kantika Tanthuvanit	Director
5. Dr. Seiichi Itakura	Director
6. Mr. Kenichi Omine	Director
7. Mr. Sivaraks Phinicharomna	Independent Director
8. Mr. Gumthorn Utarnwuthipong	Independent Director
9. Dr. Ryuzo Nagaoka	Independent Director

Ms. Kantika Tanthuvanit served as Company Secretary.

Directors Authorized to sign and bind for the Company

Mr. Hironobu Iriya, Mrs. Nijaporn Charanachitta, Mr. Tiwa Jaruke, Ms. Kantika Tanthuvanit, Dr. Seiichi Itakura, Mr. Kenichi Omine, any two of these six directors jointly and affix the company seal.

Roles and Responsibilities of the Board of Directors

1. To supervise and manage the Company under applicable laws, Company objectives, Article of Association, and shareholders' meeting resolutions with honesty and integrity while remaining vigilant of the Company's best interests.
2. To determine the business direction and the overall strategic goal for the Company which includes the consideration to approve policies and operational directions proposed by the management. Also to govern and ensure that the management implement the approved policies with efficiency and productivity such as to maximize the benefits to the Company and its shareholders.
3. To approve in the general operation such as asset purchasing, investment, and loans in excess of the Board of Management authority.
4. To constantly monitor the Company's operation to ensure that the Board of Management manage the Company in accordance with laws and approved policies.
5. To arrange for TTCL to have standardized accounting system, financial reporting, and audit as well as internal control and internal audit systems that are both efficient and effective.
6. To appoint Board of Management, audit committee and/or other committees, Company secretary as appropriate for the best interest of the Company and to monitor the management system in accordance with the approved policies.
7. To appoint a director or a group of directors to act on behalf of the board of directors.
8. To approve the roles and responsibilities of all sub committees as well as to materially amend the composition of the sub committees.

9. To arrange to have an appropriate balance of authorities of management and/or major shareholders, by considering the proportion or number of independent directors in the Company's board of directors.
10. To arrange for appropriate information system that shall assure the board of directors of receiving sufficient information from the management in order to operate according to their authorities and responsibilities perfectly.
11. To attend the board meetings at least half of the total number of meetings arranged in each year.
12. To determine and amend names of authorized directors.
13. To consider the remuneration of the directors within the guidelines approved by shareholders.
14. To determine the business direction and overall for Anti-Corruption of the Company and consideration to approve Anti-Corruption Policy proposed by Corporate Governance Committee. Also to govern and forming an effective system supporting Anti-Corruption act in order to affirm that the Management Team intensively concerns, emphasizes, and cultivates Anti-Corruption mindset as the Company's culture.

The following issues shall require shareholders' approval before proceeding, directors with conflict of interests to the Company and/or its subsidiaries are not permitted to vote:

(a) Issues that the Law require shareholder's approval.
(b) Connected transactions or acquisition/ disposition of assets in accordance to the SET or any other regulatory bodies' stipulation.

Roles and Responsibilities of Chairman of the board

1. Chairman of the Board of Directors or an assignee is assigned to convoke a meeting by sending the invitation letter at least 14 days before the meeting date for the basis of sufficient notice and information.
2. To determine the agenda of the Board of Directors meeting and annual general meeting.
3. To manage effective meeting and allocate adequate time for presentation, as well as giving the opportunity for directors to question and comment freely also control issues in the debate and conclusion of the resolution of the meeting.
4. To encourage the directors to comply with corporate governance such as proposed abstention of votes, and leaving the meeting when considering the agenda that have conflict of interest.
5. To communicate the significant information to the Board of Directors for acknowledgement.
6. To encourage the Board of Directors to attend in the shareholders meeting and officiate as the chairman of the meeting to meet the highest effectiveness and answer the shareholders inquiries.
7. To encourage the Board of Directors to execute their roles according to roles and responsibilities of the Board of Directors, applicable laws and corporate governance.
8. In case of equality vote, the chairman has a casting vote in addition to his/her voting rights as a director.

Board of Management

Board of Directors appoints Member of Board of Management to relieve work of Board of Directors to manage the normal business. Therefore, Board of Directors can focus on key policy and assessment of Management.

List of Members of Board of Management

As of December 31, 2018 Board of Management consists of:

Name	Position
1. Mr. Hironobu Iriya	Chairman of the Board of Management
2. Mr. Tiwa Jaruke	Board of Management
3. Ms. Kantika Tanthuvanit	Board of Management
4. Ms. Suratana Trinratana	Board of Management
5. Mr. Wanchai Ratinthorn	Board of Management
6. Mr. Hideto Koyama	Board of Management

Roles and Responsibilities of the Board of Management

1. To determine and roll-out policies, directions, strategies, organizational structure, and management structure such that they resonate with the current economic condition and competitive landscape for approval by the Board of Directors.
2. To determine the strategy and annual budget and to manage the operations in all divisions of the Company for the Board of Directors' approval including the ability to approve, amend, change, add to the annual expense budget (if required as matter of urgency) before the Board of Director's approval.
3. To determine Anti-Corruption system, promoting and encouraging Anti-Corruption manner conveyed to all staff and related parties.
4. To monitor the Company's operation in accordance with the Company's policy and to ensure maximum efficiency under any given circumstances.
5. To ensure that results from operation are in line with the approved expectations.
6. To consider sizeable capital investments for approval by the Board of Directors.
7. To have the authority to appoint/layoff all employees ranked below that of the CEO.
8. To approve and execute bidding and contracting with third parties.
9. To perform other duties appointed by the Board of Directors on a case by case basis and have the power to approve the following financial transactions.
   (a) In case that the business plan or the annual budget has already been approved by Board of Directors, the Board of Management may execute such matters without financial constraints.
   (b) In case that the financial transaction is in the condition other than a), Board of Management has an executable limit of Baht 20 million. The financial authorization shall cover day to day operational expenditures, capital expenditures, permanent asset, loans, other debt instruments, and insurance (excluding bidding and contracting which have no limit).

The Board of Management may delegate the authority to execute financial transactions to other employees at the management level as see fit.

The authority delegation from the Board of Directors to the Board of Management stated above excludes the case of possible conflict of interest (according to the SEC's regulations) except for the transaction on arm-length basis (the transaction is already approved by the Board of Directors and is the Company's normal business with fair price and terms).

The first four top-ranking executives as well as all other 4th ranking equivalent, and accounting or finance executives of department head level and up.

As of December 31, 2018, Member of Management, total 7 persons, consists of:

Name	Position
1. Mr. Hironobu Iriya	President & CEO
2. Mr. Tiwa Jaruke	Senior Vice President Project, Proposal and Engineering
3. Ms. Kantika Tanthuvanit	Senior Vice President General Administration & Finance
4. Ms. Suratana Trinratana	Senior Vice President General Consultation of Myanmar Development Task
5. Mr. Wanchai Ratinthorn	Corporate Control Officer (CCO)
6. Mr. Hideto Koyama	Corporate Planning Officer (CPO)
7. Ms. Saowaluck Ngamdutsadee-apirom	Deputy General Manager Finance and Accounting Division
8. Mr. Paibun Sribanphai	Specialist – Accounting

Roles and Responsibilities of the President & CEO

1. To operate and manage the Company's normal course of business.
2. To operate and manage in accordance with business policy, business plan, and business strategy approved by the Board of Directors.
3. To employ, appoint, transfer, layoff, severance, to determine the appropriate salary structure and changes therewith including bonuses of all employees and to appoint employer representative to sit in the Company's provident fund committee.
4. For administration of the Company, President & CEO engages into business contract within the limit that a board of management could approve, pre-approved by Board of Directors and has the authority to approve within the limit up to 5 (five) million Baht for the transaction that the Board of Directors or the Board of Management did not specifically approve.
5. To give instruction notification, announcement such that the operation could proceed according the approved policy and to keep discipline within the organization.
6. To be the Company's authorized person for the benefit of the Company.
7. To appoint advisors as deem appropriate for the benefit and operation of the Company.
8. To undertake any other action as authorized by the Board of Directors.
9. To determine Anti-Corruption system, promoting and encouraging Anti-Corruption manner conveyed to all staff and related parties.

Nevertheless, the delegation to President & CEO in case of potential conflict of interest, President & CEO does not have the authority to such approval and he has to instead propose to the board of directors and/or shareholders for approval in accordance to applicable laws and Company's regulations except the approval under specific normal business transactions.

Nominating for Directors and Member of Board of Management

Directors

The Company has appointed a Nomination and Remuneration Committee to select qualified candidates who have knowledge, skills, qualifications,

work experience and relevant qualifications for Directors in accordance with Section 68 of Public Company Limited Act B.E. 2535 and related Notifications of the Securities and Exchange Commission (SEC). To contribute Company's operation efficiently, the Company has determined criterion for appointment and dismissal of Directors as follows;

1. The Company shall have a Board of Directors consisting of at least five (5) directors but not exceeding twenty (20) persons. All of the directors shall have qualification as prescribed by applicable law and not less than a half of them shall have place of residences in the Kingdom of Thailand.
2. The Directors shall be elected at the general meeting of the shareholders in accordance with the following rules and procedures:
   - 2.1 Each shareholder shall have number of vote equal to the number of shares held.
   - 2.2 Each shareholder may cast all of his/her votes in accordance with (1) above to elect one or more persons to be Director or Directors but the vote shall be indivisible.
   - 2.3 The persons who obtain the highest number of votes shall be elected as the Directors in respective order of votes higher to lower according to the required number of directors, but if two or more persons obtain equal votes, the Chairman shall exercise a casting vote.
3. At every annual general meeting of shareholders, one-third (1/3) of the Director, or if it is not a multiple of three, then the number nearest to one-third (1/3) must retire from office.

   There must be a drawing by lots to determine the Directors retiring on the first and second years following the registration of the Company. In each subsequent year, the Directors who occupy the position for longest period shall retire. A retiring is eligible for re-election.
4. In case where there is any vacancy among Directors other than the retirement by rotation, the Board of Directors shall at its next meeting elect a person who is qualified and is not subject to any restriction imposed by applicable law to fill the vacancy, except where the remaining term of the vacant Director is less than two (2) months. The term of the new Director replacing the vacant Director shall be equal to the remaining term of the vacant Director.

   The resolution of the Board of Director as specified in the first paragraph shall be passed by three-quarter (3/4) or more of the votes cast by the remaining Director.
5. A meeting of shareholders may resolve any Director before the expiration of his/her term by passing a resolution with the vote of three-quarter (3/4) or more of the total number of shareholders attending and eligible to vote at the meeting and holding in aggregate fifty (50) percent or more of total number of shares held by the shareholders attending and eligible to vote at the meeting.

The Audit Committee

List of Member of Audit Committee

As of December 31, 2018, Audit Committee consists of:

Name	Position
1. Mr. Sivaraks Phinicharomna	Chairman of Audit Committee
2. Mr. Gumthorn Utarnwuthipong	Audit Committee Member
3. Dr. Ryuzo Nagaoka	Audit Committee Member

Mr. Ryutaro Nishio served as secretary of Audit Committee.

Roles and Responsibilities of the Audit Committee

1. To ensure accuracy and sufficiency of the financial reports.
2. To ensure that the Company has appropriated and effective internal control systems as well as internal auditing activities and consider the independence of the internal audit department, including consent to the appointment, rotation, promotion, and termination of the head of internal audit department and others who are responsible for internal audit activities.
3. To ensure that the Company is complied with laws of the Stock Exchange of Thailand (SET) and the Securities and Exchange Commission (SEC) as well as other rules and regulations related to the Company's business.
4. To select and propose independent person who will be the Company's auditor and propose his or her compensation, including join meeting with the auditor without management attending at least once a year.
5. To consider compliance of connected or conflict of interest transactions to the rules and regulations of the SET and SEC and assure the transactions are appropriate and provide the best interest to the Company.
6. Review preventive and detective processes of fraud and corruption.
7. To assure the risk management has appropriate and effective process.
8. To prepare an Audit Committee's report to be disclosed in the Company's annual report. The report must be signed by the Chairman of the Audit Committee and composed of at least the following information:
   - 8.1 Opinion regarding completeness and reliability of the Financial Report.
   - 8.2 Opinion regarding the sufficiency of the internal control systems.
   - 8.3 Opinion regarding compliance with laws of SEC, rules and regulations of SET and other related laws to the Company's business.
   - 8.4 Opinion regarding appropriation of auditor.
   - 8.5 Opinion regarding conflict of interest transaction.
   - 8.6 Number of Audit Committee meeting and participation.
   - 8.7 Overall opinion or observation regarding practices of the Audit Committee.
   - 8.8 Other issues that should be disclosed to the shareholders which fall within scope, authority, and responsibility as assigned by the Board of Directors.
9. To report activities of the Audit Committee to the Board of Directors at least 4 times a year.
10. To have authority for hiring independent consultant or professional when needed.
11. To carry out audit committee activities, the Committee shall have authority to invite executive, manager or employee to attend meetings for discussion or answer the Audit Committee's questions.
12. To review scope, authority and responsibility and conduct self-evaluation on the annual basis.

13. To perform any assignment by the Board of Directors that agreed upon by the Audit Committee.
14. During the Audit Committee practice, if they find or suspect transaction or the following activities which may have material impact to the financial position and operation result of the Company, the Audit Committee must report to the Board of Director to take corrective action within a reasonable period of time.
    - 14.1 Conflict of interest transaction.
    - 14.2 Fraud or unusual transaction or significant deficiency in the internal control systems.
    - 14.3 Violation under the laws of SET, SEC, rules and regulations of SET or other related laws of the Company's business.

In case where director or manager fails to take corrective action within a reasonable period of time, any Audit Committee member may report such transaction or activity to the SET and SEC.

15. In case the auditor discovers any suspicious circumstance that the director, manager or any person responsible for the operation of such juristic person commit an offense under the law, and informed such circumstance to the Audit Committee to continue the inspection without delay and the Audit Committee shall report the preliminary inspection to the SEC office and the auditor within 30 days from the notification date of the auditor. The circumstance that shall be informed and the procedures for acquiring the fact related to such circumstance shall be complied with the notification of the Capital Market Supervisory Board.

Committee and Qualification

1. The Audit Committee shall consist of not less than one third of directors and every one must be independent director and possesses qualification in accordance with the rules and regulations of the SET and SEC. At least one member must have sufficient knowledge and experience to review reliability of financial report.
2. The Board of Directors shall select and appoint the Chairman of Audit Committee.

Term of the Appointment

A member of the Audit Committee shall be appointed for a term of three (3) years. A member who vacates his office at the end of the term may be re-elected no more than 2 times unless the Board of Directors shall have other opinions.

Apart from vacating office at the end of the term, a member shall vacate office upon:

1. death
2. resignation
3. disqualify under this charter or rules and regulations promulgated SET or SEC.
4. terminate by the Board of Directors.

In case the member resigned before completing his or her term, he or she should notify and provide reason to the Company one month in advance. So that, the Board of Directors or the Shareholders shall consider appointing another director who has appropriate qualification to fill in vacancy. And, the Company must notify SET with enclosed resignation letter of the member as well.

In case the members vacate office at the same time, the vacated members shall hold the office until the new members have been appointed.

In case the member vacates office due to other reasons during the term of appointment, the Board of Directors shall appoint new member within 90 days to hold the office only for the remaining term.

Meeting

1. The Audit Committee shall hold meetings at least 5 times a year.
2. In calling the meetings, the Chairman of Audit Committee or Secretary of the Audit Committee who is instructed by the Chairman shall send invitation letter to all members 7 days in advance. Except in an emergency case, the invitation letter may be notified by other procedures or the timing may be less than 7 days.

Quorum

1. At least one – half of the members must present in the meeting to form a quorum. In case of the Chairman of Audit committee is absent or cannot perform his or her duties, the attending members shall elect one member to be seated as chairman of the meeting.
2. Consent in the meeting shall be made by majority vote.
3. Each member shall have one vote. Member who has conflict of interest shall be prohibited from voting on such matter. In case there is a tie vote, the Chairman can vote in the affirmative to adopt the motion.
4. Consent of the Audit Committee can be made without the meeting and shall have complete process as conducted the meeting when the consent was ratified by signatories of all members.

Remuneration

The President & CEO through the Nomination & Remuneration Committee proposed the remuneration of Audit Committee to the Board of Directors for approval as deems appropriate.

Management Responsibilities

The manager or department and executive shall be responsible for document preparing, data gathering, activity monitoring, and reporting matters to the Audit Committee.

Nomination & Remuneration Committee

The President & CEO is responsible to appoint Nomination and Remuneration Committee and report the Board of Directors for acknowledgement. The Board of Directors has resolved the appointment of Nomination & Remuneration Committee since November 12, 2010. As at December 31, 2018 the Nomination & Remuneration Committee consists of 3 persons as follows;

Name	Position
1. Dr. Ryuzo Nagaoka	Chairman of Nomination and Remuneration Committee
2. Mr. Gumthorn Utarnwuthipong	Nomination and Remuneration Committee Member
3. Mr. Tiwa Jaruke	Nomination and Remuneration Committee Member

Ms. Kantika Tanthuvanit served as secretary of Nomination & Remuneration Committee.

Roles and Responsibilities of Nomination & Remuneration Committee

Authority and Responsibility of Nomination Committee

1. To recommend the structure and composition of the Board of Directors together with the qualification of Independent Director, Audit Committee and Corporate Governance Committee.
2. To recommend the list of qualified persons to the Board of Directors for consideration and propose to the shareholders for approval in case of vacancies by rotation and other causes.
3. To encourage the Company to allow shareholders to propose agenda items and to nominate candidates with qualifications required by Securities and Exchange Commission (SEC) to be elected as director at least three months ahead of the shareholders' meeting.
4. To recommend the development program for the Board of Directors, Sub-Committee and Executives with a substantial understanding on fiduciary duties and good governance practices.
5. Determine the criteria to evaluate the performance and annually conduct Self-Assessment of the Board of Directors,

Sub-Committee on an individual basis and as a whole and the President & CEO and report the result to the Board of Directors.

6. Other assignments relating to nominating for directors and executives as deemed appropriate by the President & CEO or the Board of Directors.

Authority and Responsibility of Remuneration Committee

1. Review and propose structure of remuneration for Directors and Executives, e.g. bonus or other kinds of remuneration of monetary or non-monetary nature.
2. To consider the Remuneration of the Directors and Executives that should take into the fact of suitable type, size, and performance of the Company in consistency with the general market norm and the same industry, both in and out SET for further submission to the Board of Directors' meeting and/or the Shareholders' meeting for approval.
3. Disclose the remuneration policy and the various types of remunerations in the Annual Report of the Company.
4. Report on progress and results of its work to the Board of Directors after every meeting of the Nomination and Remuneration Committee.
5. Review and propose for further submission to the Board of Directors any changes in the regulations concerning the Nomination and Remuneration Committee that would make its work more appropriate and up to date.
6. Other assignments relating to remunerating for directors and executives as deemed appropriate by the President & CEO or the Board of Directors.

Committee and Qualification

1. Being a Company Director.
2. The Nomination and Remuneration Committee shall be appointed by President & CEO and consist of at least 3 members.
3. The Nomination and Remuneration Committee shall have independent directors as a majority members of the committee.
4. The Nomination and Remuneration Committee shall elect one independent director to be the Chairman.
5. For the Independent Director who chairs the Nomination and Remuneration Committee possessing all qualifications of Independent Director as per the Notification of Capital Market Supervisory Board.

Term of the Appointment

A member of the Nomination and Remuneration Committee shall be appointed for a term of three (3) years ended at 31st December. A member who vacates his office at the end of the term may be re-elected no more than 2 times consecutively unless the President & CEO or Board of Directors shall have other opinions.

Apart from vacating office at the end of the term, a member shall vacate office upon:

1. death
2. resignation
3. disqualify under this charter or rules and regulations promulgated The Stock Exchange of Thailand (SET).
4. terminate by the President & CEO or Board of Directors.

In case the member resigned before completing his or her term, he or she should notify and provide reason to the Company one month in advance. So that, the President & CEO shall consider appointing another director who has appropriate qualification to fill in vacancy and to be reported to the Board of Directors.

In case all members vacate office at the same time, the vacated members shall hold the office until the new members have been appointed.

In case the member vacates office due to other reasons during the term of appointment, the President & CEO shall appoint new member within 90 days to fill in the vacancy and to complete requirement of Nomination and Remuneration Committee. The new member shall hold the office only for the remaining term.

Meeting

1. The Nomination and Remuneration Committee shall hold meetings at least 2 times a year.
2. In calling the meetings, the Chairman of Nomination and Remuneration Committee or Secretary of the Nomination and Remuneration Committee who is instructed by the Chairman shall send invitation letter to all members 7 days in advance. Except in an emergency case, the invitation letter may be notified by other procedures or the timing may be less than 7 days.

Quorum

1. At least one – half of the members must present in the meeting to form a quorum. In case of the Chairman of Nomination and Remuneration Committee is absent or cannot perform his or her duties, the attending members shall elect one member to be seated as chairman of the meeting.
2. Consent in the meeting shall be made by majority vote.
3. Each member shall have one vote. Member who has conflict of interest shall be prohibited from voting on such matter. In case there is a tie vote, the Chairman can vote in the affirmative to adopt the motion.
4. Consent of the Nomination and Remuneration Committee can be made without the meeting and shall have complete process as conducted the meeting when the consent was ratified by signatories of all members.

Remuneration

The President & CEO through the Nomination & Remuneration Committee proposed the remuneration of Nomination & Remuneration Committee and reports to the Board of Directors for acknowledgement.

Management Responsibilities

The Board of Management shall be responsible for document preparing, data gathering, activity monitoring, and reporting matters to the Nomination and Remuneration Committee.

Risk Management Committee

The President & CEO is responsible to appoint Risk Management Committee and reports the Board of Directors for acknowledgement. The Board of Directors has resolved the appointment of the Risk Management Committee since November 12, 2010. As at December 31, 2018 the Risk Management Committee consists of 5 persons as follows;

Name	Position
1. Mr. Gumthorn Utarnwuthipong	Chairman of Risk Management Committee
2. Mr. Saneh Poorisat	Risk Management Committee Member
3. Ms. Suratana Trinratana	Risk Management Committee Member
4. Mr. Wanchai Ratinthorn	Risk Management Committee Member
5. Ms. Kantika Tanthuvanit	Risk Management Committee Member

Mr. Nuttapol Sinkajohn served as secretary of Risk Management Committee

Remarks : Risk Management Committee has appointed Ms. Kantika Tanthuvanit, Senior Vice President General Administration & Finance, as Risk Management Committee Member instead of Mr. Gobchai Tanasugarn who resigned in August 2018. The resolution will be effective on 1st January 2019 onwards.

Roles and Responsibilities of Risk Management Committee

1. To determine specific business direction and to define, analyze and examine significant risk factors including the determination of those strategic risk management.
2. To determine the standard of risk management in order to be the guidelines of each responsible task.
3. To supervise and ensure that the measurements are widely communicated and the staff has implemented as prescribed in the measurement.
4. To systematically and continuously evaluate and analyze the damage that may occur in order to ensure that the risk survey is covered all business process.
5. To support and develop risk management to be continuously implemented in whole organization and to be applicable to the international standard.

Committee and Qualification

The President & CEO shall appoint the Risk Management Committee by selection from a number of committee and executives and/or specialists. There shall be a selection of chairman of risk management committee from the selected committee.

Term of the Appointment

The term of position of Risk Management Committee shall be comply three (3) years and ended at 31st December of the completed year. The Risk Management Committee who complete their term can be re-elected only 2 consecutive term unless the President & CEO or Board of Directors shall have any other resolution.

Apart from vacating office at the end of the term, a member shall vacate office upon:

1. death
2. resignation
3. disqualify under this charter or rules and regulations promulgated SET or SEC.
4. terminate by the President & CEO or Board of Directors.

In case the member resigned before completing his or her term, he or she should notify and provide reason to the Company one month in advance. So, that the President & CEO shall consider appointing another director who has appropriate qualification to fill in vacancy and to be reported to the Board of Directors.

In case the members vacate office at the same time, the vacated members shall hold the office until the new members have been appointed.

In case the member vacates office due to other reasons during the term of appointment, the President & CEO shall appoint new member within 90 days to hold the office only for the remaining term.

Meeting

1. The Risk Management Committee has to hold the meetings at least four (4) times a year as necessary and appropriate manner.
2. In calling the meetings, the Secretary of the Risk Management Committee who is instructed by the Chairman shall send invitation letter to all members 7 days in advance. Except in an emergency case, the invitation letter may be notified by other procedures or the timing may be less than 7 days.

Quorum

1. At least one – half of the members must present in the meeting to form a quorum. In case of the Chairman of Risk Management Committee is absent or cannot perform his or her duties, the attending members shall elect one member to be seated as Chairman of the meeting.
2. Consent in the meeting shall be made by majority vote.
3. Each member shall have one vote. Member who has conflict of interest shall be prohibited from voting on such matter. In case there is a tie vote, the Chairman can vote in the affirmative to adopt the motion.
4. Consent of the Risk Management Committee can be made without the meeting and shall have complete process as conducted the meeting when the consent was ratified by signatories of all members.

Remuneration

The President & CEO through the Nomination & Remuneration Committee proposed the remuneration of Risk Management Committee and reports to the Board of Directors for acknowledgement.

Responsibility Unit

The chief of unit or unit and executive shall be responsible for document preparing, data gathering, activity monitoring, and report matters to Risk Management Committee.

Corporate Governance Committee

The President & CEO through the Nomination & Remuneration Committee proposed the qualified persons for being the Corporate Governance Committee to the Board of Directors for approval since November 14, 2014. As at December 31, 2018, the Corporate Governance Committee consists of 7 persons as follows;

Name	Position
1. Mr. Gumthorn Utarnwuthipong	Chairman of Corporate Governance Committee
2. Mr. Tiwa Jaruke	Corporate Governance Committee Member
3. Ms. Kantika Tanthuvanit	Corporate Governance Committee Member
4. Mr. Chamnarn Atsanatam	Corporate Governance Committee Member
5. Ms. Jaruwan Sookthauyart	Corporate Governance Committee Member
6. Ms. Saowaluck Ngamdutsadee-Apirom	Corporate Governance Committee Member
7. Mr. Nuttapol Sinkajohn	Corporate Governance Committee Member

Ms. Mallika Charoensap served as secretary of Corporate Governance Committee

Roles and Responsibilities of Corporate Governance Committee

1. Governing and monitoring business operation of the committees' operation to strictly comply with law and related regulations.
2. Ensure that good corporate governance is being conducted at all level in accordance to legal requirements & Company's policies.
3. Provide suggestions relevant to ethical practices to the Board, management and employees.
4. Provide recommendations for improvement on the Corporate Governance of the Company.
5. To review, revise and improve corporate governance policy continually at least once a year to keep the Company's corporate governance policy up-to-date and well adjusted to the international standards, laws, criteria, rules and regulations as well as recommendations from internal units that involve the corporate governance.
6. To conduct self evaluation for sufficiency of Anti-corruption practices as it is one of the Anti-corruption progress indicators of Thailand Private Sector Collective Action Coalition Against Corruption.
7. Reporting its performances to the Board of Directors and provide annual report to shareholders in the Annual Report.

Committee and Qualification

1. Being a Company Director or Management.
2. The Corporate Governance Committee shall be appointed by the Board of Directors and consist of Director and Management total seven (7) persons.
3. The Corporate Governance Committee shall consist of one member who must be Independent Director.
4. For the Independent Director who chairs the Corporate Governance Committee must be experienced and fully qualified as per the specifications of the Capital Market Supervisory Board.

Term of the Appointment

A member of the Corporate Governance Committee shall be appointed for a term of three (3) years ended at 31st December.

A member who vacates his office at the end of the term may be re-elected no more than 2 times consecutively unless the President & CEO or Board of Directors shall have other opinions.

Apart from vacating office at the end of the term, a member shall vacate office upon:

1. death
2. resignation
3. disqualify under this charter or rules and regulations promulgated SEC or SET.
4. terminate by the President & CEO or Board of Directors.

In case the member resigned before completing his or her term, he or she should notify and provide reason to the Company one month in advance. So that, the President & CEO shall consider appointing another director who has appropriate qualification to fill in vacancy and to be reported to the Board of Directors.

In case the members vacate office at the same time, the vacated members shall hold the office until the new members have been appointed.

In case the member vacates office due to other reasons during the term of appointment, the President & CEO shall appoint new member within 90 days to hold the office only for the remaining term.

Meeting

1. The Corporate Governance Committee shall hold meetings at least 2 times a year.
2. In calling the meetings, the Chairman of Corporate Governance Committee or Secretary of the Corporate Governance Committee who is instructed by the Chairman shall send invitation letter to all members 7 days in advance. Except in an emergency case, the invitation letter may be notified by other procedures or the timing may be less than 7 days.

Quorum

1. At least one - half of the members must present in the meeting to form a quorum. In case of the Chairman of Corporate Governance committee is absent or cannot perform his or her duties, the attending members shall elect one member to be seated as chairman of the meeting.
2. Consent in the meeting shall be made by majority vote.
3. Each member shall have one vote. Member who has conflict of interest shall be prohibited from voting on such matter. In case there is a tie vote, the Chairman can vote in the affirmative to adopt the motion.
4. Consent of the Corporate Governance Committee can be made without the meeting and shall have complete process as conducted the meeting when the consent was ratified by signatories of all members.

Remuneration

The President & CEO through the Nomination & Remuneration Committee proposed the remuneration of the Corporate Governance Committee to the Board of Directors for approval as deems appropriate.

Management Responsibilities

The manager or department and executive shall be responsible for document preparing, data gathering, activity monitoring, and reporting matters to the Corporate Governance Committee.

Company Secretary

The Board of Directors has appointed Ms. Kantika Tanthuvanit as the Company Secretary, whose duties and responsibilities are as stipulated in the Securities and Exchange Act (No. 4), B.E. 2551, an amendment of the Securities and Exchange Act B.K. 2535. The Company Secretary is responsible for organizing meetings for the Board of Directors and shareholders, ensuring compliance with the meetings' resolutions, and advising the Board on rules and regulations to which it must comply. Additionally, the Company Secretary is responsible for preparing

and keeping the register of directors, Board meeting invitation letters, Board meeting minutes, Annual Report, invitation letters to attend the shareholders' meeting and records of its minutes, the report on conflict of interests of directors or executive officers and other duties as required by the Capital Market Supervisory Board.

Ms. Kantika Tanthuvanit was graduated in Postgraduate, Business Administration Faculty, Center for Marketing and Management Studies, London, United Kingdom and Bachelor's Degree, Business Administration Faculty, Chiangmai University. Ms. Kantika Tanthuvanit was trained in Company Secretary Program (CSP) and related program from Thai Institute of Directors (IOD) by serving as Company Secretary since 2008 to the present.

Definition of Independent Directors

The Company defines the Company's independent director which is in line with the minimum requirements of the SEC or the SET in respect of shareholding in the Company, namely, the Company's independent directors shall hold not more than 1 percent of the total number of shares with voting rights.

Nature of Relationship of Independent Directors

1. Holding shares of not exceeding one percent of the number of voting shares of the Company, its parent company, subsidiaries, associated companies or legal entities which may have conflict of interest, including shares held by related persons.
2. Having no involvement in the management, and not being employee, staff, advisor receiving regular salary or controller of the Company, its parent company, subsidiaries, associated companies, subsidiaries at the same level or legal entities which may have conflict of interest at present and during the past two years prior to appointment.
3. Having neither relationship by blood or by legal registration in the capacity as parent, spouse, sibling and offspring, including spouse of the offspring, with any executive, major shareholder, controller or person to be nominated as executive or controller of the Company or its subsidiaries.
4. Having neither business relationship with the Company, its parent company, subsidiaries, associated companies, or legal entities which may have conflict of interest at present and during the past two years prior to appointment in the following manners:
   (1) Provision of professional services, i.e. auditor, other professional service provider receiving fee more than Baht 2 Million per year, such as, legal advisor, financial advisor, property appraiser, etc.
   (2) Trading/business with a transaction value of Baht 20 Million or more or at least 3 percent of the Company's net tangible asset value, whichever is lower, and in considering the transaction value, and transactions executed during the past six months prior to the date of this transaction execution shall be included.
5. Not being appointed as representative of the Company's director, major shareholder or shareholder who is a related person of the Company's major shareholder.
6. Not having any other characteristics preventing provision of independent opinions.

Board Meeting Attendance

For the year 2018, the directors attended the meetings are as follow :

Name	Position	Meeting in the year 2018						
		Board of Director	Board of Management	Audit Committee	Risk Management Committee	Nomination & Remuneration Committee	Corporate Governance Committee	Shareholders Meeting
		Total 12 times	Total 26 times	Total 9 times	Total 4 times	Total 4 times	Total 4 times	Total 1 time
1. Mr. Hironobu Iriya	Chairman of Board of Director President & CEO	12/12	26/26	-	-	-	-	1/1
2. Mr. Piriya Wongphayabal The period of being Director for the year 2018 (1 Jan 18 - 11 Oct 18.)	Vice Chairman of Board of Directors	7/9	-	-	-	-	-	0/1
3. Mr. Tiwa Jaruke	Vice Chairman of Board of Directors Board of Management Nomination & Remuneration Committee Corporate Governance Committee	11/12	25/26	-	-	3/4	4/4	1/1
4. Ms. Kantika Tanthuvanit	Director Board of Management Corporate Governance Committee	12/12	26/26	-	-	-	4/4	1/1
5. Mrs. Nijaporn Charanachitta	Director	11/12	-	-	-	-	-	1/1
6. Mr. Makoto Fusayama The period of being Director for the year 2018 (1 Jan 18 – 28 Feb 18.)	Director	1/1	-	-	-	-	-	-
7. Dr. Seiichi Itakura The period of being Director for the year 2018 (1 Mar 18 – 31 Dec 18.)	Director	10/11	-	-	-	-	-	1/1
8. Mr. Kenichi Omine The period of being Director for the year 2018 (12 Oct 18 – 31 Dec 18.)	Director	3/3	-	-	-	-	-	-
9. Mr. Sivaraks Pinicharomna	Independent Director Chairman of Audit Committee	11/12	-	9/9	-	-	-	1/1
10. Mr. Gumthorn Utarnwuthipong	Independent Director Audit Committee Chairman of Risk Management Committee Nomination & Remuneration Committee Chairman of Corporate Governance Committee	12/12	-	9/9	4/4	4/4	4/4	1/1
11. Dr. Ryuzo Nagaoka	Independent Director Audit Committee Chairman of Nomination & Remuneration Committee	11/12	-	9/9	-	4/4	-	1/1

Shareholders and Number of Shares

20 Major shareholders as of December 28th, 2018

Name of Major Shareholders	Holding as of December 28th, 2018	
	Number of shares	% of shares
1. SOJITZ CORPORATION	56,000,000	9.09
2. MR. SAKCHAI SAKCHAICHAROENKUL	39,886,000	6.48
3. GLOBAL BUSINESS MANAGEMENT CO., LTD.	38,634,900	6.27
4. MR. HIRONOBU IRIYA	34,161,134	5.55
5. THAI NVDR COMPANY LIMITED	30,527,040	4.96
6. MS. SURATANA TRINRATANA	15,835,948	2.57
7. MR. JIARANAI LERTRATCHKUL	14,992,000	2.43
8. MS. KANTIKA TANTHUVANIT	9,458,041	1.54
9. KRUNGSRI THAI ALL STARS EQUITY FUND	7,731,100	1.26
10. KRUNGSRI FINANCIAL FOCUS DIVIDEND FUND	7,075,600	1.15
11. MR. TIWA JARUKE	6,924,300	1.12
12. KRUNGSRI THAI ALL STARS DIVIDEND LTF	6,807,900	1.11
13. KRUNGSRI ACTIVE SET 50 DIVIDEND LTF	6,710,600	1.09
14. KRUNGSRI DYNAMIC FUND	6,587,429	1.07
15. MR. THANARAT RAKARIYAPONG	6,157,000	1.00
16. MS. BENJAMAS NUNTAWEERAWAT	5,591,800	0.91
17. KRUNGSRI EQUITY LTF	5,476,795	0.89
18. MR. SUTHEP PATTANASIN	5,470,000	0.89
19. MRS. NIJAPORN CHARANACHITTA	5,297,207	0.86
20. KRUNGSRI STAR EQUITY DIVIDEND FUND	4,700,262	0.76

SECURITIES HOLDING REPORT OF BOARD OF DIRECTORS AND MANAGEMENT AS OF 31 DECEMBER 2018

Name	Position	Number of Shares Holding as of December 2017	Percentage (%)	Number of Shares Holding as of December 2018	Percentage (%)	Number of Shares Change Increase/ (Decrease) During 2018
1. Mr. Hironobu Iriya	Chairman of Board of Directors President & CEO	34,161,134	6.10	34,161,134	5.55	-
Spouse/Immature Children		-	-	-	-	-
Related Juristic Person		-	-	-	-	-
2. Mr. Tiwa Jaruke	Vice Chairman of Board of Directors Senior Vice President Project, Proposal and Engineering Nomination & Remuneration Committee Corporate Governance Committee	6,924,300	1.24	6,924,300	1.12	-
Spouse/Immature Children		1,170,000	0.21	1,170,000	0.19	-
Related Juristic Person		-	-	-	-	-
3. Ms. Kantika Tanthuvanit	Director Senior Vice President General Administration & Finance Corporate Governance Committee Company Secretary	9,458,041	1.69	9,458,041	1.54	-
Spouse/Immature Children		-	-	-	-	-
Related Juristic Person		-	-	-	-	-
4. Mrs. Nijaporn Charanachitta	Director	5,297,207	0.95	5,297,207	0.86	-
Spouse/Immature Children		-	-	-	-	-
Related Juristic Person		-	-	-	-	-
5. Dr. Seiichi Itakura The period of being Director for the year 2018 (1 Mar 18 – 31 Dec 18.)	Director	-	-	110,000 (NVDR)	0.02	-
Spouse/Immature Children		-	-	-	-	-
Related Juristic Person		-	-	-	-	-
6. Mr. Kenichi Omine The period of being Director for the year 2018 (12 Oct 18 – 31 Dec 18.)	Director	-	-	-	-	-
Spouse/Immature Children		-	-	-	-	-
Related Juristic Person		-	-	-	-	-
7. Mr. Sivaraks Pinicharomna	Independent Director Chairman of Audit Committee	104,670	0.02	104,670	0.02	-
Spouse/Immature Children		-	-	-	-	-
Related Juristic Person		-	-	-	-	-
8. Mr. Gumthorn Utarnwuthipong	Independent Director Chairman of Risk Management Committee Chairman of Corporate Governance Committee Audit Committee Nomination & Remuneration Committee	114,700	0.02	114,700	0.02	-
Spouse/Immature Children		-	-	-	-	-
Related Juristic Person		-	-	-	-	-

Securities Holding Report of Board of Directors and Management as of 31 December 2018

Name	Position	Number of Shares Holding as of December 2017	Percentage (%)	Number of Shares Holding as of December 2018	Percentage (%)	Number of Shares Change Increase/ (Decrease) During 2018
9. Dr. Ryuzo Nagaoka	Independent Director Chairman of Nomination & Remuneration Committee Audit Committee	100,000	0.02	100,000	0.02	-
Spouse/Immature Children		-	-	-	-	-
Related Juristic Person		-	-	-	-	-
10. Ms. Suratana Trinratana	Senior Vice President General Consultation of Myanmar Development Task Risk Management Committee	15,835,948	2.83	15,835,948	2.57	-
Spouse/Immature Children		-	-	-	-	-
Related Juristic Person		-	-	-	-	-
11. Mr. Wanchai Ratinthorn	Corporate Control Officer (CCO) Risk Management Committee	4,300,000	0.77	4,300,000	0.70	-
Spouse/Immature Children		-	-	-	-	-
Related Juristic Person		-	-	-	-	-
12. Mr. Hideto Koyama	Corporate Planning Officer (CPO)	4,337,360	0.77	4,337,360	0.70	-
Spouse/Immature Children		-	-	-	-	-
Related Juristic Person		-	-	-	-	-
13. Ms. Saowaluck Ngamdutsadee-apirom	Deputy General Manager Finance and Accounting Division	-	-	6,500	0.001	-
Spouse/Immature Children		-	-	10,000	0.002	-
Related Juristic Person		-	-	-	-	-
14. Mr. Paibun Sribanphai	Specialist (A) Finance and Accounting Division	100,000	0.02	100,000	0.02	-
Spouse/Immature Children		-	-	-	-	-
Related Juristic Person		-	-	-	-	-

Remarks : 2017 Registered Paid-up Capital 560,000,000 Baht.
2018 Registered Paid-up Capital 616,000,000 Baht.

Remuneration of Board of Directors/ Sub-Committee/Managements

Remuneration in Cash for the year ended 31 December 2018

The remuneration of the Board of Directors in forms of annual remuneration amounted to THB 6,816,667

Director's Name List	Position	Board of Directors	Directors' Remuneration in Board of Management and Sub-Committee					Total Remuneration (THB)
			Board of Management	Audit Committee	Nomination & Remuneration Committee	Risk Management Committee	CG Committee	
1. Mr. Hironobu Iriya *	Chairman of Board of Directors / President & CEO	600,000.00	700,000.00	-	-	-	-	1,300,000.00*
2. Mr. Piriya Wongphayabal The period of being Director for the year 2018 (1 Jan 18 - 11 Oct 18.)	Vice Chairman of Board of Directors	389,785.00	-	-	-	-	-	389,785.00
3. Mr. Tiwa Jaruke *	Vice Chairman of Board of Directors / Member of Board of Management / Member of Nomination & Remuneration Committee/ Member of CG Committee	500,000.00	600,000.00	-	-	-	-	1,100,000.00*
4. Ms. Kantika Tanthuvanit *	Director / Member of Board of Management / Member of CG Committee	500,000.00	600,000.00	-	-	-	-	1,100,000.00*
5. Mrs. Nijaporn Charanachitta	Director	500,000.00	-	-	-	-	-	500,000.00
6. Mr. Makoto Fusayama The period of being Director for the year 2018 (1 Jan 18 – 28 Feb 18.)	Director	-	-	-	-	-	-	-
7. Dr. Seiichi Itakura The period of being Director for the year 2018 (1 Mar 18 – 31 Dec 18.)	Director	416,667.00	-	-	-	-	-	416,667.00
8. Mr. Kenichi Omine The period of being Director for the year 2018 (12 Oct 18 – 31 Dec 18.)	Director	110,215.00	-	-	-	-	-	110,215.00
9. Mr. Sivaraks Pinicharomna	Independent Director Chairman of Audit Committee	500,000.00	-	200,000.00	-	-	-	700,000.00
10. Mr. Gumthorn Utarnwuthipong	Independent Director / Member of Audit Committee / Member of Nomination & Remuneration Committee / Chairman of Risk Management Committee / Chairman of CG Committee	500,000.00	-	100,000.00	-	-	-	600,000.00
11. Dr. Ryuzo Nagaoka	Independent Director / Member of Audit Committee / Chairman of Nomination & Remuneration Committee	500,000.00	-	100,000.00	-	-	-	600,000.00
Total Remuneration of year 2018		**4,516,667.00**	**1,900,000.00**	**400,000.00**	**-**	**-**	**-**	**6,816,667.00**
Remuneration for Non-Executive Directors and Sub-Committee paid in 2018		**2,916,667.00**	**-**	**400,000.00**	**-**	**-**	**-**	**3,316,667.00**
Remuneration for Executive Directors and Board of Management are unpaid in 2018		**1,600,000.00**	**1,900,000.00**	**-**	**-**	**-**	**-**	**3,500,000.00***

Remarks :
- In the year 2018 the company paid only fixed remuneration to directors per annual and it conforms to the policies.
- The remuneration has been considered by Nomination & Remuneration Committee taken into account of the facts of suitable type, size and performance of the Board of Directors in the same industry with their duties and responsibilities referring to Thai Directors Compensation Survey 2016 from Thai Institute of Director (IOD). It has been approved by Board of Directors and passed the resolution of Shareholders Meeting respectively.
- The remuneration for Executive Directors and Board of Management amounting 3,500,000.00 Baht will be paid in 2019.
- Furthermore, the Company has paid for the training course of IOD including others related organization.

Details of cash remuneration of Company's executives in forms of salary, bonus and benefit after retirement as follows :

Remuneration	Year 2018		Year 2017	
	Number of Executives	Amount (Baht)	Number of Executives	Amount (Baht)
Salary	8	36,543,000.00	9	39,553,867.00
Bonus	8	-	9	3,401,500.00
Benefit after retirement	8	1,497,768.00	9	1,741,912.00
Total		**38,040,768.00**		**44,697,279.00**

Other Remunerations for the year ended 31 December 2017

Remuneration	Year 2018		Year 2017	
	Number of Executives	Amount (Baht)	Number of Executives	Amount (Baht)
Contribution to Provident Fund	8	1,562,546.00	9	2,180,742.00
Total		**1,562,546.00**		**2,180,742.00**

Remarks : - "Executives" means the first four level executives including the executive who related to finance & accounting

- Year 2017 There were nine (9) executives, namely, Mr. Hironobu Iriya, Mr. Tiwa Jaruke, Ms. Kantika Tanthuvanit, Mr. Saneh Poorisat, Ms. Suratana Trinratana, Mr. Gobchai Tanasugarn, Mr. Jittapon Sittisak, Mr. Paibun Sribanphai and Ms. Nisachol Rittayamai

- Year 2018 (at 31 Dec. 2018) There were eight (8) executives, namely, Mr. Hironobu Iriya, Mr. Tiwa Jaruke, Ms. Kantika Tanthuvanit, Ms. Suratana Trinratana Mr. Wanchai Ratinthorn, Mr. Hideto Koyama, Mr. Paibun Sribanpai and Ms. Saowaluck Ngamdutsadee-apirom

Achievements in 2018

January

- The Company together with Samsung Engineering (Thailand) Company Limited and Samsung Engineering Company Limited (South Korea) signed EPC contract for the construction of Olefins Reconfiguration Plant in Map Ta Phut industrial estate, Rayong with PTT Global Chemical Public Company Limited.
- The Company signed the Notice to Proceed (NTP) with the Ministry of Electricity and Energy of the Republic of the Union of Myanmar for the Ahlone Power Plant's Expansion Project. The total investment cost is approximately USD 350 million.

May

- TTCL Vietnam Corporation Limited ("TVC"), a subsidiary of TTCL, signed EPC contract for the construction of Oil & Gas Terminal in Thilawa industrial estate in the Republic of the Union of Myanmar with Denko Petrochemical Management Co., Ltd. with the project value approximately USD 45 million.
- The Company has been awarded for 2 new petrochemical plant construction projects with the totaling project value amount THB 1,300 million.

June

- The Company signed a contract for the construction of Petrochemical Plant in Map Ta Phut industrial estate, Rayong with Map Ta Phut Olefins Co., Ltd. with the project value approximately USD 140-150 million, in which the Company was responsible for the procurement of equipment and machinery and construction.
- The Company signed EPC contract for the construction of Package D (LLDPE Plant) of Long Son Petrochemicals Project in Vietnam with Long Son Petrochemicals Co., Ltd. with the project value approximately USD 200 - 220 million, in which the Company was responsible for the engineering design, procurement of equipment and machinery and construction.

August

- TTCL Vietnam Corporation Limited ("TVC"), a subsidiary of TTCL, signed EPC contract for the construction of Solar Power Plant in Vietnam with Duc Thanh - Mui Ne Joint Stock Company with the project value approximately USD 30 million, in which the Company was responsible for the engineering design, procurement of equipment and machinery and construction.

September

- The Company signed a contract for optimization design of the Refinery and Petrochemical Complex with TIMOR GAP, E.P. with the project value approximately USD 1.5 million, in which the Company was responsible for the engineering design.

November

- The company signed EPC contract for Electrical and Instrument Works for Jetty 7&8 Package 2 project with Thai Oil Public Company Limited with the project value approximately THB 500-550 million, in which the Company was responsible for the engineering design, procurement of equipment and machinery and construction.

Marketing & Competition

1. Competitive Strategies

The Company has established a competitive strategy and business operation policy to strengthen its competitiveness for sustainable long term growth as follows:

Strengthening the Company's status as a Regional EPC Contractor and increasing its overseas market share

Contractor's reliability is a key factor because customers will generally select contractor based on past experiences and performances, as the investment in each project requires substantial funds. Therefore, an Integrated EPC Provider must ensure the delivery of quality work on time to fortify customers' confidence in the contractors' ability to meet required schedule and price.

In addition, TTCL has expanded its operations to other countries to capture high potential markets in the regional level. Such a strategy will not only increase the customer base for the Company, but also reduce the risk of relying solely on construction projects in the domestic market. To support such a strategy, the Company has established subsidiaries in key target countries such as Vietnam, Malaysia and the Republic of the Union of Myanmar.

The transitioning of the Company from a small EPC contractor to a Regional EPC Contractor enhances the Company's customer base and provides alternatives for taking on more diverse construction projects. Additionally, this move will offer the Company advantages in terms of operating costs, benefiting from economy of scale.

Moreover, the company and Sojitz Corporation ("Sojitz) are business alliance to joint consortium for bidding in EPC project in countries where Sojitz has abundant EPC experience and business know-how e.g. Russia and NIS Countries (Newly Independent State).

Satisfactory proven track record

The Company exercises strategy to maintain long term relationships with clients by providing high quality of work, standard engineering services and continual after sales services that satisfy the clients' requirements. The Company has succeeded in this strategy, visible from trust and reliance given by recurring clients, for example, PTT Group, SCG Chemicals Group, Bayer Thai Co., Ltd., AGC Chemical (Thailand) Co., Ltd. (former name: THASCO Chemical Co., Ltd.), Thai Central Chemical Public Company Limited, Bayer Polyurethane (Shanghai) Co., Ltd. (China), Shin-Etsu Engineering Co., Ltd. (Japan) and Solvay SA (Belgium).

Relationship with manufacturers, suppliers of equipment and materials and subcontractors

The Company has maintained a long term sustainable relationship with the manufacturers, suppliers of equipment and construction materials as well as qualified, expert and responsible subcontractors in order for the Company to perform and deliver quality work to clients within the stipulated time schedule. Maintaining fine relationships with these service providers will help the Company to sustain its ability to compete with others and mitigate risks that may arise from being unable to procure equipment and material and skilled subcontractors for new projects in the future.

Utilizing advanced technology to perform engineering design.

Since the construction of petrochemical, petroleum and power plants require very complex designs, the Company therefore, brings forward advanced technology using 3D design programs such as the Plant Design System (PDS) and PDMS (Plant Design Management System) which help create accurate designs, minimizes errors, and able to examine the simulation of a real plant model design in 3D. Moreover, these programs also aid the customers' employees in conducting proper plant operation and maintenance safely.

Safety in the execution of operations

Safety is considered an important policy of the Company towards the employees and the subcontractors. The Company deems that any accident occur will be a loss, impacting the cost and increasing time spent, not to mention the impact on the morale of the related parties. Therefore, the Company has complied with the OHSAS 18001: 2007 standard to ensure the safety in every function and is proud to be certified with ISO 9001:2015, ISO 14001: 2015 and TIS 18001: 2011 by Intertek Industry and Certification Services (Thailand) Limited. In each project, the Company has arranged the accident protection equipment for the employees. Moreover, the Company has analyzed any possible accidents that might occur in every aspect in order to design the protection of loss and to contain the wide spread to nearby vicinity. In addition, the Company has a good safety track record recognized by clients, evident by various certificates received throughout more than 30 years of the business operation.

Ability to meet customers' needs and requirements

The Company's customers can be divided into 3 main industries; petrochemical and chemical industries, power industry and other industries.

The Company has flexibility to accept projects, i.e. in addition to being a fully integrated engineering design, procurement of machinery and equipment and construction, the Company can undertake projects that require management in the fields of engineering, services and construction project (EPCm), as for some cases project owners only wish to receive the management service alone, which the Company takes into account the maximum needs and satisfaction of the project owner.

2. Petroleum and Petrochemical Industries Outlooks

From the Office of the National Economic and Social Development Board Report in 19 November 2018, the world economy in 2019 is expected to grow by 3.8 percent, decelerating from a 4.0 percent growth rate in 2018. This growth is led by the decelerating economic expansion in the US, China, and the EU. In case of no additional US's trade protectionist measures and China's countermeasures, the US economy is expected to expand by 2.6 percent in 2019, decelerating from 2.8 percent in 2018. The slowdown in the US economy is due to the downturn of US economic cycle after the economic growth was above the full-employment rate, the impacts of trade measures, and the changes in monetary policy directions. Regarding the prospect of the Chinese economy, it is expected to grow by 6.3 percent, decelerated from 6.6 percent, following the implementation of economic restructuring policy and the impacts of trade protection measures, resulting in a slowdown of exports, production, and investment.

In part of the average Dubai crude oil price in 2019 is expected to be in the range of 70.0 – 80.0 US dollar per barrel, a gradual rise from 70.5 US dollar per barrel in 2018. Supporting factors for the higher oil price are: (i) increasing oil demand as a result of a favorable global economic expansion; (ii) expectations, regarding OPEC's upcoming meeting in 6 December 2018, that it will cut oil production by 1.4 million barrels per day; (iii) the expiration of the waiver for 8 countries importing Iranian oil (Under the US sanction against Iran) on May 2019, which will lead to the reduction of Iran crude oil supply; and (iv) the reduction of crude oil supply from the economic and political difficulties in Venezuela.

Key Assumptions for Economic Forecast 2018 – 2019				
	Actual		Forecasted as of Nov. 2018	
	2016	2017	2018	2019
World Economic Growth (%)	3.5	4.1	4.0	3.8
USA	1.6	2.2	2.8	2.6
EU	1.9	2.5	2.0	1.9
Japan	1.0	1.7	0.8	0.9
China	6.7	6.9	6.6	6.3
World Trade Volume Growth (%)	2.2	5.1	4.0	3.8
Exchange Rate	35.29	33.93	32.3	32.5 -33.5
Crude Oil (USD/Barrel)	41.4	53.0	70.5	70.0 – 80.0
Export (%)	-0.4	3.6	3.7	1.0 - 2.0
Import (%)	-2.7	5.5	6.0	1.5 – 2.5
Tourism (Trillion THB)	1.72	1.93	2.05	2.24

Source: The Office of the National Economic and Social Development Board, 19 November 2018

From the above report, the directions of oil prices are in the uptrend which will be benefit to the company. As showing the tendency of petrochemical investment projects are more increase.

3. Status of Competition

As previously mentioned the Company is currently in transition into a Regional EPC contractor and undertaking larger size projects in overseas market. Therefore, business environment and competition have significantly changed over the course. The global economy is still in a recovery stage and, therefore, the intensity of competition remains high.

Nevertheless, the Company found that project owners continue to value the quality of work, as well as the reliability and capability of EPC contractors as the most important factor. In addition, the Company's major competitors are large international EPC contractors in which the Company has been familiar with. This in turn has allowed the Company to continue to be at advantages in many aspects, including the emphasis of doing business in ASEAN countries; The Company and its subsidiaries have high experience and expertise in the area or better yet, a strong business network.

Sales Structure

Sale Structure of the company and its subsidiaries of each industry in 2016 - 2018 are as follows:-

Unit: Million Baht

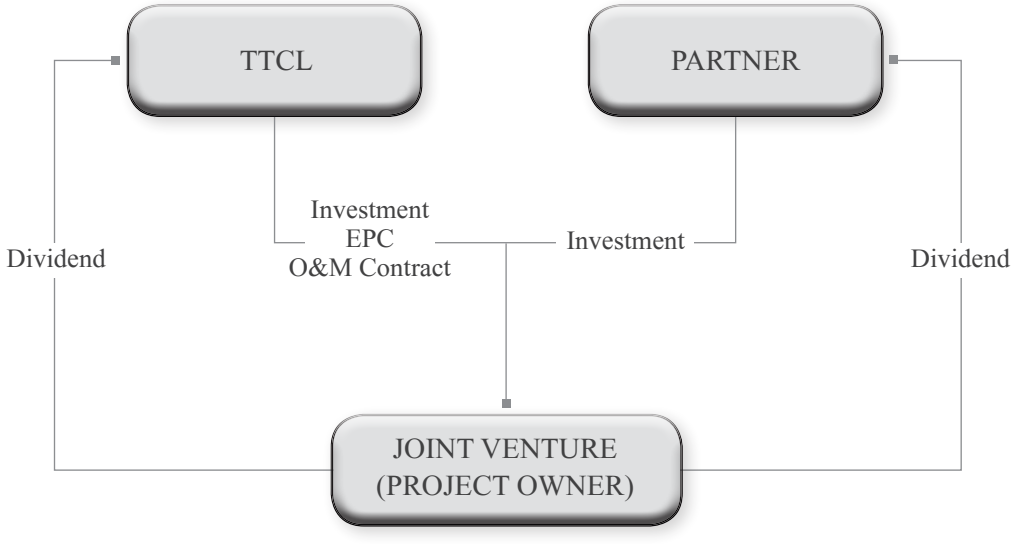
Industry	Operated by	2016		2017		2018	
		Amount	%	Amount	%	Amount	%
Petrochemical	TTCL Plc.	7,217.64	36.04	5,005.71	47.91	4,230.66	50.80
	TTCL Vietnam Corporation Limited	538.03	2.69	253.27	2.42	1,601.06	19.23
	TTCL Malaysia Sdn. Bhd.	3,902.31	19.49	3,279.07	31.39	1,017.68	12.22
Total Revenue from Petrochemical Construction		11,657.98	58.22	8,538.05	81.73	6,849.40	82.25
Power	TTCL Plc.	3,095.61	15.46	315.30	3.02	309.99	3.72
Total Revenue from Power Construction		3,095.61	15.46	315.30	3.02	309.99	3.72
Other	TTCL. Plc.	4,635.41	23.15	839.60	8.04	194.59	2.34
Total Revenue from Other Construction		4,635.41	23.15	839.60	8.04	194.59	2.34
Electricity Generation	Toyo Thai Power Myanmar Co., Ltd.	635.45	3.17	753.16	7.21	970.18	11.65
	Bio Natural Energy Company Limited	-	-	0.997	0.01	3.728	0.04
Total Revenue from Electricity Generation		635.45	3.17	754.16	7.22	973.91	11.69
Grand Total		**20,024.45**	**100.00**	**10,447.11**	**100.00**	**8,327.89**	**100.00**

New Business Development Plan

New Business Model: The 2-Prong Strategy

Since 2010, TTCL has set the Strategic Business Direction to expand its businesses beyond its core business i.e. Integrated Engineering, Procurement and Construction (EPC) which TTCL has specialized for more than 30 years. Moreover, TTCL is to seek a new opportunities over than EPC business, so that TTCL has stable incomes in the future. In other word, TTCL make parallel joint-investment upon a mutual agreement with the project owner and justify the return on investment. TTCL is on a prompted-stand to seek these opportunities for optimization of its assets, as shown in the diagram below.

Parallel Investment Strategy



Risk Management

TTCL Public Company Limited has realized the importance of risk management as an essential tool to enable the Company to achieve its objectives and goals, adding value to the Company, shareholders and stakeholders. The Board of Directors has stipulated that the continual and effective risk management process shall be implemented to manage risks.

The risk management process has been systematically executed through the Risk Management Working Group under the oversight of Risk Management Committee. Risk Management Working Group continually monitored and assessed main risk categories which are Strategic Risk, Operational Risk, Financial Risk and Compliance Risk. The assessment shall be included reviewed identified risks for any change and identified new risks by considering both internal and external risk factors that may affect the Company's objectives and goals. In addition, risk control measures have been determined by considering current circumstance and company's direction in order to control the risk at acceptable level. Responsible person and monitoring activities are also determined to ensure that risk management processes are efficiently and effectively implemented.

The Company also encourages the adoption of risk management at all levels of the organization. Then *"the project risk management working group"* has been assigned to assess and monitor risk factors of the projects which may affect to project schedule, cost, occupational health and safety of concerned parties, environment, communities, company's reputation and compliance.

For the conclusion of 2018, there are identified risks at high and medium risk level as the following;

1. Risk of revenue from petroleum and petrochemical industrial cycle

Although decelerating in global economic expansion but the investment in petroleum and petrochemical industries are increased according to the recovery of domestic economic. The investment projects for new plant construction or existing plant expansion in petroleum and petrochemical industries, which is one of the company's main customers, are increased. However, the competition intensity in both domestic and oversea market remains high.

The Company has determined the policy and market plan to increase proportion of service in other industries such as chemical, energy or renewable energy industries including investment in potential projects which is not only to reduce the risk from the petroleum and petrochemical cycle but also increase the business opportunities of the Company in the future.

2. Risk of increasing numbers of new competitors

As the Company turned into Regional EPC contractor to undertake large scale projects with high valued in overseas market such as Vietnam, China, U.S.A., Malaysia, Myanmar, Philippines and the Middle East countries. Consequently, Company's business environment and competition have significantly changed along with deceleration in global economic growth. Then, competition intensity in domestic and oversea market is increased.

However, the customers still value on the quality of work, the reliability and capability of EPC contractors as the most important factors. Besides, the Company's experience and ability to meet the bidder's qualification, the Company also has advantages in the emphasis of doing business in ASEAN countries which the Company and subsidiaries have an experience and acquaintance including strong business network. Also, the Company has lower operating cost than other foreign companies.

Moreover, the Company has a business alliance with abundant EPC experience and business know-how in Russia and Newly Independent State Countries to joint consortium for EPC bidding in that country.

3. Risk of political instability

Political instability in foreign country which may affected to project execution, especially for project with high valued and long execution period. However, the Company has regularly monitored political situation of each country and determined appropriate risk treatment to response with the situation timely.

4. Risk from delayed handover of the project to customer

For engineering design, procurement, and construction services business, the contract in general, will specified the project completion and handover date, including responsibility and liquidated damage compensation in case of the company fails to complete and handover the project on time which may occur from various factors, for example, the complexity of project, extreme weather during construction phase or the delay of subcontractors, manufacturers or suppliers of machines, equipment and construction materials.

The Company becomes aware of damage in reputation and cost from the delayed on project handover. Therefore, the Company has maintained a long term relationship with manufacturers or suppliers of machines, equipment and construction materials as well as qualified, expertise and responsible subcontractors in order to perform and deliver quality work to customers within the agreed time schedule. Besides, the Company has assigned the Planning and Project Control Division to monitor and control an execution of each project closely and report to the management, regarding to the progress and situation of each project. So the management could provide necessary support in a timely manner which makes an execution of projects to be more effective.

5. Financial Risk (i.e. Risk form currency exchange, Risk of income from investment, Risk associated with capital adequacy, Risk associated with fund commitment and Risk associated with cash flow problem)

According to the Company business plan for providing EPC services together with investment in the potential project. For large scale projects investment or EPC projects with no advance payment, if financial plan or project's progress was not achieved as planned, the liquidity and financial status of the Company may be significantly affected. However, before decided to invest in any project, the management would make an appropriate selective screening by considering investment climate, project's feasibility, project's potential, qualification, experience and financial status of project's co-investor. Moreover, the stability and continuity of project's return should be studied and considered for investment worthiness. In addition, find out and compare the funding terms from each source, and select the one that would be suitable with the Company. In order to reduce the risk from currency exchange fluctuation which may affect estimated cost, the company manages the risk by means of Natural Hedge or entering into a Currency Forward Contracts with financial institutes. Furthermore, during project execution period, project manager shall closely monitor work progress against financial targets in order to control project's revenues and expenses according to the plan.

Good Corporate Governance

TTCL Public Company Limited has realized the Good Corporate Governance. The Company has established the good corporate governance policy and devised a clear policy for strict conformance and comply with regulations to the principles of good corporate governance for listed companies 2012 of The Stock Exchange of Thailand (SET) and the Corporate Governance Report of Thai Listed Companies (CGR) of Thai Institute of Directors (IOD), ASEAN Corporate Governance Scorecard (ASEAN CG Scorecard) and The Office of Securities and Exchange Commission (SEC). The Governance Committee takes charge of considering and proposing to the Board of Directors the establishment and implementation of the policy and guidelines for their approval. For issues that have not yet been covered or implemented, the Management is to report to the Corporate Governance Committee for review on an annual basis.

Corporate Governance Policy:

The Company aims to operating under the principles of Good Corporate Governance which reflects the management with efficiency, transparency, and examinable, leading to the creating of the confidence and creditability to the shareholders, investors, the stakeholders, and all related parties. It directs to encourage the company's competitiveness, growth and long-term shareholder value, taking into account the interests of Company stakeholders. The principles and practices of Good Corporate Governance are presented in 5 categories, namely;

1. Rights of Shareholders
2. Equitable Treatment of Shareholders
3. Roles of Stakeholders
4. Disclosure and Transparency
5. Board of Director Responsibilities

The principles through the organizational communication to director, management and employees and can be found on the Company's website (www.ttcl.com).

Compliance with the Principles of Good Corporate Governance

The Company is committed to ensuring that the Company will strictly comply with corporate governance policies and best practice guidelines. The Company will continue to focus on developing and improving corporate governance. In 2018, the Company also received assessments by the various organizations and agencies, as follows:

- Scored full 100 points for the 2018 annual general meeting of shareholders (AGM Checklist) by Thai Investors Association (TIA).
- Rated "Excellent according to Corporate Governance Report of Thai Listed Companies (CGR 2018) by the Thai Institute of Directors (IOD).
- Pass the SET Assessment criteria of the Thailand Sustainability Investment (THSI) for 2018.

TTCL's 2018 activities report of good corporate governance can be summarized as follows:

Section 1 Rights of Shareholders

The Company recognizes the importance of good corporate governance and values the shareholders' right by encourages the shareholders to exercise their rights including legal fundamental rights such as the right to attend and vote in the shareholders' meeting, the appointment or removal of directors, the remuneration of directors, the right to share in the profit (Dividend), the right to receive adequate information, etc. Beyond such fundamental rights, the Company endeavors to provide essential information to shareholders via website, to arrange the Company's site visits, etc.

The Company has a policy to support and facilitate the shareholders, including institutional investors, to attend the general meetings of shareholders by selecting the meeting venues where the mass transit system are available and sufficient for the shareholders to conveniently commute to attend the meetings.

The Company provides opportunities for the shareholders to submit registration documents for attending the meeting in advance of the meeting date in order to minimize the time for documents verification on the meeting date. The Company also provides registration channels at the meeting venue specifically for individual shareholders and institutional investors and also arranges for a barcode system for registration and vote counting to expedite the registration and vote computation process. To facilitate the shareholders, the Company also provides stamp duty for the appointment of proxies.

Annual General Meeting of Shareholders (AGM):

The Company held the Annual General Meeting of Shareholders (AGM) every year within four months after the end of each fiscal year. If there is an urgent need to consider any special matter that may or in connection with the interests of shareholders, which need shareholders' approval, the Board of Directors can call an extraordinary meeting of shareholders on case by case.

In 2018, the Company organized AGM on April 27, 2018 at Head Office 27th Floor Sermmit Tower Sukhumvit 21 (Asoke) Road Bangkok and there was no extraordinary meeting of the Shareholders during the year, with a total attendance of 335 shareholders comprising of 127 shareholders and 208 representatives by proxy, representing 208,108,176 shares or 50.02 percent of the total issued share capital of the Company. The meeting was organized in accordance with the processes and procedures of the AGM Checklist, which prepared by Thai Investors Association (TIA) as follow:

Before the AGM:

1) Provide minority shareholders the opportunity to raise items for inclusion on the meeting agenda and nominate qualified director candidates to be elected individually at least three months ahead of the shareholders' meeting. The shareholders who wish to propose agenda must be one single shareholder or several shareholders together hold the Company's shares at least 5 percent of total voting rights of the Company. Invitations and notifications with guidelines and procedures will be delivered to shareholders through the Stock Exchange of Thailand's news portal and a posting on Company's website www.ttcl.com
2) The Company shall disseminate invitation notice, meeting agenda with the opinion of the Board of Directors and minutes of the previous AGM along with proxy forms, comprised of form A, B, and C (for foreign shareholders that have appointed custodians in Thailand), in accordance with the Ministry of Commerce, meeting map in both Thai and English via the Company's website at least 30 days in advance of the AGM and prior to the delivery of the meeting notice.
3) Disseminate the AGM meeting and other relevant documents notices to shareholders not less than 14 days prior to the meeting. This is to ensure that the information related to voting decision received by the shareholders is sufficient, accurate, complete and transparent. The information must also be announced in the newspapers in Thai for three consecutive days and at least three days prior to the AGM for the shareholders to prepare themselves in joining the meeting.

On the Date of the AGM:

1) Arranged each shareholder's meeting at a venue that is convenient, easy to access, and adequate size in Bangkok.
2) The Company's policy is to facilitate all shareholders, including major shareholders, minor shareholders, and institutional shareholders at the meeting date. The Company will make registration process available two hours prior to the meeting, by using bar code system to shorten the registration process. Furthermore, after this registration period has lapsed, shareholders who wish to attend the meeting can register to attend without losing their rights and assign adequate number of officers shall be assigned to welcome and check registration documents.

3) The bar code system was implemented to facilitate each shareholder's registration process and counting of vote for accuracy and more convenience.
4) The Company must not deprive the rights of shareholders to attend their meetings. All shareholders can exercise their rights to attend the entire meetings, provide opportunity for shareholders to raise questions as well as express their opinion independently within suitable time limit.
5) The Company's directors, subcommittee, management, auditors and legal representatives should attend the meeting. Before the meeting, the Chairman of the Board will clarify rules and criteria in relation to the meeting, such as the opening of the meetings, voting procedures and counting of shareholders' vote for each session, in accordance to the Company's Article of Association.
6) A legal advisor from IPCT Associates Law Office Co., Ltd. was assigned by the Company to review and inspect the validity of the proxy appointments, adequacy of quorum, and tabulation and reporting of votes. Therefore, the voting results for each agenda item were reported to the meeting in a timely, accurate and transparent manner.
7) The Company has specified director's interest in the invitation letter and in the AGM. If any directors have particular interest or involved in any agenda, chairman of the meeting must notify the participants prior to the meeting. The directors involved in the interests must not participate in the meeting and must abstain from voting on such matter.
8) The Meeting was convened according to the order of the agenda, no other agenda were proposed than those already specified in the invitation. The Company shall support the shareholders to exercise their rights in protecting their own interests by asking questions, expressing opinions, and making recommendations at the AGM. The shareholders also have rights to participate in the decision of important issues, which may affect the Company, for instance, the appointment or removal of directors, the selection of nominees to become independent directors, the approval of auditors, the dividend payment, the reduction or addition of capital funds, set or revises rules and regulations, and the approval of memorandum items, etc.

After the AGM:

1) The Company discloses the resolutions of the AGM along with the voting results on the following working day after the meeting to the Stock Exchange of Thailand (SET) and on the Company's website (www.ttcl.com).
2) The Company must prepare the minutes of the shareholder's meeting in Thai and English and shall notify the Stock Exchange of Thailand (SET) within 14 days after the meeting, in accordance to the SET regulations, and disseminate full details of the meeting. This includes complete and appropriate records of the meeting, the resolutions reached together with the number of approval, disapproval and abstain votes, questioning process of the shareholders in each session, along with the allocation of video recordings of the AGM for their acknowledgment in the Company's website (www.ttcl.com).
3) The Company considers the recommendations and opinions received from the shareholders in the quality assessment of the AGM to make improvement plan for the future AGM.

Section 2 Equitable Treatment of Shareholders

As stipulated in the Company's Corporate Governance Policy, all shareholders are entitled to shareholder's right and to be treated on an equitable and fair basis as follows;

2.1 The Company provides an opportunity for shareholders to propose agenda and to nominate director candidates to be elected in Annual General Meeting at least 3 months prior to the year ended. The Company also posted the criteria and procedures in relation thereto in the form of a newsletter to the Stock Exchange of

Thailand and on the Company's website (www.ttcl.com).

2.2 The Company provides flexibilities to shareholders who cannot attend the meeting in person to assign proxies to the meeting and vote for them. The Company prepared proxy forms as prescribed by the Ministry of Commerce (Form A, B and C), whereby the shareholders may give their proxies voting instruction. The proxy forms were delivered (Form A and B) to the shareholders together with the invitation notice to the meeting. Additionally, the shareholders could download the proxy forms (Form A, B and C) from the Company's website.

2.3 The AGM shall be conducted according to the agenda notified in the notice and it is our policy not to add items to the agenda without advance notice to shareholders and to provide equal opportunities for shareholders to express their opinions, ask questions and exercise the rights to elect individual directors.

2.4 The Company issued only one class of shares, for which one share was equal to one vote. Shareholders vote on every item using the polling card distributed at the meeting. The Company would use a computer system to count the voting by deducting the abstaining votes or disapproving votes from the total shares represented in the Meeting.

2.5 Current information shall be published at the Company's website to inform shareholders of major Company's data and information which have changed, including information sheets disclosed in accordance with various regulations. After disclosure to SET, the information shall be published at the Company's website both in Thai and English.

2.6 The Company clearly discloses shareholding structure of the Company and its subsidiaries to ensure shareholders that organization structure is transparent, verifiable, and does not constitute any forms of cross or pyramidal-shareholding structure.

2.7 The Company established ethical codes on maintaining confidential information and the use of inside information in the corporate governance manual. The corporate set policy on conflict of interest of Committee, Management and Employee, as part of code of business ethics and of code of conduct. Generally the corporate policy is set to avoid conflict of interest when corporate members focus on their private interest against corporate objectives and execution.

2.8 The Directors, Management and Management who related to finance and accounting, including Employee who possess the internal confidential information must avoid trading TTCL's shares with advantage of such information and refrain from the security trading within 30 days before disclosure of financial statement.

However, in special circumstances, the person designated by the company may sell shares of the group of companies during the prohibited trading period if the company is in the situation such as having severe financial difficulties or falling under court orders.

For these situations, the person have to prepare a record, specify the reason of selling share and propose for the approval of:

(1) Chairman of the Board (In case the seller is a director or company secretary)
(2) Chairman of the Audit Committee (In case the seller is the Chairman)
(3) Chief Executive Officer (In the case that the seller is a person designated by the company which is not a director and company secretary)

Investor Relations will inform the prohibited period of securities trading to the person designated by the company in advance.

2.9 The Company has set the policy for the Directors, first four level management and Management who related to finance and accounting, including their spouses and dependent children who intend to trade TTCL's shares must report and disclose any change in the Company's shareholding to the Securities

and Exchange Commission (SEC) within 3 days and reported these to the Board of Directors. In 2018, the Board of Directors together held no more than 25% of Company issued and paid-up shares.

2.10 In case of connected transactions, the Company has complied in accordance with the Stock Exchange of Thailand (SET)'s rules, regulations, instructions, and notifications as well as in compliance with the requirement in information disclosure regarding connected transactions or acquisition/disposition of assets of the Company and its subsidiaries and also in compliance with the Thai Accounting Standard (TAS). The transaction shall be fair and at arm's length basis. The Company also disclosure details of the related transaction in the Annual Report with clarification of its reason and necessity.

2.11 In 2018, The Company has never been any case that the Company's directors and management abuse insider information to seek personal interests or others' interests. Including, the Company did not execute any transactions on acquisition or disposition of assets in violation of or not in compliance with the rules of the Stock Exchange of Thailand (SET) and the Office of the Securities and Exchange Commission (SEC).

Section 3 Right of Stakeholders

The corporate realizes the legitimate right of all groups of stakeholders, whether inside or outside the Company, such as shareholder, customer, business partners, business competitors, creditors, the public sector, employees, society, communities and the environment and compiled policies and principles with in the Corporate Governance manual and Code of Conduct handbook, in order to create confidence and stability for the Company and its stakeholders and increase the ability of the Company to compete in the long term as detailed below:

3.1 Shareholder

The Company is determined to represent all shareholders efficiently through generating maximum long-term returns on investment and is committed to conducting business with transparency, to put in place reliable financial and accounting systems, and to deliver optimum shareholder satisfaction with regular and sustainable strong operational performance and continued growth. The Board of Director, Management and all employees shall perform duties with integrity and make decisions in good faith and in fairness to major and minor shareholders alike, as well as for the good of relevant parties. They shall refrain from any activities that could cause conflicts of interest and serve self-interest. Confidential information shall not be divulged to outside parties while simultaneously paying attention to accurate, complete and punctual disclosure of material information to all shareholders in response to their unwavering trust and support given to the Company and provide the investment returns that satisfy the shareholders the most.

3.2 Customer

The Company has a qualitative assurance policy and qualitative management system of ISO 9001:2015 that aims to build customer satisfactions shall be achieved by deliver quality products which meet their agreement, including to disclose complete, correct, sufficient and undistorted information on the products and services, provide a communication channel for customers to submit any complaint. Also, contracts and conditions mutually agreed upon shall be complied with the Code of Conduct, Good Corporate Governance and law in a strict manner, safekeeping client information and confidentiality by not using the information for their own benefit.

3.3 Business Partners

The Company adheres to business operations on mutual benefits and complies with systematic operation, fair, transparent and supporting business partners as follows;

- Comply with agreed commercial terms, to notify business partners. Notify business partners on any point that cannot be fulfilled, in order to seek and obtain mutual solution.
- Select suppliers/contractors following Company procedure unless specifying in the contract.
- The Company has set up purchasing procedure, business partners should have their permanent establishment. Successful partners will be evaluated on the basis of price, quality of goods and services, satisfactory performance records, etc.
- The Company refrains from demanding, accepting or engaging in bribery to business partners. Keep business partners confidential information according to secrecy agreement.

3.4 Business Competitors

The Company has a policy to operate in an upright and transparent manner in dealings with its business competitors. The framework of this policy has been shaped by related laws and regulations, as well as concepts related to Business Code of Conduct. It does not seek to find information about Competitors through dishonest or inappropriate means. The Company does not engage in slander or discrediting its competitors.

3.5 Creditors

The Company makes sure to strictly comply with all terms of any loan agreement it enters into in a responsible and transparent manner especially guarantee condition, capital management and payment. The Company will not conceal any information or hide any facts that might possibly result in the realization of losses for its creditors. In the event that the Company unable to meet any of the criteria it agreed to, it will make immediate notification to that particular creditor to allow for a course of action to be taken to rectify the situation.

3.6 The Government Sector

The Company strictly complies with the laws, rules and regulations of the government sectors both in Thailand and abroad based on transparency and honesty which prevents Company and the nation from gaining bad reputations. The Company is prompted to provide its information and to participate in activities arranged by the authorities.

3.7 Employees

The Company has always regarded its employees as valuable resources, whose roles are fundamental to the success of the Company. Accordingly, the Company places importance on the welfare and safety of its employees, as well as providing every employee with an opportunity to improve its career path on an equitable basis. The following are guidelines to achieving this:

- ➢ Recruitment, selection and hiring are to be based on fairness and equal opportunities to all applicants, with priority given to knowledgeable, competent, experienced and righteous persons for a given position and attitude compatible with the Company's corporate values.
- ➢ The Company establishes offering appropriate compensation and welfare to its employees as fitting their knowledge, responsibilities. The Company measures the performances of its personnel and regularly reviews its compensation and welfare in line with its short-term and long-term performances.
  - Short-term compensation, the Company has defines comparable rates to those in the same industry. Its also provides bonuses in line with the company's performance.
  - Long-term compensation, the Company emphasizes sustainable welfare for the staff such as provident fund to enhance the security of lives after the end of employment or retirement. Employee contributes 2% - 6% and the Company contributes 2% - 9% from the employee monthly salary subject to company's regulations.

- The Company provides fundamental welfare and benefits as required by law, as well as social security, compensation fund and constantly communicates all benefits to its employees.
- In addition to those as prescribed by law, the Company also provides other welfare to its employees, such as health insurance, which covers outpatient and inpatient treatment and dental care, life insurance, personal accident insurance, annual health check-up, and in-house medical and nursing treatment with doctors and nurses standing by at the Company's office during working hours, as well as providing healthcare measure. Furthermore, the Company encourages its employees to exercise for good health by providing facilities, sport equipment and other sport activities, such as yoga and aerobics, etc. The Company also promotes good family relationship by providing kids' room, breastfeeding room and activities to encourage the children's employees in learning. to support employees who have the necessity to bring their children to the work place. In addition, the Company also provides financial aid to its employees in various cases, such as wedding, childbirth, ordination, death of close relatives and natural disasters, etc.
- Giving priority and promoting staff's development of their knowledge and capacities by encouraging them to attend training curriculum in the short and long terms, academic and technical to enhance their skills and competency. In 2018, the Company has 2,344 employees and attended courses and trainings for an average of 1.3 hours/person/year.
- Creating the work environment on the basis of occupational health and safety for life and property of staff and the Company, whereby the Company takes into account the safety of staff operation and as such, organizes regular training provided before commencing of works and specialty training in specific area of risks so that they can identify any exposure and protection, consequently, promoting a more safety working environment. In 2018, the Company had total workers man hours at 9,162,915 working man hours with the Injury Frequency Rate (I.F.R.) at 0.109 case per 200,000 working hours (Incidence rates of nonfatal occupational injuries and illnesses by case type and ownership, selected industries, 2016 (Construction), Bureau of Labor Statistics, U.S. Department of Labor : BLS = 3.2).

3.8 Respect for Human Rights

The Company has policy and practices towards the respect of human rights. It is the responsibility of every director, management, and employee of the Company to fully respect the human rights that specified in Code of Conduct such as;

- We realize and respect the history, culture and customs of each country in which we operate.
- We respect human rights and refrain from discrimination by race, religion, creed, gender, social status, nationality, age, disability, not associating with forced labor, child labor and human trafficking.
- We maintain a work environment that is free from discrimination and harassment. Great care is taken not to cause recourse to legal proceeding as a consequence of discrimination, harassment, abuse of power, etc.

3.9 Respect intellectual properties, patented

The Company also emphasizes on respect intellectual properties, patented or otherwise, of customers, partners and others and protects those of TTCL Policy and Guidelines as follows;

- Recognize the value of confidential and proprietary information of TTCL. We protect such information in accordance with our Information Security Policy.

- Not divulge confidential information of TTCL to any third parties. We shall not use confidential and proprietary information for personal interests or any purposes against the interests of TTCL.
- Treat the intellectual property as well as confidential and proprietary information of our customers, partners and other with the greatest care in accordance with applicable laws and regulations.

3.10 Community and Society

The Company realizes the importance of Corporate Social Responsibility (CSR), by creating the sustainable development and having the explicit regulation. The Company has adjusted and arranged Corporate Social Responsibility and Sustainable Development Policy for the comprehensiveness in sustainability issues of the Company operation and subsidiaries as following:

1. Compliance with Code of Conduct and Code of Business Ethics
2. Human Rights and Labor Practices
3. Responsibility for Stakeholders and Other Concerned Person
4. Social Responsibility Activity
5. Responsibility for Environment and Safety Standards
6. Company Innovation Concerning with Corporate Social Responsibility

3.11 Responsibility towards Environment and Resources

The Company has Occupational Health, Safety and Environment policy, operate business by adopting the provisions of Occupational Health and Safety Management System (OHSAS 18001:2007, TIS 18001:2011 and ISO 14001:2015) Encourages employee education and training with regard to environmental matters. We also promote the development and conservation activities of energy and environment which are achieved by encouragement of efficient resource usage. We issue campaign activities to promote economical and efficient resource usage such as saving box project, the campaigns for electric energy and disposal of garbage and waste from both the Company office and project site. This is to make all employees aware of the duties and responsibilities on community and environment.

3.12 Anti-Corruption

TTCL Public Company Limited is aware of the importance of Anti-Corruption and emphasizes the management of business ethics; fairness, transparency and accountability; specifically in related processes or risk of corruption in all forms, either directly or indirectly according to good corporate governance in order to enhance stakeholders' trust and indoctrinate good awareness and establish good value for directors, managements and employees in all level of the company.

Anti-Corruption Policy: The Company established the Anti-Corruption policy and has been reviewed and approved by the Board of Directors; *"Director, Management and employee are prohibited from operating or accepting every type of corruption both direct or indirect manner covering every business including subsidiaries, associated companies, or any other companies under its control and company representative in every countries including people relating to its business operations to comply with Anti-Corruption Policy. The Anti-Corruption Policy is needed to be reviewed regularly, including with a possible revision of such policy and implementation provision shall comply with business transformation, rules, regulations and laws"* Apart from the policy, the Company provides definitions of the Anti-Corruption policy, roles and responsibilities, Anti-Corruption guidelines and measures /operational.

The Company provides the Anti-Corruption guidelines concerning with political contributions, corporate philanthropy or public charity, sponsorship, giving and receiving gifts, hospitality and other Benefits. The Director, Management and employees are required to comply with this guideline.

In the year 2018, the Company has followed the guidelines for giving or receiving gifts, hospitality and other benefits. Furthermore, the Company communicates to the executive and all employees in order to be a good standard.

Corruption Risk Assessment:

The Company conducts meeting among relevant units whose transactions may create corruption risks, such as Project, Procurement, HR. & Administration, Sales, Finance & Accounting, etc. to assess corruption risk. Cause and chances of the corruption risks in the entire business process are identified while practice guidelines, regulations and rules used for control such risks are prepared.

In 2018, the Company has appointed the Risk Management working group and Corruption Risk Assessment working group consisting of representatives from related divisions, to regularly review and assess corruption risks that may arise in each process which cover bribery, business relationship, conflict of interest, facilitation payments, political contribution, donations for charity, public benefit activities, sponsorships, tax evasion or avoidance, through considering likelihood and impact of corruption on business activities. Furthermore, determine guideline, rules, regulations and standard for risk control. The company reassessed for corruption risk at least twice a year.

In 2018, the level of corruption risk of the Company is at moderate level, and most of the risk level did not change except the risk regarding unusual giving gifts or other expenses for building up business relationship with customer, business partners or related person as the level of this kind of risk was decreased.

Monitoring and review: the Corporate Governance Committee shall review the Anti-Corruption policy on an annual basis and propose the amendment to the board for approval. The Corporate Governance Committee will also monitor the implementation of the policy and make recommendations accordingly.

The Company has the internal control system and risk management that is appropriate, including the internal control measures are adequate to prevent fraudulent risks.

Details of the internal control and risk management in 2018 are referred to "The Internal Control and Risk Management".

Dissemination and Promotion of the Anti-Corruption policy: In 2018, the Company has implemented the Anti-Corruption policy related as below.

- Promote the Anti-Corruption policy and practice them both inside and outside the Company. The Company announces the policy to the Director, Management and employees. For external communication, the Company publishes the policy via its website (www.ttcl.com).
- Provide knowledge of anti-corruption policies and practices for new employee orientation as well as management and employees for understanding and implementing of the policy.
- New directors and management are informed of policies, rules, regulations and practices of the company and the scope of authority of the executives and directors. The new directors and management also participate the training courses for directors i.e Director Accreditation Program (DAP), arranged by Thai Institute of Directors as the course provide the directors fundamental knowledge of director duties and legal liabilities to increase their confidence in directorships.

Committed to Countering Corruption: In addition to the above activities, the Company has participated with external agencies in the following activities.

- The Company signed on declaration to join the Thailand's Private Sector Collective Action Coalition Against Corruption (CAC) Project and has been accepted on December 26th, 2014.
- The Company developed a self-assessment form for Anti-Corruption measures, which accompanies supporting evidence related to business policy, measures and procedures and its internal control system. In addition, the Audit Committee has also reviewed the Company's completeness and adequacy of Anti-Corruption practice to meet requirements of Collective Action Coalition's certification process. All documents were submitted to the CAC panel as part of the Company's application for CAC membership at the end of Quarter 3/2016. The Company was certified by Thailand's Private Sector Collective Action Coalition Against Corruption (CAC) Project in October 14th, 2016.

- In 2018, the Company prepared Anti-Corruption Self-Assessment in order to submit a renewal of the membership of the Thai Private Sector Collective Action Coalition Against Corruption (CAC) which will be expired in 2019.
- In the year 2018, the Company has issued a letter to the venders and business partners for the purpose of prevention of exploitation and conflict of interests, which is consistent with good corporate governance.
- The Company encourages Director, Management and employees to attend trainings and seminars on Anti-Corruption held by external organizations.

3.13 Reporting and Whistleblowing Channel

The Company arranges for whistle-blowing channels, complaint-filing of any behavior which may indicate corruption or misconduct. Employees and stakeholders who detect or have reasonable grounds for suspecting Misconduct should report to one of the following channels;

➢ **channel 1 by E-mail:** To: *Internal Audit or Company Secretary*
e-mail: ir@ttcl.com

➢ **channel 2 by Letter:** To: *Internal Audit or Company Secretary*
address: TTCL Public Company Limited, 159/41-44, Sermmit Tower 27th - 30th Floor, Soi Sukhumvit 21 (Asoke), North Klongtoey, Wattana, Bangkok 10110, Thailand.

3.14 Whistle-Blowing Measures and Protection

The Company stipulates measures to protect and maintain confidentiality including actions taken upon receipt of complaint as follows:

Measurement of protecting the violation's reporters and appellants: The Company shall provide appropriate protection to the persons who report misconduct and other related persons in good faith. Including report-related information shall be kept confidential and shall not be disclosed to unrelated person except the disclosure is required by law. In the event where there is clear evidence that whistleblowers make a false report, the Company shall undertake as applicable to protect the reputation of subject of a report.

Procedure after receiving complaint: Upon receipt of complaint, the Company will complaint verification on the line of command (An Investigator must not possess any conflict of interest with regards to a complaint under investigation), then, the Company will appoint an investigation committee as appropriate and reported to the Whistleblower, Subject of a complaint, Investigation Participant and any other relevant persons. Disciplinary action shall be in line with the Employee's Disciplinary Action Regulations issued by the Company and/or relevant laws.

In 2018, the Company did not receive any complaints regarding bribery and corruption, as well as no legal dispute concerning, human rights and the environment.

Section 4 Disclosure and Transparency

The policy on correct, complete and punctual disclosure of material financial and non-financial information through dissemination channels of the Stock Exchange of Thailand and investor relations section on corporate website in both English and Thai languages so as to provide equitable and credible access opportunity for shareholders, institution investors and any persons interested in obtaining such information, as follows;

4.1 Information Disclose in the Company's Website

To ensure that the shareholders, investors, and interested persons can quickly search and retrieve the Company's public information, the Company provided the following information in both Thai and English via Company's website (www.ttcl.com).

- **About TTCL Public Company Limited** comprises of visions, missions, business structure, organization charts, nature of business and competition, financial and operation information, risk factors etc.
- **Good Corporate Governance (CG)** comprises of Code of Business Ethics, Code of Conduct, Corporate Governance Policy, Anti-Corruption Policy, Role and Responsibilities of Board of Directors, Management and Sub-Committees etc.

- **Investor Relations (IR)** comprises of financial information, stock information, shareholder information, annual general meeting of shareholders, minutes of the latest annual general meeting of shareholders and publish notice annual report within 120 days after each financial year-end etc.
- **Corporate Social Responsibility (CSR)** comprises of CSR activities, for example, Educational Support Project, Environmental Development Project, Social Support Project, Human Resources Development Program and etc.
- **Corporate News** comprises of executives news, Chief Executive Officer's (CEO) articles, etc.

4.2 Disclosure Information of Board of Directors and Executive Management Remuneration Fee and Shareholding

Information of the Board of Directors and executive management remuneration fee and shareholding must be reported in the annual registration statement (Form 56-1), annual report (Form 56-2), and also published at the Company's website. Under Article 59 of the Securities and Securities Exchange Act, directors and management must report their share portfolios with each purchase, sale, or transfer of shares to SEC.

The Company establishes policy regarding report of interested of directors and management which required them to report the Company, their or their related persons' interest, which is related to the business operation and management of the Company or its subsidiaries, in accordance with the criteria, conditions and methods as required by the Capital Market Supervisory Board.

4.3 Financial Reports Preparation

The Company provides report of financial statements together with report of auditor in annual report and using appropriate and consistent accounting policy, and with reasonable and circumspect considering to enhance the stakeholders' confidence to the financial reports. The Board of Directors has appointed the Audit Committee to assume key duties and responsibilities of reviewing the Company's financial statements and operation reports to ensure its correctness and completeness. In addition, the Board of Directors provides Report of the Board of Directors' Responsibilities for Financial Statements and the Company establishes the internal control policy within each department or section to prevent confidential information from being disclosed to the public prior to formal announcement.

In 2018, the auditors from PricewaterhouseCoopers ABAS Limited, the Company's external auditors had knowledge, competence, independency, and was approved by the Office of the SEC. The Company's financial statements were approved with unqualified opinion and accurate in accordance with the generally accepted accounting principles, and assented by the Audit Committee/the Board of Directors before disclosing to shareholders.

The Company has to prevent confidential information from being disclosed to the public prior to formal announcement. Employees must not apply the Company's confidential information for personal or others' gains. They should maintain inside information and sensitive documents that could lead to undue exploitation for themselves, their families, or their associates, including any information influencing stock prices and the Company's proprietary commercial secrets, formula, and inventions. Those who disclose important information and news to outsiders without approval from the Chief Executive Officer shall be subject to disciplinary action according to Company procedures and may face legal action.

4.4 Disclosure Information of the Company

The Company shall disclose information on material matters regarding the Company, including financial reports, non-financial information and other information as stipulated by SET and SEC that are accurate, clear, complete, easy to understand, transparent, adequate, reliable and timely, and which have been screened according to prescribed procedures. The Company disclosed information to ensure equitable access by shareholders in the following channels:

- SET's Community Portal system and SEC.
- Annual Registration Statement (Form 56-1) and Annual Report (Form 56-2).
- Company's website at www.ttcl.com in both Thai and English.
- Company's visit and analysts meetings.
- Road shows for both domestic and overseas investors.
- Invitation to the AGM via post.

4.5 Customer Satisfaction Evaluation

The Company is committed to operate its business by considering to the most benefit of the customers. The Company has therefore prepared a customer satisfaction evaluation form. Each customer assesses the performance of the Company including recommendation after the project has been completed. The Company sets the following topics for evaluation:

1. Engineering;
2. Procurement;
3. Construction.

The customer satisfaction level is divided into 4 levels:

4.01-5.00 highly satisfied;
3.51-4.00 satisfied;
2.51-3.50 less satisfied;
1.00-2.50 not satisfied.

In the year 2018, the Company has been evaluated from customers, which the customer satisfaction result is at 'highly satisfied' level with average score of 4.41 of 5. The results of customer satisfaction evaluation are applied to improve the Company's performance being more efficient and sustainable.

Furthermore, the Company has been trusted by the existing customers who are satisfied and confident in the Company's work performance. In 2018, the Company received the opportunity from its existing customers to participate in 6 bidding projects.

4.6 Investor Relations (IR)

TTCL Public Company Limited attaches great importance to investor relations. The Company has set up the Investor Relations Department as a focal point in conducting proactive investor relations activities, according to the best practices of leading international organizations, to promote effective communication channels with investors, analysts and other related parties. Opportunities are also provided for investors to raise questions and receive Company information through various channels such as the Company's Website report on the operations of Investor Relations to the Board of Directors quarterly, publish the results of the operation in webcast on the Company's website, provide shareholders and institutional investors to visit and meeting management in order to generate understandings in the business of the Company.

To conduct the above activities, the Company adheres to the basic principles and practices of "Investor Relations Code of conduct published by Good governance development & Alliance department, The stock exchange of Thailand, 2014, as a framework. When confronting difficult situations, Investor Relations Officers should select the best alternative that does not violate the four principles which are;

1) Disclosing material information accurately, sufficiently and in timely fashion.
2) Not using inside information for their own or their related parties' benefit.
3) Disclosing material information fairly and equitably. All stakeholders must be able to access to the information and conveniently contact Investor Relations Officers for clarification.
4) Performing their duties with professionalism, integrity and equitability. Preferential treatment that may undermine the benefits of the Company and all stakeholders is not acceptable.

Investor or the others who may interest could make inquiries to investor relations department via the following channels;

Investor Relations (IR)

Mr. Boonyakrit Saowan
Deputy General Manager,
Investor Relations & Finance,

Address: *TTCL Public Company Limited*
159/41-44 Sermmit Tower 27th - 30th Floor,
Soi Sukhumvit 21 (Asoke), North Klongtoey,
Wattana, Bangkok 10110, Thailand.
Telephone: *0-2260-8505*
Fax: *0-2260-8525-6*
E-mail: *ir@ttcl.com*

In 2018, there was no action taken against the Company by the relevant regulators on the basis of any non-disclosure of any material information within the requisite timeframe.

Section 5 Board Responsibilities

The Corporate Board consists of qualified and experienced in development and stipulation business trends, policy and corporate strategy with corporate objective to internal control system, internal audit, risk management and revision procedure to ensure that operation is compliance with applicable laws and reasonable decision.

5.1 The Board of Directors

1) The Board of Directors represent variety from a range of perspectives including gender, age, well knowledge, ability and experienced in fields such as engineer, petroleum, petrochemicals, energy, accounting and finance, management, law and support strategic plans that are beneficial to the Company's business. The Board of Directors understands its responsibilities in upholding the law and adhering to all regulations and rules, as well as principles of Good Corporate Governance. It must avoid any actions which would be against the best interests of the Company and avoid conflicts of interest with the Company that would decrease efficiencies.
2) The Company shall have a Board of Directors consisting of executive directors, non-executive directors and independent directors at least five (5) directors but not exceeding twenty (20) persons (At least one-third must be independent directors of the total number of Board members and must be equivalent or more than 3 members). Half of the directors shall have place of residences in the Kingdom of Thailand.
As of December 31st, 2018. Board of Directors are consists of 9 Directors;
   - 3 members of Executive directors (33%)
   - 6 members of non-executive directors (67%) (there were totally 3 independent directors to be at one-third of the total number of Board members or the proportion accounts for 33.33%).
3) The Board of Directors has the duty determining the Company's vision, mission, the business direction and the overall strategy for the Company, with an annual revision and approval. Including, oversee and monitor the implementation of the Company's strategies by quarterly reporting the Company's performance to the Board of Directors. In 2018, the Board of Directors meeting no. 1/2018 considers and reviews the company's vision and business strategies plan to keep pace with the current economic and social conditions also shapes the company's management to ensure that the executives and employees are working towards to same goal.

Details of Roles and Responsibilities of the subcommittees are referred to "Roles and Responsibilities".

5.2 Subcommittee

The Board of Directors nominates the following subcommittees;

1) **Audit Committee:** The Board of Directors has appointed the Audit Committee since December 9th, 2008. Consists of three (3) independent directors, at least one (1) of whom has knowledge and understanding or experience in accounting or finance. The committee has the duty in monitoring the Company's operations. To reviewing of the financial reports, the internal control system and internal audit system. Considering and selecting or removal the Company's auditor and inclusive propose compensation.

2) **Nomination and Remuneration Committee:** The Board of Directors has appointed the Nomination and Remuneration Committee since November 12th, 2010. Consists of three (3) directors, being two (2) independent directors and one (1) board of management. The committee has the duty in considering rules and procedures for recruiting qualified personnel to take position as directors and management, in accordance with the required recruiting process, and consider the criteria and forms of remuneration of directors and management, and offer opinions to the Board of Directors for further consideration.

3) **Risk Management Committee:** The Board of Directors has appointed the Risk Management Committee since November 12th, 2010. Consists of five (5) directors, being one (1) independent director and four (4) board of management. The committee has the duty in establishing and implementing a risk management framework that is suitable and practical for efficient business management, as well as meeting international standards throughout the organization (including the Company and its subsidiaries).

4) **Corporate Governance Committee:** The Board of Directors has appointed the Corporate Governance Committee since November 14th, 2014. Consists of seven (7) directors, being one (1) independent director, two (2) board of managements and four (4) managements. The committee has the duty in reviewing Corporate Governance Policy and its Code of Conduct and to conduct self-evaluation for sufficiency of Anti-corruption practices as it is one of the Anti-corruption progress indicators of Thailand Private Sector Collective Action Coalition Against Corruption.

Details of Roles and Responsibilities of the subcommittees are referred to "Roles and Responsibilities".

5.3 Chairman of the Board and President & CEO

The Principles of Good Corporate Governance require that the Chairman should act as an Independent Director, although this is not the case presently. However, the Chairman is a highly knowledgeable and experienced individual who is recognized both domestically and internationally for his ability to perform his duties independently, and this will help the Company to be more secure and progress in an efficient way.

Details of Roles and Responsibilities of the President & CEO are referred to "Roles and Responsibilities".

5.4 Nomination of Board Members

1) Regarding the selection of qualified candidates for nomination as directors in replacement of those who are retired by rotation, the Company gives the opportunity to our shareholders to nominate candidates with qualifications required by Securities and Exchange laws and by the Company's regulations to be elected as directors. Announcement has been posted on the Company's website to invite nomination from shareholders.
2) The Nomination and Remuneration Committee will then select qualified candidates for variety and good mix of gender, age, knowledge, expertise, experience and skills necessary to support strategic plans and good corporate governance principle and propose to the Board of Directors for consideration.
3) After the Board's agreement, the list of such candidates will be proposed to the Annual General Meeting of Shareholders to approve the election by majority votes.

Details of Nominating for Directors and Member of Board of Management are referred to "Roles and Responsibilities".

5.5 The directorship term

1) Terms of Board of Directors has been definitely prescribed in articles of association of the Company that one-third of the directors who has longest term should be retired. If it is not

a multiple of three, then the number nearest to one-third (1/3) must retire from office. In choosing those directors who retire, the length of service on the board should be considered the Directors who occupy the position for longest period shall retire. Nevertheless, a retiring director is eligible for re-election.

2) As for independent directors, The Company's independent director shall be appointed for a term of 3 years and being re-election no more than 2 times continuously (9 years). At end of the term, the Board of Directors may nominate their names to be re-elected at the Annual General Meeting of Shareholders as deemed fit.

3) The Board of Directors has set stipulated the numbers of companies that a director shall possess the position of director in other listed companies of no more than 5 companies. In case the President & CEO is appointed as director of other listed company, the matter will be proposed to the Board of Directors for approval.

5.6 Control of Subsidiaries and Associated Companies' Business Operations

The Company's Board of Directors shall be responsible for business management and operation of the Company as well as the operation of subsidiaries in compliance with our main business plan, with honesty and maximum benefits for the Company and its shareholders. Under the laws as well as objectives and Articles of Association of the Company and must control the operations of the Company and subsidiaries to comply with the regulations of The Stock Exchange of Thailand (SET), the operation of subsidiaries or associated companies are as follows;

1) The Board of Directors has delegated to the President and CEO the authority to appoint eligible persons for the director and/or executive position of the Board of Directors of the subsidiaries and associates. Selection criteria of the director and/or executive position is based on qualification, skill and working experiences.

2) The Board of Directors designs the organization structure including management of subsidiaries or associated companies to maximize their business operation efficiency and suit current business circumstances.

3) The Board of Directors monitor and control the business operation of subsidiaries or associated companies to meet the approved business policy, goals, operation plan, strategy and budget.

4) The Board of Directors shall consider approving the budget and spending for investment, operations, transactions of acquisition or disposition of assets, borrowing from financial institutions, lending, capital increase and decrease or Company dissolution that may significantly affect subsidiaries or associated companies' operations.

5) The nominated director and/or executive shall operate and oversee the activities of the subsidiaries and associates in accordance with the Company's policies and report performance to the Board of Management or Board of Directors of the Company as deem appropriate.

5.7 Board of Directors' meeting

1) Board meetings are scheduled in advance so that directors can schedule themselves to attend. The Company is responsible for setting agenda clearly and delivering relevant documents to all directors well in advance at least 14 days prior to meeting date to give them enough time to study, deliberate, make sound decisions on all agenda items. In emergency or necessary case for protecting the Company's right or benefit, a meeting may be called by other method and the meeting date may be arranged sooner.

2) According to the Company's article of association, the Board of Directors shall hold a meeting at least once in every three (3) months and a quorum of a meeting of the Board of Directors requires at least half (1/2) of total number of directors. As the Company is committed to comply with the principles of good corporate governance, the Board of

Directors has determined the charter of the Board of Directors covering a quorum of a meeting which requires at least two-thirds (2/3) of all directors. Including, all resolutions of the meeting require at least two-thirds (2/3) of all directors. In the absence of the chairman, directors attending the meeting shall elect one of them to act as chairman of that meeting.

3) All resolutions of the meeting require a majority vote. Each Director has one vote but a Director who has any interest in any matter shall not cast a vote on that matter. In case of equal vote event, the chairman of the meeting will cast his vote to reach a resolution.
4) A clear agenda is set for each meeting and adequate supporting documents are distributed sufficiently in advance to allow directors to thoroughly review the details. Minutes of Board meetings, including its meeting outcomes must be made clear for future reference.
5) The Company nominates a secretary, organizer for the meeting arrangement, invitation letter sending, minutes of meeting record and other duties that are related to general responsibility as well as information filing of Committee and Management with their accomplices. Educational background, work experience, and training records of the Company secretary mentioned above are provided in company secretary.
6) In 2018, the Company held a total of Twelve (12) Board of Directors Meetings and one (1) Non-executive Directors Meeting.

5.8 Board Approval Authority

The Board of Directors: The Board of Directors has authority to approve in the general operation such as asset purchasing, investment, and loans in excess of the Board of Management authority, including determining and reviewing vision, mission, and strategy in operations, risk management policy, budget plan and annual business plan. Furthermore, determining objective, monitor and evaluate the performance according to the plan.

The Board of Management: the Board of Directors may appoint the Board of Management on a case by case basis and have the power to approve the following financial transactions.

a) In case that the business plan or the annual budget has already been approved by BOD, the BOM may execute such matters without financial constraints.
b) In case that the financial transaction is in the condition other than a) BOM has an executable limit of Baht 20 million.

President & CEO: For administration of the company, he may engage into business contract within the limit that a board of management could approve, pre-approved by BOD and has the authority to approve within the limit up to 5 (five) million Baht for the transaction that the BOD or BOM did not specifically approve.

Details of Board approval authority, the Board of Management, President & CEO are referred to "Roles and Responsibilities".

5.9 Remuneration for Directors and Management

Remuneration for Directors: The Company has policy to compensate Directors at reasonable levels to motivate and retain qualified directors, or at levels comparable to industrial practices. The Nomination and Remuneration Committee shall consider remuneration of the directors before proposing to the Shareholders' annual meeting for approval.

Remuneration for Management: Remuneration for the management shall be in accordance with the principles and policies determined by the Board of Directors corresponding to the Company's operational results and performance of the management.

Details of remuneration payments to Directors and management in 2018 are referred to "Remuneration of the Board of Director & Management".

5.10 Board of Directors and Subcommittees Self-assessment

The Company organizes the self-assessment once a year to allow the directors, subcommittees and each individual to review the previous performance

to improve the board performance. The evaluation criteria and process are as follow;

1) The Company uses the self-assessment form by the Stock Exchange of Thailand as a guideline. The self-assessment is annually reviewed by the Nomination and Remuneration Committee to cover all aspects of the Board's performance and to fit the Company's nature of business and environment. The self-assessment forms compose of (1) the self-assessment form of the Board of Directors (2) the self-assessment form of Subcommittee (3) the self-assessment form of individual.
2) The company secretary will gather all the self-assessment forms, score and present to the Nomination and Remuneration Committee.
3) The Nomination and Remuneration Committee will present the evaluation result to the board of directors for acknowledge and use as guidelines in improving the board management and potential for individual directors.

4) The criteria for the evaluation represent the percentage in each category are as follows:

Over 85%	=	Excellent
Over 75%	=	Very Good
Over 65%	=	Good
Over 50%	=	Satisfactory
Under 50%	=	Need Improvement

Self-assessment of the Board of Directors:

The self-assessment form of the Board of Directors consists of 4 main items i.e. 1) Board structure and qualifications 2) The board meeting 3) Roles, duties and responsibilities of the board of director 4) Others. *The assessment result for the year 2018 revealed that the Board of Directors has been rated "Excellent".*

Self-assessment of Subcommittee:

The self-assessment form of subcommittee consists of 3 main items i.e. 1) Board structure and qualifications 2) The committee meeting 3) Roles, duties and responsibilities of particular committee. The assessment result for the year 2018 revealed that the Subcommittee as follow;

- *Audit Committee has been rated "Excellent"*
- *Nomination & Remuneration Committee has been rated "Excellent"*
- *Risk Management Committee has been rated "Excellent"*
- *Corporate Governance Committee has been rated "Excellent"*

Individual self-assessment:

The individual self-assessment form consists of 3 main items i.e. 1) Qualifications 2) Meeting 3) Roles, duties and responsibilities of the individual. *The individual self-assessment result for the year 2018 revealed that the board has been rated "Excellent".*

5.11 The Chief Executive Officer's Performance Assessment

The Nomination and Remuneration Committee, in charge of the annual performance assessment of the Chief Executive Officer, must forward the assessment outcome to the Board for endorsement. The performance assessment for the Chief Executive Officer in the area which are leadership, strategy, implementation of strategy, financial planning and performance, relationship with the Board of Directors, relationship with external parties, management and relationship with staff, succession plan, knowledge about products and services and personal qualifications.

The performance assessment for the year 2018 of the Chief Executive Officer is accepted and appreciated to maintain the position to perform his duties and responsibilities for the success of the Company objectives as a whole.

5.12 Development of directors and management

The Company encourages directors, subcommittee, management, company secretary to join the training courses or activities arranged by Thai Institute of Directors Association (IOD), The Securities and Exchange Commission (SEC) or other independent organizations to enhance their knowledge and

operational efficiency, realize their duties and responsibilities. Most directors have undergone training with the IOD courses and shown in each director's profile.

In 2018, the following directors underwent training and seminars;

Name of Directors	Position	Course/Seminar 2018
Mr. Sivaraks Pinicharomna	Independent Director Chairman of Audit Committee	Seminar on 'Better Governance, Better Business: Thailand's Progress Report' by IOD Seminar on 'Strategy's IoT: The Intersection of Things' by IOD Seminar on 'Thailand's 9th National Conference on CAC: Disrupting Corruption' by CAC Seminar on 'Digital Transformation – A Must for all Companies' by IOD Seminar on 'Asian Consumers – Winning the Heart Powerful Asians' by Nikkei Inc. Seminar on 'Learn, unlearn and relearn – Audit Committee in the Age of Disruption' by IOD Seminar on 'Global Risks and Asia Economic Outlook' by SET
Mr. Gumthorn Utarnwuthipong	Independent Director Audit Committee Nomination and Remuneration Committee Chairman of Risk Management Committee Chairman of Corporate Governance Committee	Seminar on 'Managing Cyber Risk: How to effectively detect and respond to Cyber threats' by PWC Seminar on 'Burning Issues Directors Need to Hear in the Year of the Dog' by IOD Seminar on 'Better Governance, Better Business: Thailand's Progress Report' by IOD Seminar on 'How PwC's Fraud Risk Management Framework can Help' by PWC Seminar on 'Rising Above Disruptions: a Call for Action' by IOD Training on 'IT Governance and Cyber Resilience Programe (ITG9/2018)' by IOD Seminar on 'Tough Boardroom Situation-Independent Directors Share Lessons Leamed' by IOD Seminar on 'Asian Consumers – Winning the Heart Powerful Asians' by Nikkei Inc. Seminar on 'Learn, unlearn and relearn – Audit Committees in the Age of Disruption' by IOD Seminar on 'National Research Alliance Dialogue on Corporate Governance 2018 : Digital Disruption's Impact on Leadership' by IOD Seminar on 'Global Risks and Asia Economic Outlook' by SET
Ms. Kantika Tanthuvanit	Board of directors Corporate Governance Committee Company Secretary	Seminar on 'Managing Cyber Risk How to effectively detect and respond to Cyber threats by PWC
Ms. Jaruwan Sookthauyart	Corporate Governance Committee	Seminar on 'Managing Cyber Risk: How to effectively detect and respond to Cyber threats' by PWC Seminar on 'Disclosure of CG Code by principal of applying or explain' by SET Seminar on 'IPO Focus'
Mr. Nuttapol Sinkajohn	Corporate Governance Committee	Seminar on 'Better Governance, Better Business: Thailand's Progress Report' by IOD Seminar on 'Thailand's 9th National Conference on CAC: Disrupting Corruption' by CAC
Ms. Saowaluck Ngamdutsadee-Apirom	Corporate Governance Committee	Seminar on 'TFRS course #7 (2/2561)' by Federation of Accounting Professions

The Company arranges important information for new director, whereby Managing Director and Corporate Secretary shall present the information regarding shareholding structure, organization chart, nature of business, performance of the Company, subsidiaries, and other relevant information. In addition, the Company provided a manual of Company Operation Document, mission and duties of the Board to Directors.

The Company has prepared the succession plan for important positions, by specifying in the Company's strategic plan to be the benefit for the management's work succession and development, and to work in place of Managing Director and the managements when they cannot perform their duties.

5.13 Conflicts of Interest and Internal Information

It is very important to prevent its directors, management and staff from using their status for personal gain. The Good Corporate Governance Manual clearly states that directors, management and staff should avoid a connected transaction that may lead to circumstances where their personal interest conflicts with the Company's interest, particularly in the matters relating to government, suppliers, partners or competitors. The Conflict of interest includes the attempt to reveal the company's confidential information to outsiders during or after the employment period of employee or the office of director, regardless that such information is electronic information, financial information, business information, the company's

future plans, etc. and prohibited to use internal information for their own or other's advantage.

5.14 Internal Control and Internal Audit System

Internal control is the process set up by the Board of Directors, managements in order to ensure that the Company shall carry out to achieve the following 4 goals;

1) To carry out the business to achieve its goals with efficiency and effectiveness.
2) To ensure reliable financial reports and other information may significantly affecting to the reliability of the financial reports.
3) To comply with laws and regulations both in domestic and aboard including other standards and rules such as rules of SET, accounting standards, and Company regulations.
4) To control and maintain the appropriate acquisition, usage, and disposal of the Company's properties.

The Company has implemented effective and appropriated internal control systems by adopting Internal Control-Integrated Framework of COSO (The Committee of Sponsoring Organization of the Treadway Commission) and guideline in evaluating internal control sufficiency by SEC (The Securities and Exchange Commission, Thailand). The Company supports internal auditing to adopt the International Standards for Professional Practices of the IIA (Internal Auditing of the Institute of Internal Auditors) as well

5.15 Risk Management

The Board is responsible for assuring the risks management to cover situation that hinder the Company from its strategic goals is in place. In doing so, the Board has appointed the Risk Management Committee to determine risk management policy and framework, to monitor and promote, and to ensure that the risk management of the Company is properly functioned and effective. The Risk Management Committee has also been assigned to assess risks which are of significance at the organization as well as project levels, to develop operational, monitoring and evaluation plans, to implement and continuously revise them to mitigate and reduce the risks down to the acceptable levels and to report the results to the Board periodically or immediately.

The details are set out in "Risk Management .

5.16 Compliance

Compliance aligns with good corporate governance principles is under monitoring of the company secretary.

<u>Complete Compliance with the Good Corporate Governance Principles in Other Matters in 2018:</u>

Board of Directors has approved the determination of the Board of Directors Charter and reviewed the charter of other subcommittees in order to comply with the principles of Good Corporate Governance and the Securities and Exchange Act of Thailand (No.4) BE 2551, as follows:

1. Charter of the Board of Directors
   In accordance with the resolution of the Board of Directors' Meeting No. 1/2018, the Board of Directors the Board of Directors set and approve the charter to be activated on 28 February 2018 onwards for all directors to be aware of their duties and responsibilities to perform their duties correctly and completely.
2. Audit Committee Charter
   According to the resolution of the Board of Directors' Meeting No. 9/2561 dated on December 21, 2018, the Board of Directors approved for the amendment of the charter of Audit Committee in order to allow the Audit Committee to perform duties as assigned by the Board of Directors with efficiency, transparency.

3) Nomination and Remuneration Committee Charter
   According to the resolution of the Board of Directors' Meeting No. 11/2561 dated on 14 November 2018, it was it was approved for the amendment of the Charter of the Nomination and Remuneration Committee.

4) Directors and Management updated the report on interest to be consistent with Company new organization on July 1, 2018 to pursuant with the notification of the Capital Market Supervisory Board No. TorChor.2/2552 Re: Reporting of Interest of Directors, Executives, and Related Persons dated 26 January 2009.
5) Director and Management acknowledged of the duty to report the changes of each person's securities holding to the SEC office in accordance with the Notification of the Office of the Securities and Exchange Commissioning No. Sor. Jor. 38/2561 dated July 16, 2018.
6) The nomination and appointment of the new Director, he or she has completed the form of Preliminary qualification examination of the nominated person for being a director according to the Notification of the Securities and Exchange Commission No. Kor Jor. 3/2560 Re: Determination of Untrustworthy Characteristics of Company Directors and Executives. The Nomination and Remuneration Committee considered the qualification of the new director and proposed to the Board of Directors for approval.

Good Corporate Governance in Other Matters which is in the Process of operation in 2018 as follows:

1) Due membership period of the Private Sector Collective Action Coalition Against Corruption (CAC) which will be expired in October 2019, the Company is in the process of renewal the membership by preparing the Self-Assessment data and collecting various evidence which regard to business policies, measures, procedures as well as internal control system. The Self-Assessment will be reviewed by the Audit Committee for the adequate completeness in accordance with the CAC recertification process. Consequently, the complete form of the Self-Assessment will be proposed to consider and submit in the Board of Directors' meeting.
2) Since the year 2018, the company has been preparing to be in line with the CG Code which is based on Good Corporate Governance Principles for Listed Companies 2017 (Corporate Governance Code: CG Code). The Company aims to create a manual and issue Good Corporate Governance principles under the CG Code in 2019.
3) In 2018, the Corporate Governance Committee reviewed the Good Corporate Governance Policy and Corporate Social Responsibility and Sustainable Development Policy in order to make the policy more efficient and creating more value for the business which are in the process of presenting for approval from the Board of Directors.

Internal Control and Risk Management

The Board of Directors entrusts the Audit Committee for review the appropriateness and effectiveness of internal control, risk management and corporate governance of the company and its subsidiaries including compliance with applicable laws and regulations, deterring conflict of interest or any fraud and reviews reasonable and beneficial of connected transaction. The Company adopted COSO's Internal Control and Enterprise Risk Management Integrated Framework to ensure that the internal control and risk management to be appropriated with good corporate governance.

- **Control Environment**

The company establishes proper organizational structure, determines duties and responsibilities as well as power of authority, enabling clear reporting lines for oversight and control in order to achieve objective and targets. In addition, necessary instruction, procedures and guidelines were also established for Company's execution.

The Company encouraged good corporate governance awareness for managements and employees of the Company and subsidiaries by determined Code of Conduct and Ethics for Directors, Executives and Employees as the guidelines for integrity, transparency and fairness to all stakeholders.

The Company has certified into the Thailand's Private Sector Collective Action Coalition Against Corruption (CAC) since 14th October, 2016.

In 2018, the Company continues to utilize self assessment form which issued by SEC in accordance with COSO 2013 to used as guidance for evaluate the adequacy of internal control system, raise understanding to all levels of management and clearly identified the areas for improvement.

- **Risk Management**

The Company has realized the importance of risk management as an essential tool to enable the Company to achieve its objectives and goals, adding value to the Company, shareholders and stakeholders. The Board of Directors has stipulated the continual and effective risk management process to manage risks and entrusted the Risk Management Committee for oversight risk management activities. Risk Management was systematically and practically performed by considering both internal and external factors which may affect Company's operation. In addition, risk control measures have been determined to control the risks at acceptable level.

In 2018, the Risk Management Committee reviewed company risk profile including reported significant risks to the Audit Committee and the Board of Directors on quarterly basis.

- **Control Activities**

The Company establishes efficient and effective control activities to control risks and increase confidence in achievement of desired objectives. The policies and procedures including determination of authority, segregation of duties, safeguarding of assets and auditing has been determined. In case of control deficiency existed, appropriate corrective and protective measures shall be employed to prevent the recurrence of detected deficiency in the future.

- **Information & Communication**

The Company recognizes the importance of information and communication by encourage continuous development to ensure that all information is accurate and up to date. Besides, the company also focuses on data security, storage, processing, usage and monitoring in order to support decision making of managements and employees with completeness, accuracy and timely manner. The Company communicates necessary information such as policies, regulations, commands and procedures through intranet and other channels.

Furthermore, the Company established whistle-blowing or complaint channels for any illegal, misconduct or behavior which may indicate corruption. Employees or stakeholders can report or complaint via E-mail or letter as well.

- **Monitoring Activities**

The Company establishes monitoring activities for Company's operation to ensure that the internal control system is appropriately implemented. In order to evaluate the effectiveness of internal control, internal auditor performed risk-based audited as annual planned. In case of control deficiencies, it would be reported to the responsible person in order to determine root cause including appropriate corrective and preventive measures, and for significant control deficiencies, it would be reported to the Audit Committee and the Board of Directors in order to take appropriate corrective and preventive measures in timely manner.

In 2018, internal audit department increased its human resource and improved audit work procedures for more effectively execution. However, the Audit Committee recommended that the Company should encourage more internal auditor to be certified by international internal auditing profession.

Occupational Health, Safety and Environmental System

GRI (403-1: Occupational health and safety management system)

TTCL emphasizes an importance of Occupational Health and Safety of employees, partners and concerned parties including environmental impact prevention. Therefore, the company aims to establish and maintain safe working conditions with no injuries or illnesses including prevent environmental impacts by adopted the Occupational Health, Safety and Environmental Management System as part of company's execution.

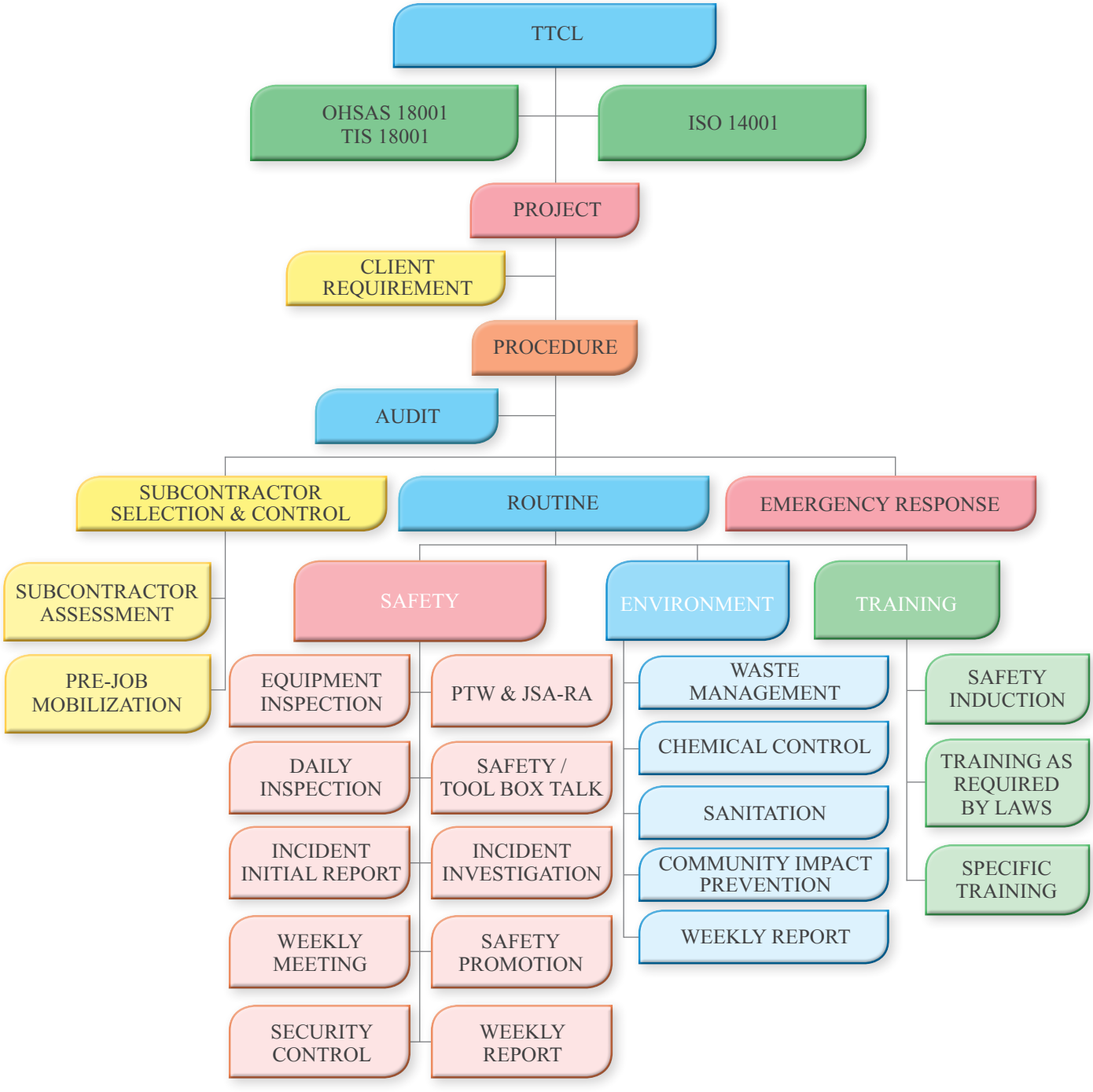
Occupational Health and Safety Management System Certificate
(OHSAS 18001:2007, TIS 18001:2011)

Environmental Management System Certificate (ISO 14001:2015)

Occupational Health, Safety and Environmental Implementation

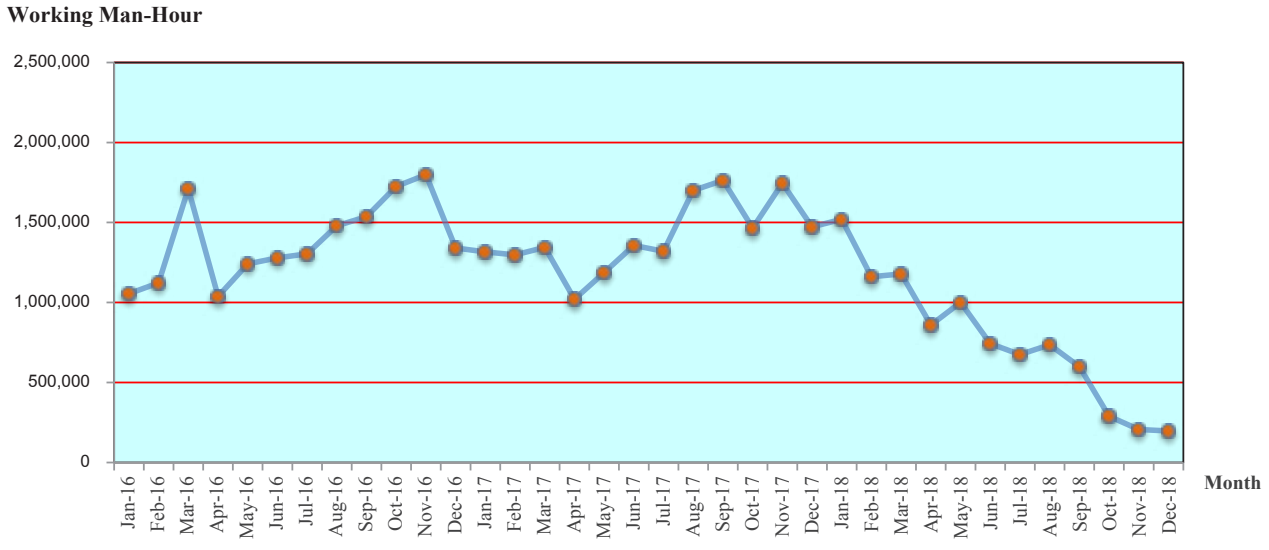
GRI (403-1: Occupational health and safety management system)

TTCL has developed Occupational Health, Safety and Environmental implementation guideline in order to successfully achieve the HSE's Policy and Objectives as following;

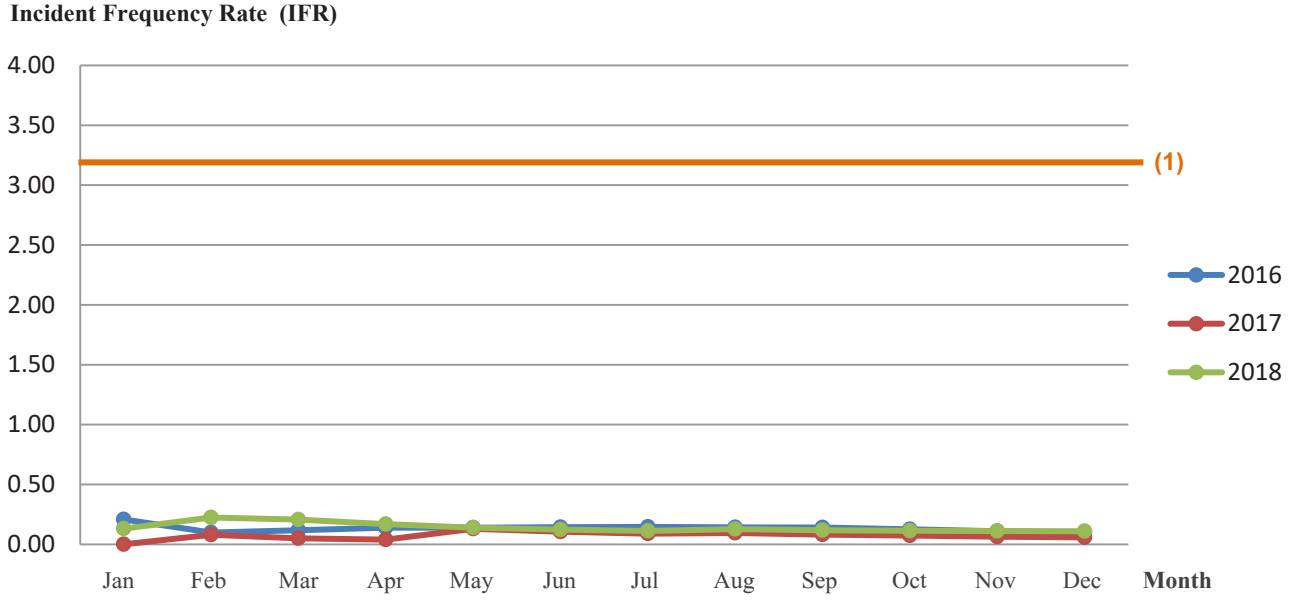


Occupational Health, Safety and Environmental Implementation

Working Man-Hour 2016-2018



Incident Frequency Rate 2016-2018
GRI (403-9: Work-related injuries)



(1) Source: Incidence rates of nonfatal occupational injuries and illnesses by case type and ownership, selected industries, 2016 (Construction), U.S. Bureau of Labor Statistics, U.S. Department of Labor.

Environmental Management

The objective and goal of environmental management in project execution is that the company will carry out project by considering environmental impact prevention and construction activities will be complied with the applicable laws and project's requirements including no environmental complaint from nearby community. Therefore, TTCL has developed environmental plan to control environmental aspects and reporting result to concern parties continuously.

Air Quality Control

GRI (403-7: Prevention and mitigation of occupational health and safety impacts directly linked by business relationships)

TTCL provided water spray on transportation route within the project and surrounding areas included cleaning vehicle wheels before departure from project site to prevent and minimize dust emission from construction and transportation activities.

TTCL provided water spray on transportation route within the project and surrounding areas included cleaning vehicle wheels before departure from project site

Noise Control

GRI (403-7: Prevention and mitigation of occupational health and safety impacts directly linked by business relationships)

In construction activities, noise from piling and flushing activities may be affected to nearby communities. The company has determined mitigation and control measures to prevent and minimize the impact by consider using bored pile and fitting a silencer during flushing activity including limited work time and inform nearby communities in advance.

Fitting a silencer during flushing activity

Waste Management

GRI (306-2: Waste by type and disposal method)

TTCL has implemented waste management guideline according to 3 R principle; Reduce, Reuse and Recycle. The various activities such as hazard communication & waste management awareness training and waste separation program are conducted to properly manage waste.

Discharge Water Control

GRI (306-1: Water discharge by quality and destination)

The discharge water from construction activities which generated from runoff water, surface water, hydrotest water and flushing water has been monitored water quality parameters such as pH and turbidity before drain to gutter in order to ensure that discharge water quality will be complied with applicable standard.

Emergency Response

GRI (403-5: Worker training on occupational health and safety)

TTCL has conducted Emergency Drill at least once a year, both head office and project sites.

TTCL cooperated with Sermmit tower juristic person to conduct emergency drill at head office

Emergency Drill at Project Site

At head office, TTCL also established Emergency Rescue Team (ERT) in order to assist employee who get injury or illness and children in child care room to evacuate from building in emergency situations such as fire and earthquake.

Emergency Rescue Team Meeting at Head Office

Resources Utilization Awareness Program

GRI (302-4: Reduction of energy consumption)

TTCL recognizes the global climate change problem. Activities and campaigns were organized in order to raise employee's awareness and recognize value of limited resources. There are many activities have been conducted such as paper saving program to utilize used paper, encourage to review and read document in electronic file to reduce amount of printed paper, the campaign for water and electricity consumption saving including replacing fluorescent lamp by LED lamp. As the result, the amount of utilized resources has been reduced.

Paper saving program

The campaign for electricity and water consumption savings

The Achievement in Occupational Health, Safety and Environment

GRI (403-9: Work-related injuries)

TTCL has achieved in Occupational Health, Safety and Environmental implementation in 2018 as following;

OLEFINS RECONFIGURATION PROJECT

Owner (Client)	:	PTT Global Chemical Public Company Limited
Project Site Location	:	Map Ta Phut Industrial Estate, Rayong, Thailand
Project's Description	:	Constructing an Olefins plant
Achievement	:	Accumulated 1,000,000 Safe Man-Hours without Lost Time Accident
Award Date	:	17th October 2018

Corporate Social Responsibility and Sustainable Development

Commitment

The company is committed to create and improve the quality of life, society and the environment for a sustainable society. By creating a trust for stakeholders with responsibilities towards society and the environment to associate with success in business.

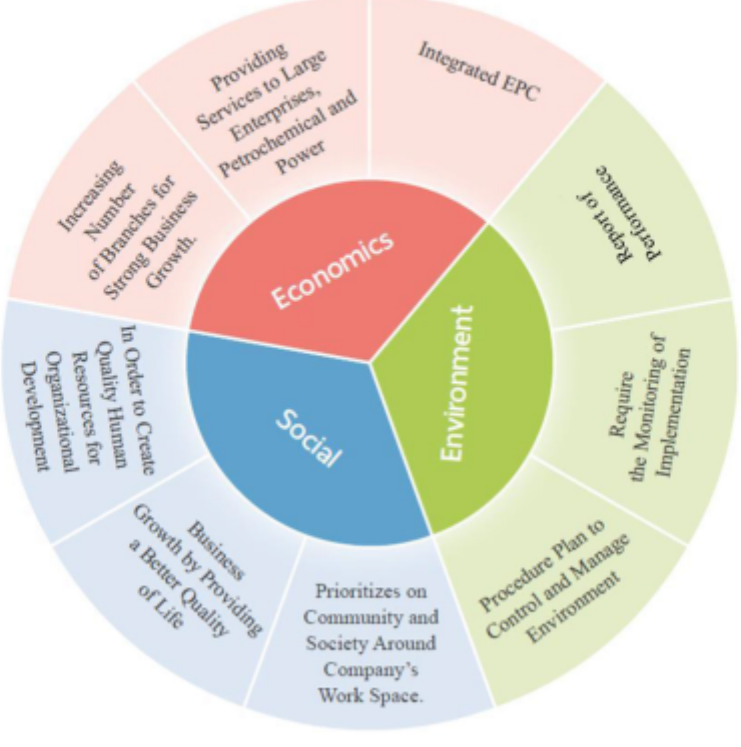
Goal

The company aims to establish and carry out a project on corporate social responsibility values shared between companies, community and society by developing from the existing corporate social responsibility project of the company to develop the project to achieve a maximum value to society and economy.

Challenges and Business Opportunities

Company's social responsibility through business activities and stakeholder participation is as approach for creating mutual benefit between the company, communities and society. To enhance the business competitiveness to associate with promoting the economic, society and environment and the activities to sustainable society and growth, leads to the development and enhance the economy for the better that it appropriates with United Nations Sustainable Development Goals such as better employee potentiality development, promoting health and well-being of the community around the project and promoting continuing education, etc.

In year 2018 the company has conducted to operating business along with corporate social responsibility, which consist of 3 topics such as economics, social and environment as follows;



Economics

The company is a first and only Integrated EPC company in Thailand by providing services to large enterprises, mainly focusing in the industry of petrochemicals, chemicals, energy businesses and also in other similar industry. Currently, The company is increasing number of branches in both local and abroad for strong business growth.

Social

The company prioritizes and cares in order to create quality human resources for organizational development and business growth by providing a better quality of life with in corporate and family. Moreover, the company always prioritizes on the community and the society around the company's work space.

Environment

The company has a procedure plan to control and manage environment to prevent and reduce environmental impact by the plan must comply along with the environmental impact study project (Environmental Impact Assessment; EIA) and require the monitoring of the implementation regularly with report of performance to inform those who are involved constantly. Management is divided into three points Management of air pollution, Management of noise pollution and Management of garbage and hazardous waste.

TTCL strives the operation for steadily growth business in domestic and aboard in building to be reliability for stakeholders of corporate social responsibility to concern with economic, social and environment. The management considers the company's corporate social responsibility operation and development successively. The management appreciates and adjust the sustainable corporate social responsibility operation, so the company arranges the Corporate Social Responsibility and Sustainable Development Policy to concern with economic, social and environment in according with Sustainable Development Goals (SDGs) and Global Reporting Initiative Standards (GRI).

Master Business : TTCL has experiences and expertise in providing integrated engineering design procurement of machinery & equipment, and construction (Integrated EPC). The company's business consists of 2 master leading as follows; 1) Construction & Service and 2) Power Plant Businesses and Energy.

Sustainable Business Operation Strategy

TTCL emphasizes in business operation of corporate social responsibility. In consideration of business operation impact to community, social and environment along with driving the organization to sustainable goals and encouraging the management and employees in company to avouch the concerned stakeholders for Cooperation and mutual benefit. The company proceeds under the corporate social responsibility, which consist of 3 master issues as follows; **1) Economic (Corporate Governance) :** To defend service leadership Integrated EPC and continue to expand the branch in domestic and aboard for continuing growth business. **2) Social :** Creating the quality employees in company development and to be faithful the business operation policy by corporate social responsibility in emphasizing with community

and social around the construction project of company. **3) Environment :** To emphasize the standard environmental management of environmental management quality (ISO 14001) for environmental operation of company effectively and in accordance with the law.

Corporate Governance
Corporate Governance represents effective management system, transparent, verifiable and building trust and confidence to stakeholders.

- Rights of shareholders.
- Equitable treatment of shareholders
- Consideration the role of stakeholders
- Disclosure and transparency
- Responsibilities of Board

Economic
Building sustainable growth business by keeping leadership and building mutual benefit to stakeholders.

- Keep leadership in service Integrated EPC.
- Continue to expand the branch in domestic and aboard.

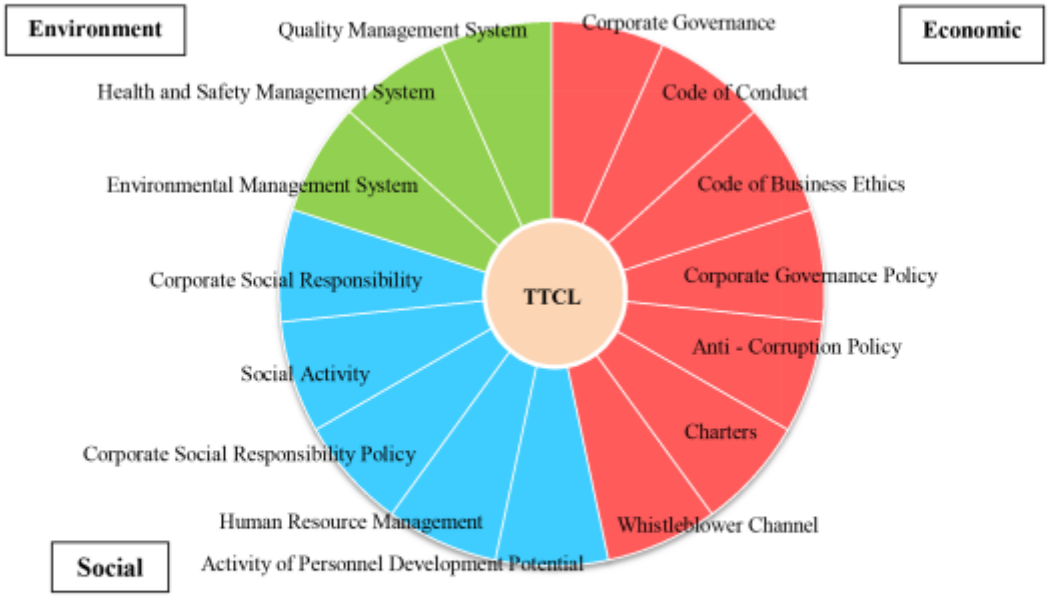
Social
Creating and continuing good relations of caused by acceptance and trust, to emphasize caring and supporting continued social activities.

- Compliance with Code of Conduct and Code of Business Ethics
- Human Rights and Labour Practices Responsibilities to Stakeholders
- Social Responsibility Activity
- Responsibility for Environment and Safety Standards
- Company Innovation related to CSR

Environment
Emphasizes to safety and health by impact prevention to environment in building and maintain good work to healthy.

- Prevent accidents and incidents
- Operation in according law and provision
- Prevent impact to environment
- Control quality and safety of service
- Environmental conservation and energy

Framework of TTCL



The Company has guides to adhere of good business policy according to the principle of disclosure and clean information. The operation policy has been state to strengthen knowledge and understanding of the business operations of stakeholders, director, management and employees to understand and follow company's policy to comply with the policies, which are as follows;

Policy	Essential Main	Goals (SDGs)	Policy	Essential Main	Goals (SDGs)
1. Code of Conduct	• Customers Trust. • Compliance with Laws and Regulations. • Compliance with Corporation. • Operation Policies and Regulations. • Respect for Humanity.	8 16	7. Investor Relations Policy.	• Disclosure is important and necessary correctly adequate and timely. • The care and treatment of internal information. • Disclosures Equally and fairly. • Duties with integrity.	8 16
2. Code of Business Ethics	• Compliance with Code of Conduct. • Guideline of Business Operation. • Conflict of Interest. • Rewards and Entertainment. • Responsibility for Shareholders. • Relationship with Suppliers and Contractors. • Safety and Health in Workplace. • Security of the Company's Properties. • Computer System. • Responsible for Environment	8 16	8. The company's dividend Policy.	• Dividend is not less than 50 percent of net profit after tax and legal reserve. The Board of Directors is authorized to exclude the implementation of such policies, or change the policy from time to time. It is under such conditions that the operation would have caused interest of the shareholders.	16
3. Corporate Governance Policy	• Rights of Shareholders. • Equitable Treatment of Shareholders. • Roles of Stakeholders. • Disclosure and Transparency. • Board of Director Responsibilities.	8	9. Dividend policy of the subsidiary.	• Considering from the cash flow from the investment of the subsidiary. • Has not specified the exact payout ratio. • When cash flow is enough and has set up a legal case to be considered as a dividend.	8

4. Anti - Corruption Policy	• Definition of the Anti – Corruption Policy. • Anti – Corruption Policy . • Roles and Responsibilities. • Anti – Corruption Guidelines. • Measures / Operational.		10. The remuneration policy for directors and management.	• Considering the duties and responsibilities of directors. • The overall performance of the Company. • Payment of Compensation Committee Comparable listed companies in the industry and the business is of similar size.	
5. Corporate Social Responsibility Policy	• Code of Conduct and Business Ethics. • Human Rights and Labour Practices. • Responsibility for Customers, Investors, Partners, Employees and Other Stakeholders. • Social Responsibility Activity. • Responsibility for Environment and Safety Standards. • Company Innovation Related to CSR.		11. Risk Management	• Factors will help to promote the company achieving prescribed objectives and goals. • Leading to creating value-added for the company and stakeholders. • Follow up and important risk assessment. • Follow up and efficiency and effectiveness assessment.	
6. HSE Policy	• Operations of the Company must comply with the laws and regulations on occupational health. Safety and environment. • Information must be communicated to stakeholders properly. • Monitor effectiveness of operations. • Operation to Regulation. • Significant resources will be sufficient to support operations. • Review the improvement and development of management system.		12. Company Quality Management Policy	• Management and personnel shall understand and meet the customer requirements and satisfaction. • Management and personnel shall maintain a good relationship to all vendors, suppliers and subcontractors and shall enhance ability to create the added value with them for mutual benefits. • Management shall recognize of all personnel as the essence of the company and encourage their full involvement to utilize their ability for the company benefits. • Management shall manage the company activities and resource as a process in order to efficiently achieve the company quality objectives. • Management and personnel shall implement and continually improve the company quality management base on the concept of Plan-Do-Check-Action (PDCA) cycle.	

Value Proposition

TTCL has experiences and expertise in providing integrated engineering design procurement of machinery & equipment, and construction (Integrated EPC)

Stakeholders of TTCL

- Stakeholder
- Investor Relations
- Employee
- Customer
- Vendors /Suppliers
- Business Partners
- Business Competitors
- Creditors
- Community and Social
- Government Authorities
- Media
- Joint Ventures

Requirement from Customer

- Customer Satisfaction
- Good Quality
- Project was completed on schedule.
- Trust
- Standard contract
- Control design cost, purchase and construction effectively.
- Reduce waste arising from construction and manufacturing.

TTCL, the first integrated Engineering, Procurement and Construction (Integrated EPC) company in Thailand for industrial and process plants, mainly in energy, petrochemical, chemical and power industries in both domestic and aboard for sustainable growth business.

TTCL'S BUSINESS MODEL

Joy of Engineering and Achievement

TTCL aims to be a company where everybody works with joy of engineering and achievement

Resources

- Corporate
- Client
- Business Partners
- Employees
- Licensors
- Government Authorities
- Business Competitors
- Finance
- Concerned Law and Regulation
- Code and Standards
- Sub-contractors
- Vendors / Suppliers
- Consultants (Project Management Consultant)
- Environmental / Health / Safety
- Social

Results

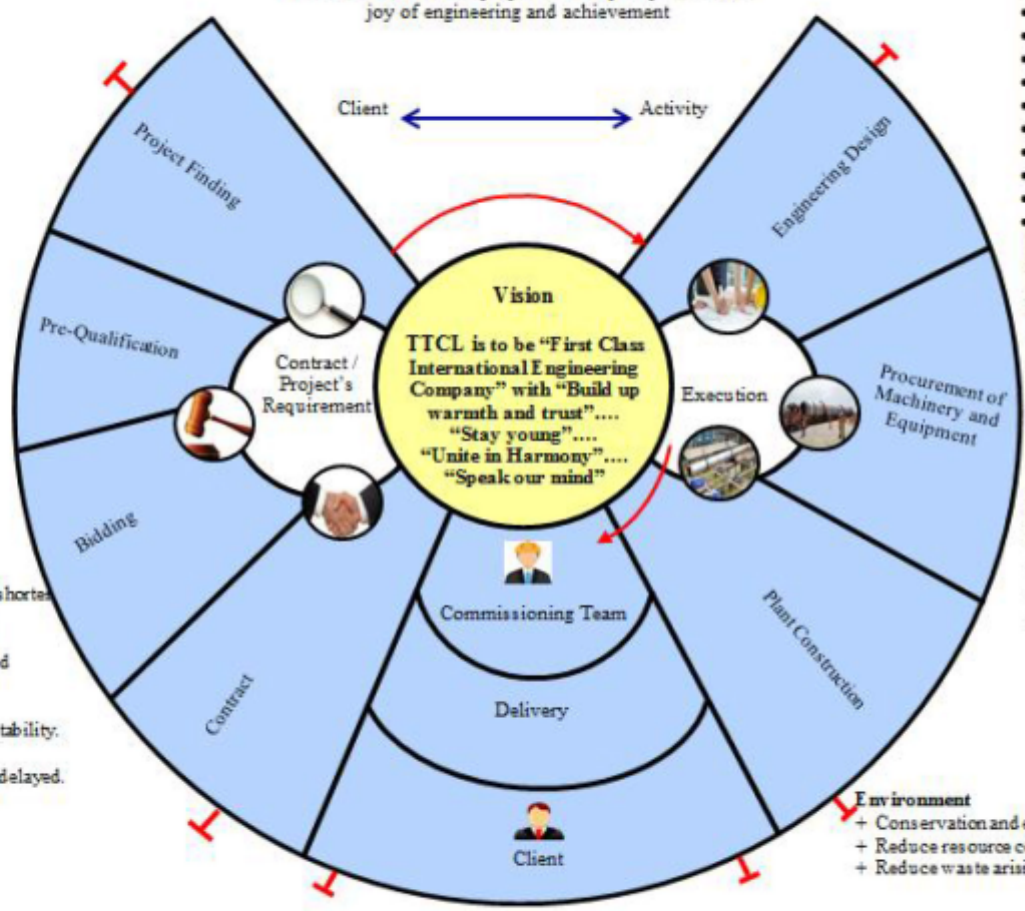
+ Bid competitively and fairly.

+ The proposed construction period is shorter to reduce costs. The customer benefits.

+ Cost Control Design Procurement and construction efficiency.

- The company is capable of low profitability.

- The risk of being fined if delivery is delayed.



Resources

- Corporate
- Employees
- Client
- Sub-contractors
- Vendors / Suppliers
- Licensors
- Environmental / Health / Safety
- Social
- Cost
- Engineering Tools
- Tools & Equipment
- Concerned Laws and Regulation
- QA / QC
- Policy
- Finance

Results

Employees

+ Training
+ Cost
+ Valued Engineering
+ Work Procedure
+ Schedule Management
+ Contract Compliant
+ Information designed to customers.
+ Response client's requirement.

Client

+ Client Relationship
+ Business Relationship
+ Client Satisfaction
+ Trust
+ Result of the negotiation
+ Repeat Order

Business Partner

+ Information Exchange
+ Trusts
+ Cooperation
+ Development

Social

+ Safety in the work environment.
+ Generate employment in the area.
+ Help to improve quality of life.
+ Development in community.
+ Improve technology.

Environment

+ Conservation and energy efficiency.
+ Reduce resource consumption and environmental impact.
+ Reduce waste arising from construction and manufacturing.

Resources

- Corporate
- Business Partners
- Client
- Government Authorities
- Employees
- Cost
- Vendors / Suppliers
- Environmental / Health / Safety
- Concerned Law and Regulation
- Consultants (Project Management Consultant)
- Code and Standards
- Sub-contractors
- Licensors
- Social

Results

+ Project was completed on schedule.
+ Quality
+ Trust
+ Customer Satisfaction
+ Standard contract
+ Advise other clients

Page 5 of 26

TTCL Public Company Limited, by the resolution of Board of Directors' Meeting No. 6/2561 dated June 22, 2018, authorized the Board of Management consist of;

1.	Mr. Hironobu	Iriya	President & CEO
2.	Mr. Tiwa	Jaruke	Senior Vice President Project, Proposal and Engineering
3.	Ms. Kantika	Tanthuvanit	Senior Vice President General Administration & Finance
4.	Ms. Suratana	Trinratana	Senior Vice President General Consultation of Myanmar Development Tasks
5.	Mr. Wanchai	Ratinthorn	Corporate Control Officer (CCO)
6.	Mr. Hideto	Koyama	Corporate Planning Officer (CPO)

as practitioners the Corporate Social Responsibility of company for effectively and maximum benefit to company.

The Board of Management's duties on Corporate Social Responsibility and Sustainable Development are as follows;

1. Determine and roll-out the company's Corporate Social Responsibility and Sustainable Development Policy.

2. Propose the working group name lists to communicate with all levels of employees, partners, and stakeholders to understand and realize in Corporate Social Responsibility and Sustainable Development.

3. Determine appropriate plan in line with the company operation policy.

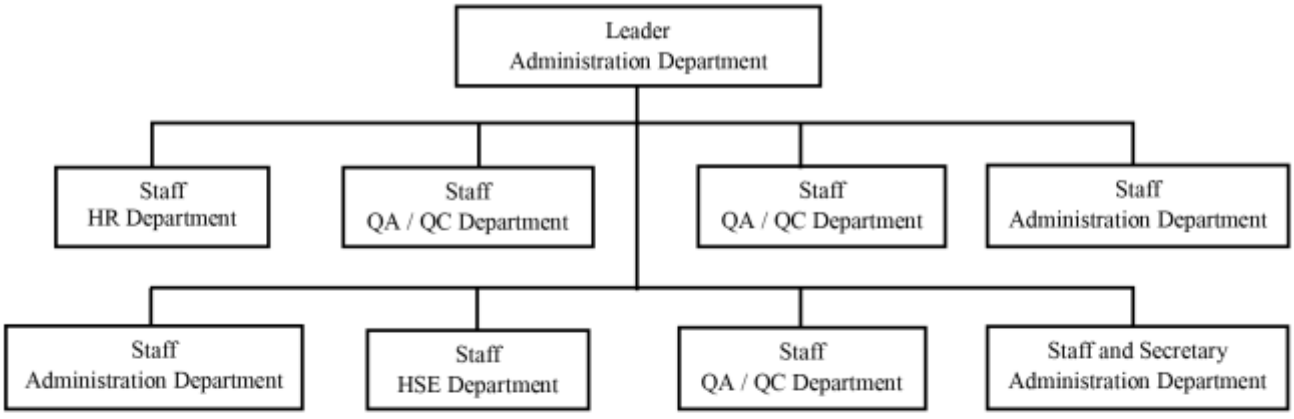
4. Determine the suitable budget, follow up, evaluate and review the performance in relation with the planed policy.

5. Encourage the exchange of knowledge, success, and experience on Corporate Social Responsibility and Sustainable Development between internal and external units.

6. Continuously report Corporate Social Responsibility and Sustainable Development activities to the Board of Directors.

To support CSR activities and to achieve its objectives, the following persons are appointed as Corporate Social Responsibility and Sustainable Development working group;

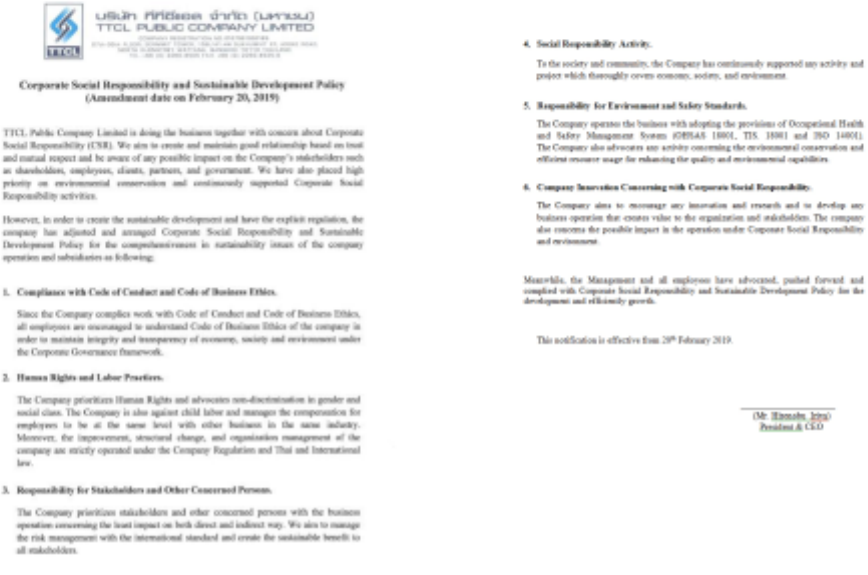
Corporate Social Responsibility and Sustainable Development Working Group



Roles and Responsibilities of Corporate Social Responsibility and Sustainable Development Working Group are as follows;

1. To follow up and act according to the Corporate Social Responsibility and Sustainable Development Policy.
2. To propose action planed in order to achieve the specified objectives.
3. To report the operational progress to Board of Management and to coordinate with other related units to achieve the objectives under Corporate Social Responsibility and Sustainable Development Policy.
4. To consider the company's activities for communities and environment to be proposed to the Board of Management.
5. Undertake any other actions concerning Corporate Social Responsibility and Sustainable Development activities as authorized by the Board of Management.

Corporate Social Responsibility and Sustainable Development Policy



บริษัท ทีทีซีแอล จำกัด (มหาชน)
TTCL PUBLIC COMPANY LIMITED

Corporate Social Responsibility and Sustainable Development Policy
(Amendment date on February 20, 2019)

TTCL Public Company Limited is doing the business together with concern about Corporate Social Responsibility (CSR). We aim to create and maintain good relationship based on trust and mutual respect and be aware of any possible impact on the Company's stakeholders such as shareholders, employees, clients, partners, and government. We have also placed high priority on environmental conservation and continuously supported Corporate Social Responsibility activities.

However, in order to create the sustainable development and have the explicit regulation, the company has adjusted and arranged Corporate Social Responsibility and Sustainable Development Policy for the comprehensiveness in sustainability issues of the company operation and subsidiaries as following:

1. **Compliance with Code of Conduct and Code of Business Ethics.**

   Since the Company complies work with Code of Conduct and Code of Business Ethics, all employees are encouraged to understand Code of Business Ethics of the company in order to maintain integrity and transparency of economy, society and environment under the Corporate Governance framework.

2. **Human Rights and Labor Practices.**

   The Company prioritizes Human Rights and advocates non-discrimination in gender and social class. The Company is also against child labor and manages the compensation for employees to be at the same level with other business in the same industry. Moreover, the improvement, structural change, and organization management of the company are strictly operated under the Company Regulations and Thai and International law.

3. **Responsibility for Stakeholders and Other Concerned Persons.**

   The Company prioritizes stakeholders and other concerned persons with the business operation concerning the least impact on both direct and indirect way. We aim to manage the risk management with the international standard and create the sustainable benefit to all stakeholders.

4. **Social Responsibility Activity.**

   To the society and community, the Company has continuously supported any activity and project which thoroughly covers economy, society, and environment.

5. **Responsibility for Environment and Safety Standards.**

   The Company operates the business with adopting the provisions of Occupational Health and Safety Management System (OHSAS 18001, TIS. 18001 and ISO 14001). The Company also advocates any activity concerning the environmental conservation and efficient resource usage for enhancing the quality and environmental capabilities.

6. **Company Innovation Concerning with Corporate Social Responsibility.**

   The Company aims to encourage any innovation and research and to develop any business operation that creates value to the organization and stakeholders. The company also concerns the possible impact in the operation under Corporate Social Responsibility and environment.

Meanwhile, the Management and all employees have advocated, pushed forward and complied with Corporate Social Responsibility and Sustainable Development Policy for the development and efficiently growth.

This notification is effective from 20th February 2019.

(Mr. Hiranyabu Jotiya)
President & CEO

Human Resource Management

A success key of the company is paying attention to employees and all labor groups as employees are valuable resources and important stakeholders in the business. Moreover human resource also is a key to drive the organization to achieve sustainable development. Therefore, the company focuses on human resource planning and employee development to have the potential to support future business expansion which starts from the process of recruitment of each department by considering the suitability of knowledge capacity.

Recruitment

The company provides opportunities to person that has potential to become a key force in the development of the organization to grow steadily and sustainably through a systematic recruitment in the same standards of position and same career. And also focus on the equality in race, religion, sex and education institutions including the disabled and other disadvantaged groups by advertising the job opportunities through various channels to get a variety of applicants. In addition, the company has joined fair project where held in educational institutions continuously every year. Thus, The project cooperate with the department of Human Resources and others such as Engineering Department, Project Operation Department, etc. in order prepare a recruitment plan to recruit and select potential candidates to meet the needs of the business.

Internal recruitment

The company transfer and rotate employee within the organization by considering from staff knowledge and ability that match with each work field. In addition, the company also provides the opportunity to the 3rd and 4th year's students from various universities both within country and abroad to intern with the company, in order to prepare to join the company after graduation. The company have seek and select new generation staff that have the ability and potential which suit to the organization's culture by learning and practical work under the instruction and suggestions from senior employees. In the year of 2018, there are total 63 internships which work under our company.

External recruitment

The company provides an opportunity to person whom is interested in being a part of the company through various channels such as mail delivery, company website or an online website and walk-in.

In 2018, the company has recruiting employee by attending in the job fair project that held by the educational institutions in order to provide opportunities to student who is going to graduate or graduated in a bachelor's degree to apply the job directly to the company. The company seeks for the personal that have knowledge, ability, attitude and appropriate experience which causes to company diversity.

The job fair project we have attended in year 2018 as follows:

1. Dindaeng Market Project, and job fair project at Khon Kaen University
2. KMUTT Job Fair Project at King Mongkut's University of Technology Thonburi
3. Engineering Market Project at Prince of Songkla University
4. Establishment Meeting Student Project at King Mongkut's Institute of Technology Chao Khun Ladkrabang
5. Graduated Labor Market Project, SUT, Suranaree University of Technology

6. Engineering Career Day Project at Chiang Mai University
7. Dongtan Sarnfun Project, Faculty of Engineering (JOB FAIR) No. 15

Applicant selection

The company fairly selects and seeks for the candidates who are interested to join with us from every channel by interviewing and testing knowledge and skills that match with the position which the candidates have to pay attention and have a positive thinking. It is a factor for the company achievement and goals. Human Resources Department will inspect the education background, work experiences and criminal records in order to evaluate the candidate's ability and skills appropriately to assign and hire staff with the right position, including prevent the use of illegal labor, forced labor and child labor strictly.

Employment

Company focus on employment process and compensation payment fairly with same standard to all employees regardless of gender or nationality. Moreover the company have launch the policy that can be guide operate performance of employee. All employees will be provided the benefits and welfare under Thailand labor laws.

Attraction and Retention

The company is encouraging and support employee's skills and knowledge to motivate talent employees and to be good employees staying with the company. The structure of remuneration and welfare management for employees are assessed by the performance of each employee with annual compensation adjustments, including promotion by the ability to work in the field. The company has the criteria for evaluating the performance of employees to assess knowledge, ability, and responsibility in the operation, in order to encourage employees to work effectively. The results of the assessment are to be presented to the Executive Board for final consideration which makes assessment straight forward and righteous caused the turnover rate increasing from 6.7% in Y2017 to 21% in Y2018.

Ratio of Resignation Employee

Gender		2017 Amount (Person)	2017 Total (people)	2018 Amount (Person)	2018 Total (people)
Male		158	247	267	408
Female		89		141	
Position					
Permanent Staff	Engineer	136	161	255	331
	Technician	8		30	
	Support staff	17		46	
Contract employee	Engineer	49	86	34	77
	Technician	13		15	
	Support staff	24		28	
Percent		**6.7 %**		**21.1%**	
Numbers of employee at the end of the year		**3,679 (person)**		**1,932 (person)**	

A Graph of Employee resignation Ratio

* Calculate from the number of resigned staff in the year of 2017, 247 persons and 408 persons in 2018

Number of employees and Type of employment

2 years historical statistics of staff number as of December 31, 2017 is 3,679 persons and December 31, 2018 is 1,932 persons by divided as follows;

Employment Ratio

Description	Y2017		Y2018	
	Amount (person)	Percent	Amount (person)	Percent
Gender				
Male	2,737	74 %	1,375	71 %
Female	942	26 %	557	29 %
Types of employment				
Permanent Employee	1,444	39 %	1,191	62 %
Contract employee	502	14 %	359	18 %
Daily-employee	1,733	47 %	382	20 %
Level				
Top management	43	1 %	39	2 %
Middle management	295	8 %	271	14 %
Operational	3,341	91 %	1,622	84 %
Age				
30 years old	1,325	36 %	639	33 %
31-50 years old	2,058	56 %	1,141	59 %
Above 51 years old	296	8 %	152	8 %
Workplace				
Head office	1,362	37 %	1,241	64 %
Domestic sites	2,168	59 %	648	34 %
International sites	149	4 %	43	2 %

New attendance and termination / termination *

Description	Y2017		Y2018	
	Amount (person)	Percent	Amount (person)	Percent
New employees classified by gender				
Male	1,956	53 %	578	30 %
Female	455	12 %	271	14 %
New employee Classified by age				
Under 30 years old	885	24 %	378	20 %
31 – 50 years old	1,366	37 %	432	22 %
Above 51 years old	160	4 %	39	2 %
Termination classified by Gender				
Male	829	23 %	1,681	87 %
Female	213	6 %	515	27 %
Termination classified by Age				
30 years old	525	14 %	758	39 %
31-50 years old	475	13 %	1,245	64 %
Above 51 years old	42	1 %	193	10 %

*Termination means employee who resigned, dismissed, retired or deceased

The number of female employees took maternity leave and resume work.

Description	Y2017	Y2018
On maternity leave	19	15
Resume work.	19	13

The company has annually reviewed and planned personnel rates to prepare personnel to be consistent and adequate with the amount of work and the number of institutions that are expected to occur each year; in order to acquire personnel with appropriated qualifications and potential in the amount and the suitable time.

Employment and compensation description

Employment description

Company focuses on employment process and compensation payment fairly with same standards to all staff. And also give the precedent to human rights equally by experiences with no gender or nationality classification. Moreover the company have launch the policy that can be guide operate performance of employee. Employment is divided into 3 types as:

1. Permanent Employee : An employee who is employed without predetermined date by get paid monthly and able to work until retirement as long as rules and regulations is compiled and not violated, including no intention to do harm with the company.
2. Contract Employee : An employee who is employed with predetermined end date and gets paid monthly.
3. Daily Staff : An employee who is employed with daily/hourly or piece of work rate with the nature of work that may works shifts.

Compensation

The company pays attention to the remuneration of employees because the company recognizes the importance of work compensation which is an important factor that gives employees well-being and stability in their career which results in employees work with pride and are ready to create work for the company. The company has a guideline for determining employee compensation in a level not lower than the minimum wage of the country as required by law. Determined by the company to have a standard of remuneration for employees and personnel appropriately. According to duties and responsibilities equal wage determination. There is equal wage determination, no separation of religion, ethnicity and covering women groups. People with disabilities or disadvantaged groups by having a job announcement wages and compensation including various welfare preliminary before the start of work and each year, the company has arranged for performance evaluation to adjust the remuneration for employees according to past work results by dividing the assessment criteria into 2 parts as follows.

1. Employee level
2. Assistant level, supervisor or higher supervisor

And summarize the evaluation results to present to the Executive Committee that considers the wage determination Compensation or special remuneration (bonus). The remuneration will be set in accordance with the company's performance by considering both short and long term including in accordance with the compensation of the same industry as well as providing various benefits to enhance the quality of life of employees.

In addition, the company pays attention to the payment of wages, salaries and welfare to employees in a complete and timely manner. The company has carefully and effectively planned the compensation and welfare management of employees.

Proportion of Salary rate and remuneration by Gender

Wage payment	2560 (THB)	2561 (THB)
Salary rate and remuneration by Gender		
Male	105,868,699	65,345,517
Female	30,738,125	22,052,105

Policy for special incentive (Bonus)

The Special incentives (bonus) will be paid based on the performance of the organization indicates that reflects the achievement of employee efforts dedicated to the organization and pay bonuses to this format. Encourages employees to attempt to make the company has good performance. Which will affect his bonus and also attracted to people who are interested in joining the organization include helping maintain employee relations within the organization. The evaluation will be done by leader, supervisor and manager within the department employees belong to, respectively. The results of the assessment are to be presented to the Executive Board for final consideration.

Provident Fund

The Provident Fund is voluntarily established by the employer and the employees with objectives to promote the saving of employees, provide the members and their families the guarantee of future Security also tax relief benefit.

Empowerment and Human Resources Development

The company aims to develop employee's potential, knowledge and skills in an appropriate way continuously in line with business growth and employee needs in each job description focusing on enhancing skills for new employees and increase employee proficiency. Training program focused on developing the skills and capabilities and communication skills comply with company business plan. Apart from training, company also has outings activities to enhance professional skills and expertise in jobs. Encourage employee to be creative and have a better understanding the work procedure. In year 2018, there are 4 types of training as follows:

1. **Company General Training**

   1.1 New employees course. It is a preliminary course that new employees will receive training as follows;

   - Company regulations
   - Policy and practice on anti-corruption
   - Knowledge and understanding of IT policies on maintaining confidentiality of the company

In the year 2018, there were 91 trainees.

Picture of New employee course

1.2 Basic Safety training. For employees to reduce health hazards and promote work safety, such as the "Basic Safety and Company Management System Awareness" program in 2018, with a total of 89 trainees

Picture of Basic Safety Course

1.3 Quality, occupational health, safety and environmental management systems awareness training. This course is to create awareness in the management system of quality, occupational health, safety and the company's environment for new employees for creating an understanding of the overall quality management system of occupational health. The safety and environment of the company in the year 2018 has already trained a total of 84 people.

Picture of Quality, occupational health, safety and environmental management systems awareness training.

1.4 Basic firefighting training. The company provides the basic fire training for employees at Khlong Toei Fire Station with a disaster prevention and relief staff as a lecturer for knowledge of both the Impression and practice. In order to provide employees with knowledge and understanding about fire protection and initial fire fighting.

In the year 2018, there were 122 trainees.

Picture of Basic firefighting training

1.5 Training and Seminar for Executives Level.

- IOD Director Briefing 1/2018 "Burning Issues Directors Need to Hear in the Year of the Dog"
- Managing Cyber Risk : How to effectively detect and respond to Cyber threats
- Better Governance, Better Business : Thailand's Progress Report
- Special event 2/2018 "Strategy's IOT : The Intersection of Things"
- How PwC's Fraud Risk Management Framework can Help
- IOD National Director Conference 2018 "Rising Above Disruptions : a Call for Action"
- Seminar "แนวทางการเปิดเผยข้อมูล CG Code ตามหลัก apply or explain"
- Seminar Ethical Leadership Program (ELP)
- Capital Market Preparation Course Training
- Workshop Anti-Corruption : The Practical Guide (ACPG)
- Seminar "Tough Boardroom Situation - Independent Directors Share Lessons Learned"

- Workshop Certificate in Investor Relations 2018
- Seminar "Thailand's 9th National Conference on CAC : Disrupting Corruption"
- Workshop IT Governance and Cyber Resilience Program (ITG 9/2018)

2. On the Job Training

In 2018, there were 6,987 employees who have received training while performing work.

3. Special Training

The company has organized a training and development program for systematic learning for employees within the organization. To develop personnel to recognize attitudes and learn other people's behaviors, including being able to analyze problems with a system, making work more efficient by focusing on learning and practicing real practice as follows;

3.1 Business English conversation course

Provide English language skills training to support the expansion of businesses that are expanding overseas. Divided the training into 3 courses, 5 groups and a total attendee is 93 persons.

Picture of Business English conversation course

3.2 Course of Communication and Systematic learning

There are a total of 5 training courses, 14 groups, including 629 participants.

- Course of People Awareness By DISC
- Course of Proactive People
- Course of High Impact Dialogue
- Course of Systematic & Analytical Thinking
- Course of Proactive Leadership

Picture of course Systematic learning

4. Engineering and Project Execution Training

It is a training that is held to educate understanding of the work of employees in each department. The training will be divided into 2 types: training for new employees and training for experienced employees which will be training in specific engineering tasks and will enable employees to have better knowledge and ability in the assigned job

Picture of Engineering and Project Execution Training

Budget for developing potential staff in year 2018

Type	Cost (Baht)	Average per person (Baht)
Training courses for both in-house and outside	2,083,301.10	888.78
Outside seminar	164,080.83	70
Total	**2,247,381.93**	**958.78**

Achievement

Type	Particulars	Cost (Baht)	Total
(In-House Training)	- (Company General Training)	69,619	221 courses
	- (On the Job Training)	149,427	
	- (Special Training)	1,166,449	
	-(Engineering and Project Execution Training)	-	
(Public Training)	- Sending staff to train by external academy.	697,806.10	36 courses
(Seminar)	- Seminar for sharing to train by knowledge and brainstorm for business development plan	164,080.83	26 topics

Hours of annual training 2018

Statistics from 2,344 people categorize as follows:

Description	Amount (Hour)	Average per person (Hour)
Classified by Job function		
Management (4 persons)	73.7	18.4
Project (1,141 persons)	974.8	0.9
Engineering (1,074 persons)	1,840.1	1.7
Support (125 persons)	150.9	1.21
Classified by gender		
Female (674 persons)	796.6	1.2
Male (1,670 persons)	2,242.9	1.3
Classified by type		
Internal Training (2,223 persons)	1,666	0.7
External Training (81 persons)	942.5	11.6
Seminar (40 persons)	431	10.8
Total of training hour	**3,039.5**	**1.3**

After training and developing personnel, we have surveyed staff contentment for training course improvement and guidelines for enhancing knowledge. The ability of personnel to drive the organization to the goal and fully demonstrate the potential of work.

5. Employee Welfare

A part form the minimum welfare according to the labor law. We also provide the additional welfare to employee by establish the welfare committee which come from the election in every 2 years in order to receive a comment and suggestion from employee. This is encouraging cooperation between company and employee for employee benefit. In addition we also arrange activities to create harmony among staff such as Company sport Day and New Year party.

Picture of the election of the welfare committee

In year 2018, TTCL is registered and contributed with Social Security Fund as details below :

Employer part is	22,232,812	Baht
Employee part is	22,232,812	Baht

Summary welfares ;

Description	Y2017 (Person)	Y2018 (Person)
Annual Health Checkup	1,381	2,419
Health Insurance	1,448	1,282
Vaccination fort influenza	816	652
Welfare for employee retirement	2	3
Provident Fund	1,218	1,040
Others		
- Get Well Soon Basket	55	46
- Wreath	29	17
- Staff Funeral	7	-
- Direct relative's staff Funeral	51	48
- Marriage welfare	43	68
- Medical care for foreign staff	5	30
- Medical care for daily employee	17	9

Sustainable Development Goals of TTCL (SDGs)

TTCL is committed to contribute to the achievements of both national and global sustainable goals by prioritizing and integrating selected SDGs into the operational activities of the organization, which is conducted by leading global organizations to serve as operational

guidance for the business sector to achieve Sustainable Development Goals. TTCL has focused to be integrated into the operational activities and projects of the company to promote sustainable development on the international level. TTCL has followed the Sustainable Development Goals as follows;

1. No poverty
2. Zero hunger
3. Good health and well-being
4. Quality education
5. Gender equality
6. Clean water and sanitation
7. Affordable and clean energy
8. Decent work and economic growth
9. Industry innovation infrastructure
10. Reduced inequalities
11. Sustainable cities and communities
12. Responsible consumption production
13. Climate action, Goal
14. Life below water
15. Life on land
16. Peace justice and strong institutions
17. Partnerships for the goals

Source : http://www.un.or.th/globalgoals/th/the-goals/

The table shows the operations and goals to respond to sustainable development goals.
Sustainable Development Goals of TTCL

Management and Responsible Operations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Reinforce potential and quality of life by employee participation	*	*	*														
Solving problems	*	*	*														
Social and community assistance	*	*	*														
Participation in community relation and common value creation		*			*		*										
Encourage employee for good health			*														
Annual health check for employees			*														
Vaccination to protect sickness			*														
Reduce garbage and waste			*														
Improve services to approach the customer need			*						*		*						
Build the sustainable innovations and services			*						*								
Create the standard of security in working and providing services			*						*		*						
Hiring the locality around to have a good occupation for their family			*														
Check on the accommodation of the subcontractor for a good living and to perform rules regularly			*														
Check the evaluation of operation effectiveness in security			*								*						
Security standard is created for employees and partners			*								*						
Reduce the accident from the high working place			*								*						
Enhance the security standard with the new operation system			*								*						
Social responsibility around the working area			*	*							*						
Occupation safety and health			*					*									
Social responsibility			*								*						
Build schools for children in the community around the construction project to have a good education				*													
Creating an inspiration and retain potential employees				*	*					*							
Encourage the education and employee development				*	*												
Forming the participation with the community and stakeholders				*											*		*

Management and Responsible Operations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Directly supervise TTCL business activities, followed by the human rights					*					*							
Support the supply chain operations in construction project services to relate with the human rights					*					*							
Reinforce the business growth by concerning about the environmental effect and stakeholders engagement						*						*		*			
Environmental management						*						*		*			
Reduce the import of fuel and fossil							*					*	*				
Electrical generating from the renewable energy							*					*	*				
Reduce the carbon dioxide							*					*	*				
Acknowledge about the energy for employees							*					*	*				
Build up the personnel and quality of life in working to lead to the highest effective organization and having good health								*									
Innovation in organization level									*								
Solar energy safe environment									*								
To develop the locality from operating the power plant									*								
Recycle material substitutes using natural resources									*			*			*		
Improve services to approach the customer need									*		*						
Creating sustainable innovations and services									*		*						
Provide the working and services security standard									*		*						
Management the organization by corporate governance										*						*	
Code of conduct and code of business ethics and regulation to management, employees and business partners										*						*	
Supervisory the operations to be related TTCL's policies and regulation										*						*	
Saving energy for the construction project													*				
Encourage the knowledge and understanding in the principle of corporate governance for every employees																*	
Manage the effective valued supply chain																*	
Adhere the business operations fairly and transparent																*	
Checking and create the knowledge and understanding																*	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Long-Term Social Responsibility Project (Continuing)																	
TTCL Platelets Donation			*														
TTCL Blood Donation			*														
Medical Treatment			*														
Reusable Aluminium and Equipments			*		*												*
Library Upatham for 50 schools in the provinces				*	*												*
The Basic Fire and Emergency Drill				*	*								*				
Cleaning Public Road			*														
Reward for good model in the workplace			*														*
Job Fair & Cooperative Education	*		*	*	*			*								*	
Clean Canal for Environment			*				*										*
Development of Potential Employees				*	*												*
Training for regulations, rule and welfare of company				*	*			*									*
Short-Term Social Responsibility Project																	
Public benefit					*							*					*
TTCL's reforestation and check dam building													*				*
Thai Farmers	*		*		*				*			*					
Drinking water for the community			*				*										
Advocating Department of Labour Protection and Welfare for society	*		*		*			*								*	
TTCL Sandalwood Flowers Volunteer					*											*	*
Abilympics Thailand	*				*											*	*

In addition to the improvements in the 10 priority areas, TTCL has assessed corporate actions against all 17 of the UN SDGs. TTCL is working toward all 10 goals although in varying degrees. As a result, we have selected 10 SDGs that are in line with our sustainability development strategy and our stakeholders' expectations for further actions. TTCL has established plans to achieve these goal by continuously improve on existing plans and expand on existing plans/projects.

Responsible Management and Operation

Goals (SDGs)	Plan	Value to Company	Plan 2018	Plan 2019
Economic				
	Service development to approach the requirement of customer.	• Retain old customers. • Gained trust and confidence from customers.	• Job service according to customer's requirement. • Retain old customers. • Provide consult or recommend good works to customers. • Offer modern innovation to customers.	• There are more customers from both domestic and international. • Offer new innovation to customers.
	Corporate Governance in the business activity operation to direct of TTCL in according human rights.	• Be fairness for stakeholders.	• Fairly operating such as recruitment not gender discrimination equal rights for stakeholders.	• External organizations accept the company operation.
	Encourage the operation in Supply Chain of construction project service in according human rights.	• Clearly performance the business operation structure.	• Create supply chain structure of business. • Separate supply chain operations.	• The operation is in accordance with the defined supply chain. • Build trust for stakeholders.
	Management by adhering to Good Corporate Governance.	• Create operational principles.	• Create a guideline for good corporate governance. • Inform Management and employees acknowledge the various operations to concern with good corporate governance principles. • Follow up the operation result and report to Board of Directors in meeting.	• Improvement and development of information in accordance with the good corporate governance principle set by the Securities and Exchange Commission (SEC).
	Code of Conduct and Code of Business Ethics and regulation for management, employees and business partners.	• Create operational principles.	• Upload the information on company website for stakeholders to acknowledge the company's practices.	• Improvement and development of information in accordance with the company's practices successively. • Stakeholders acknowledge the company's practices.
	Good Corporate Governance operates in according with policy and regulation of TTCL.	• Create operational principles.	• Upload the information on company website for stakeholders to acknowledge the company's policy and practices.	• Improvement and development of information in accordance with the company's policy and practices successively. • Stakeholders acknowledge the company's policy and practices.

Goals (SDGs)	Plan	Value to Company	Plan 2018	Plan 2019
	Encourage knowledge and understanding in Corporate Governance to all employees.	• Create operational principles.	• Provide orientation for permanent employees to acknowledge the information. • Provide orientation for new employees and trainees before working.	• Permanent employees, new employees and trainees can understand the information successively.
	Adhering to conduction business fairly and transparently.	• Create trust with stakeholders.	• Inform the stakeholders, employees and related persons to acknowledge the transparent operations on company website.	• Every type of business is strictly adhered to be fair and transparent.
Social				
	Strengthen potential and life quality by cooperating with employees.	• Create more potential employees in working • Retain good employees in developing the company.	• Organize various knowledge training for employees.	• Create knowledge and skills for employees to be used in the working. • The employees help to develop the company's business.
	Helping social and community.	• Take care of the community for well-being. • Encourage good communities around construction project. • Strengthen good relationships and confidence for the community.	• The development of the livelihood of the community in the profession, environment and safety.	• Build a strong community and believe in housing.
	Encourage good health to employees.	• Keep employees to work with the company. • Employees have good health.	• Encourage employees to exercise and have good health.	• Reduce employees illness. • Employees have good health in working.
	Annual medical examination for employees.	• Pay attention to the health of employees. • Employees have good health.	• Arrange Medical Examination plan for employees. • Good welfare for employees.	• The company cares about the employees' health. • Employees pay attention to health care.
	Influenza Vaccination.	• Prevent disease for employees. • Employees have good health.	• Arrange annual influenza vaccination. • Check employees' health annually.	• Fewer sick leaving of employees. • Reduce transmission in the company.
	Hiring community around construction project to have good career for family.	• Helping communities around construction project. • The communities know more company.	• Hire the communities to sell food in area construction project. • Encourage food selling of communities. • For convenience in serving food to employees,	• Build a community to have a good career. • Employees reduce more costs. • Generate income for the community.
	Building schools for children in community around construction to good education.	• Helping children around the construction project to be education.	• Society has quality workforce in according to need of labor market. • Youth have more opportunities to work. • Reduce unemployment rate.	• Students use their knowledge to study at a higher level. • Use knowledge to a career in the future.
	Attraction and retention.	• Keep quality employees in the company. • Cultivate employees to love the organization. • Employees are conscious of their work.	• Provide good courses training for employees.	• Encourage employees to participate in company activities. • Establish good curriculum plans for employees.

Goals (SDGs)	Plan	Value to Company	Plan 2018	Plan 2019
	Encourage learning and employees development incessantly.	• Employees use the knowledge gained to develop relevant work. • Employees show confidence to visitors.	• Provide good courses training for employees.	• Employees are more experts in the job. • Create new designs to offer customers.
	Creating cooperation with community and stakeholders.	• Build a good relationship. • Help the community around construction projects.	• Organize CSR project plans to join with stakeholders. • Participate in helping the stakeholders in urgent cases.	• Build helping communitie around project. • The communities know more construction project.
Environment				
	Reduce garbage and waste.	• Reduce pollution and reduce smell of garbage around construction project. • Storing garbage by sorting waste on a weekly basis.	• Classify garbage and waste. • Public relations campaign to reduce garbage.	• Reduce smell spread. • Proportional storage of garbage and waste. • Regularly check the storage area.
	Creating innovation and sustainable service.	• Offer new innovations to customers. • New customers increase. • Reduce construction time faster.	• Seek business partners.	• Develop projects to invest. • Seek and develop new innovations and knowledge. • Develop and improve the engineering design system to be up-to-date.
	Creating work and service safety standard.	• Reduce accidents while working. • Reduce the death of employees • Be confidence in the operation.	• Arrange safety standard training for employees.	• Employees and vendors follow more standards. • Reduce accidents to work. • Can apply standards to work. • Build confidence for employees and vendors.
	Checking subcontractor's accommodation regularly to comply with the rules.	• Protect safety. • Do not cause drug abuse. • Not to cause controversy. • Stakeholders strictly follow rules and regulations.	• Regularity check accommodation for safety. • Stakeholders must follow the rules. • Maintain the well-being of stakeholders.	• Free from contamination or alcohol. • Stakeholders must strictly follow the rules.
	Checking the effectiveness of safety operations.	• Comply with the standards. • Check safety after working every time.	• Provide safety training in various functions for employees to become familiar. • Perform an evaluation after safety operation every time.	• Reduce accidents. • Employees are confident and have full operational skills. • The company has a reputation for operational standards.
	Creating safety standard to employees and vendors for complying.	• Reduce accidents • Comply with company policy. • Establish safety standards in operations in the organization.	• Safety standard training for employees.	• Employees and vendors follow more standards. • Reduce accidents. • Can apply standards to work. • Build confidence for employees and vendors.
	Reduce accident from high work.	• Keep employees in the company. • Reduce accidents in operation.	• Organize training to knowledge and practice of safety before entering work in high places.	• Reduce accidents. • Employees are confident in working.

Goals (SDGs)	Plan	Value to Company	Plan 2018	Plan 2019
	Raise the safety standard with a new system.	• Create safety standard in working in company.	• Arrange safety standard training for employees.	• Employees follow more standards, • Reduce accidents. • Can apply standards to work.
	Safety and Health.	• Reduce accidents. • Comply with company policy.	• Provide training to educate employees.	• Improve and develop work systems to control the environment and work safety.
	Reduce fossil fuel import.	• Reduce resource usage. • Reduce greenhouse gas emissions. • Reduce resource costs and waste management.	• Develop a plan to improve the quality improvement project.	• Reduce fuel emissions. • Reduce transportation and storage costs.
	Electricity production from renewable energy.	• Reduce resource usage. • Reduce greenhouse gas emissions. • Reduce resource costs and waste management.	• Develop production processes.	• Use Clean energy. • Not affecting the environment. • Effective for stakeholders.
	Reduce carbon dioxide emissions.	• Reduce resource usage. • Reduce greenhouse gas emissions. • Reduce resource costs and waste management.	• Provide training to knowledge in using resource worthily.	• Reduce carbon dioxide and greenhouse gases. • Prepare carbon dioxide capture project.
	Increase knowledge and energy awareness for employees.	• Employees help save energy, costs and resources. • Reduce energy consumption.	• Reduce costs in using energy.	• More cost savings in the organization. • Reduce energy consumption each time.
	Save energy at construction projects.	• Save cost. • Reduce energy consumption.	• Save cost. • Reduce energy consumption.	• More cost savings in the organization. • Reduce energy consumption each time.

Pride of TTCL

The company encourages 17 goals (Sustainable Development Goals), but we have prioritized by considering the impact on stakeholders and company's operation in according with strategy for goals as follows.

Pride

Technology Wealth Creating & National Valued Creating	Business Transparency	Promoting Shared Value Creation for Society and Demonstrating Environmental Responsibility	Expanding Growth and Investment Management of All Business Groups
Performance	**Performance**	**Performance**	**Performance**
• Apply of latest 3D computer aid design to design, review and check prior to procurement, construction and installation in order to improve the construction. • Apply of Solar PV specific design and engineering software for optimum efficiency. • Entered a Procurement and Construction Contract for MOCD2 Project with Map Ta Phut Olefins Company Limited, Rayong Province.The contract value investment is Approx. USD 140-150 million (Equivalent THB 4,480-4,800 million). • Entered into an Engineering, Procurement and Construction Contract for Package D (LLDPE Plant) of Long Son Petrochemicals Project with Long Son Petrochemicals Company Limited at Ba Ria Vung Tau Province, Vietnam the total investment worth Approx. USD 200-220 million (THB 6,400-7,040 million in equivalent)	• Determine rules and regulations of anti-corruption laws roles, duties and responsibilities.. • Signed the announcement to join the Thai private sector collective action coalition against corruption.	• Collaborate with Skyonic Corporation Inc. in USA as EPC Contractor and equity investor successfully built the commercial scale carbon capture plant from cement factory to convert into carbonate compound and useful chemical. • Collaborate with Siam Solar Power Plc., JV Company and Tokyo Electron in Japan, testing the commercial prototype to collect and analysis of Dust Collection Effect to Production Yield, Degradation Monitoring and Calculation of suitable panel cleaning timing for cleaning cost reduction. • Collaborate with Pornvilai Co., Ltd. develop Biogas Project to generate biogas as fuel for electricity generation. • Collaborate with domestic and overseas alliances for development of biomass quality for the purpose of co-firing in coal-fired power plant, target to increase of carbon dioxide.	• Expand the opportunity by raising the level of service to become a Regional EPC Contractor in order to receive high value projects in aboard such as Vietnam, China, USA, Malaysia, Myanmar, Philippines and Middle East countries.

Assessment of Essence

Materiality Assessment for Sustainable

The company takes the important factors to sustainable business operations and in accordance with the expectations of both direct and indirect stakeholders by applying the principles of Global Reporting Initiative (GRI) to assess the sustainability issues which consists of the main steps in the following.

Materiality Assessment Procedure

Step 1 Identification of Material Aspects and Establishment of Report Boundaries

The company permits to stakeholders to share opinions via channels of company by related sections collecting recommendation from stakeholders of company regularly and report the recommendation to Management for continuing consideration. So that the company reviews sustainable materiality assessment process in 2018 to ensure that communication channel and materiality definition method of company by responding expectation of stakeholders efficiently.

Step 2 Prioritization of Material Aspects

Prioritize and evaluate the level of importance for each aspect, based on consideration of two sustainability dimensions : 1) Key interests of stakeholders, using information from stakeholder engagement with company departments, or from company's engagement channels as well as direct communication with stakeholders on specific issues and 2) Significance environmental and specific issues and 2) Significance environmental and social implications in areas that are impacted by TTCL's business operations. Then, each material aspect is ranked from one to four according to the criteria of risk evaluation and opportunity for business operations and the degree of stakeholder's interest.

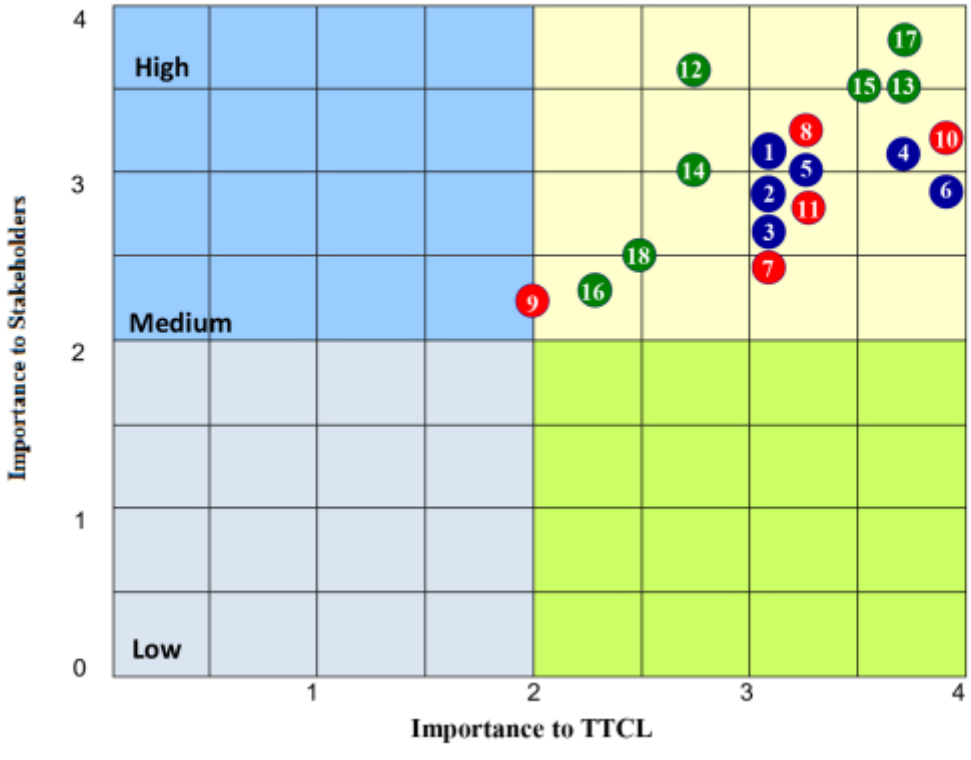
Step 3 Validation of Material Aspect

Compile results from the assessment of material aspects and identify relationship between material aspects and the GRI Aspect in order to prepare a summary of material aspects to TTCL and the reporting scope on each specific area. Thenceforth, present these findings to the Board of Management / Committees respectively.

Step 4 Continuous Report Development

Perform an ongoing review of information released to related stakeholders for consideration the gathering of suggestions and recommendations for improvement and report development to ensure that the disclosed content is appropriate and in according to communication issues.

Materiality Assessment



Economic		Social		Environment	
1	Anti-Corruption	7	Health and Safety	12	Risk and Adaptation to Change the Climate
2	Good Corporate Governance	8	Stakeholder Engagement	13	Reduce Electricity Consumption
3	Code of Conduct and Code of Business Ethics	9	Human Rights	14	Environment Management
4	Risk Management	10	Employee Development	15	Garbage and Waste Management
5	Supply Chain Management	11	Corporate Social Responsibility	16	Controlling Chemical
6	Innovation			17	Air Pollution Management
				18	Sound Pollution Management

● Economic ● Social ● Environment

Materiality and Operation

Determining Sustainability Materiality

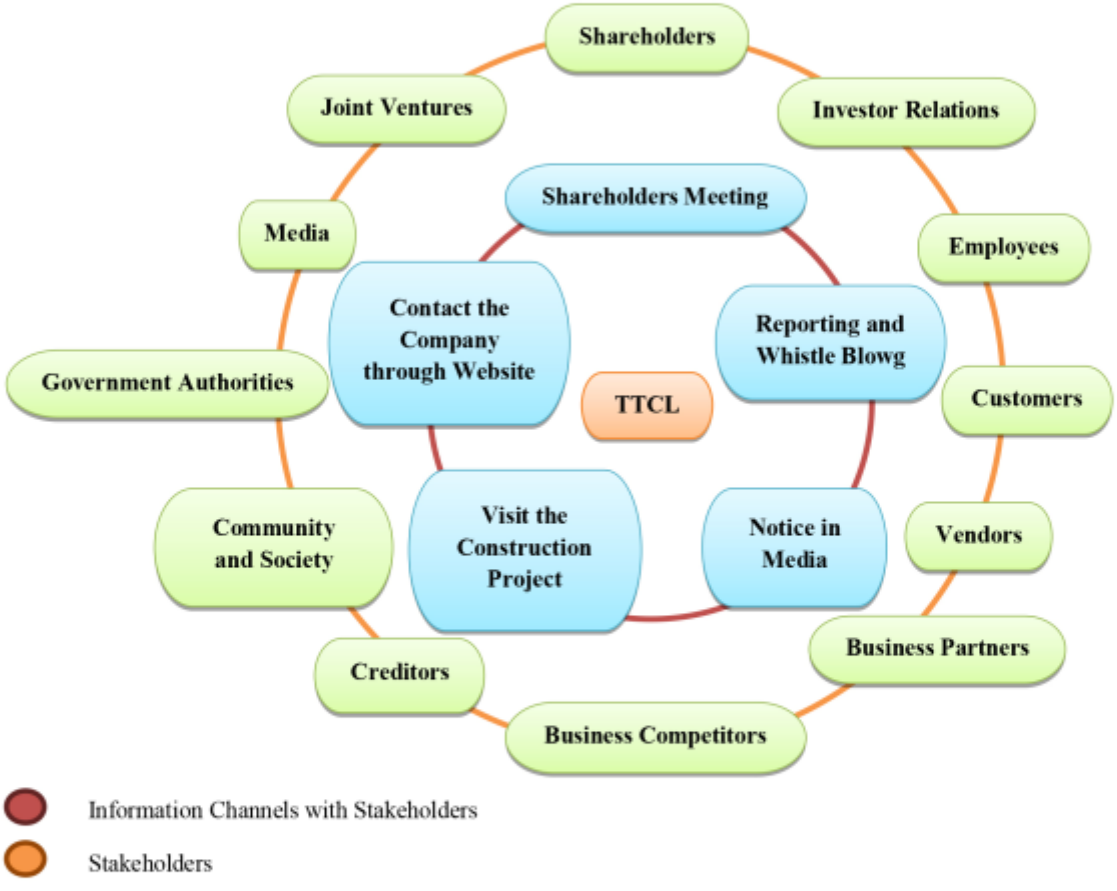
Sustainability Materiality divided in 3 dimensions such as Economic, Social and Environment as follows.

Materiality	Global Reporting Initiative : GRI	Concerned Stakeholders and Scope of Impact	Goals (SDGs)
Economic			
Anti-Corruption	• Anti-corruption (205-2) • Anti-competitive behavior (206-1)	• Shareholder • Investor Relations • Government Authorities • Joint Venture • Creditor • Employee • Customer • Vendor • Business Partner	
Good Corporate Governance	• Management Approach (103-1, 103-2, 103-3) • Governance (102-18, 102-19, 102-20, 102-21, 102-22, 102-27, 102-28)	• Shareholder • Investor Relations • Government Authorities • Joint Venture • Creditor • Community and Social • Employee • Customer • Vendor • Business Partner • Media	
Code of Conduct and Code of Business Ethics	• Management Approach (103-1, 103-2, 103-3) • Ethics and Integrity (102-16, 102-17, 102-25) • Economic Performance (201-4) • Public Policy (415-1)	• Shareholder • Investor Relations • Government Authorities • Joint Venture • Creditor • Community and Social • Employee • Customer • Vendor • Business Partner • Media	
Risk Management	• Management Approach (103-1, 103-2, 103-3) • Strategy (102-15) • Economic Performance (201-2)	• Shareholder • Investor Relations • Community and Social • Customer	
Supply Chain Management	• Management Approach (103-1, 103-2, 103-3) • Health and Safety for Contractor and Subcontractor Employees (EU-17, EU-18)	• Employee • Customer • Community and Social • Vendor • Business Partner	
Innovation	• Management Approach (103-1, 103-2, 103-3)	• Employee • Customer • Vendor • Business Partner	
Social			
Health and Safety	• Management Approach (103-1, 103-2, 103-3) • Occupational Health and Safety (403-1, 403-2, EU-25)	• Employee • Customer • Government Authorities • Vendor • Community and Social	

Materiality	Global Reporting Initiative : GRI	Concerned Stakeholders and Scope of Impact	Goals (SDGs)
Stakeholder Engagement	• Management Approach (103-1, 103-2, 103-3) • Economic Performance (201-1) • Indirect Economic Impacts (203-1, 203-2) • Local Communities (413-1) • Socioeconomic Compliance (419-1)	• Shareholder • Investor Relations • Government Authorities • Joint Venture • Business Competition • Community and Social • Employee • Customer • Vendor • Business Partner • Media • Creditor	
Human Rights	• Management Approach (103-1, 103-2, 103-3) • Human Rights Assessment (412-2)	• Shareholder • Government Authorities • Joint Venture • Creditor • Community and Social • Business Competition • Employee • Customer • Vendor • Business Partner • Media	
Employee Development	• Management Approach (103-1, 103-2, 103-3) • Employment (401-1, 401-2, 401-3, EU-15) • Labor and Management Approach (402-1) • Training and Education (404-2, 404-3)	• Employee	
Corporate Social Responsibility	• Management Approach (103-1, 103-2, 103-3) • Local Communities (413-1)	• Shareholder • Government Authorities • Joint Venture • Creditor • Community and Social • Business Competition • Employee • Customer • Vendor • Business Partner • Media	
Environment			
Risk and Adaptation to Change the Climate	• Management Approach (103-1, 103-2, 103-3) • Emissions (305-1, 305-2, 305-3, 305-4, 305-5)	• Employee • Community and Social • Government Authorities • Customer • Vendor	
Reduce Electricity Consumption	• Management Approach (103-1, 103-2, 103-3) • Energy Intensity (302-3)	• Government Authorities • Community and Social • Business Partner • Employee • Vendor	
Environment Management	• Management Approach (103-1, 103-2, 103-3) • Negative environmental impacts in the supply chain and actions taken (308-2)	• Government Authorities • Community and Social • Business Partner • Employee • Vendor	
Garbage and Waste Management	• Management Approach (103-1, 103-2, 103-3) • Negative environmental impacts in the supply chain and actions taken (308-2)	• Government Authorities • Community and Social • Business Partner • Employee • Vendor	
Controlling Chemical	• Management Approach (103-1, 103-2, 103-3) • Negative environmental impacts in the supply chain and actions taken (308-2)	• Government Authorities • Community and Social • Business Partner • Employee • Vendor	
Air Pollution Management	• Management Approach (103-1, 103-2, 103-3) • Negative environmental impacts in the supply chain and actions taken (308-2)	• Government Authorities • Community and Social • Business Partner • Employee • Vendor	
Sound Pollution Management	• Management Approach (103-1, 103-2, 103-3) • Negative environmental impacts in the supply chain and actions taken (308-2)	• Government • Community and Social • Business Partner • Employee • Vendor	

Responsibility for the Stakeholders Engagement

Building relationship with Stakeholders, TTCL divides Stakeholders into 12 groups, including Shareholders, Investor Relations, Employees, Customers, Vendors, Business Partners, Business Competitors, Creditors, Community and Society, Government Authorities, Media and Joint Ventures.



The table of the stakeholders engagement is one of important process in TTCL operations. Along to be realized that the opinions and suggestions from partners would be the inspiration to lead to the success of TTCL. To be committed to improve for the better services is to meet the customer and partner need. TTCL has prepared for the participation in the different way by consider about the proper partners in different group to communicate about the goals and the result of operations including to recognize the opinions and suggestions such as shareholder meeting, notification of clues and complaints, revealing information for the society, also visiting the construction project and contact the company by website, and so on. TTCL has gathered, analyzed, and brought the result to be improved the company in the future

Stakeholders	Stakeholders Engagement Methods	Key Concerns	Response to Each Group of Stakeholder	Communication Channels	Outcomes
Shareholder	- Annual Report - Minutes of Annual General Meeting of Shareholders. - Complaint receipt via complaint channel. - Proposal of Annual General Meeting's agendas and to nominate a candidate to be appointed as a director.	- To be determined to represent all shareholders - To be committed to conducting business with transparency. - To put in place reliable financial and accounting systems, and to deliver optimum shareholder satisfaction.	- Sustainability within an Organization Chapter - Corporate Governance Chapter	- To arrange AGM meeting. - Minutes of Annual General Meeting of Shareholders through Stock Exchange of Thailand.	- To be efficiently through generating maximum long-term returns on investment. - The regular and sustainable strong operational performance and continued growth. - To perform duties with integrity and make decisions in good faith and in fairness to major and minor shareholders alike, as well as for the good of relevant parties. - To refrain from any activities that could cause conflicts of interest and serve self-interest. - Confidential information shall not be divulged to outside parties. - To be simultaneously paying attention to accurate, complete and punctual disclosure of material information to all shareholders. - In response to their unwavering trust and support given to the Company and provide the investment returns that satisfy the shareholders the most.
Investor Relations	- Minutes of Annual General Meeting of Shareholders. - Complaint receipt via complaint channel. - Via electronic media of company.	- The great importance to investor relations. - Disclosing material information accurately, sufficiently and in timely fashion. - Not using inside information for their own or their related parties' benefit. - Disclosing material information fairly and equitably. All stakeholders must be able to access to the information and conveniently contact Investor Relations Officers for clarification.	- Arranged operating details of company for shareholders, investor through interested persons and the results for the quarter transparency and accountability in their operations. - Dividend ongoing and in line with earnings the business operations of the company.	- Company's website. - Company's road shows are participated in with domestic and international investors. - To publish the results of the operation in webcast on the Company's website. - To provide shareholders and institutional investors to visit and meet business executives in order to generate understandings in the business of the Company.	- To adhere to the basic principles and practices of "Investor Relations Code of conduct" published by Good governance development & Alliance department, The stock exchange of Thailand, 2014, as a framework. - Performing their duties with professionalism, integrity and equitability. - Preferential treatment that may undermine the benefits of the company and all stakeholders is not acceptable..
Employees	- Orientation for employees. - Complaint receipt via complaint channel of employees.	- The Company has always regarded its employees as valuable resources, whose roles are fundamental to the success of the Company. - The Company places importance on the welfare and safety of its employees. - To support and develop the potential of employees. - To be strengthening the culture and good working atmosphere, promote teamwork.	- Corporate Social Responsibility to employees - Corporate Governance Chapter.	- Announcement on Board. - Inform on E-Mail. - Announcement on company's Intranet.	- To provide every employee with an opportunity to improve its career path on an equitable basis.

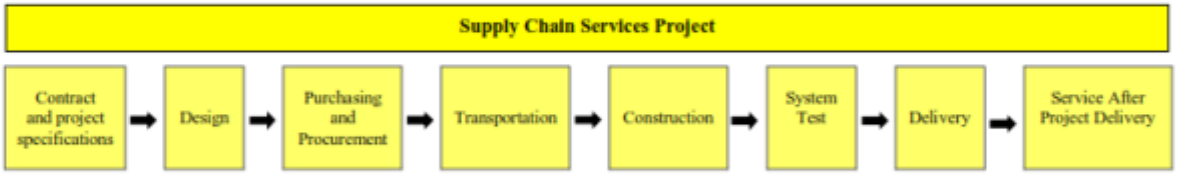
Stakeholders	Stakeholders Engagement Methods	Key Concerns	Response to Each Group of Stakeholder	Communication Channels	Outcomes
Customer	- Documentary, Newsletter. - Complaint receipt via complaint channel.	- To deliver quality products which meet their requirements. - To be complied with according to the Code of Conduct, Good Corporate Governance and law in a strict manner. - To keep and safekeeping client information and confidentiality by not using the information in a negative way.	- Customers Responsibility Chapter.	- To disclose complete, correct, sufficient and undistorted information on the products and services. - To provide a communication channel for customers to submit any complaint.	- To build customer satisfactions. - The quality policy and quality management system of ISO 9001:2008. - Do not stipulate unfair trade per customer. - Comply with the terms or conditions, towards customer transparently and equal.
Vendors	- Communicate via e-mail and telephone. - Complaint receipt via complaint channel.	- The criteria exist in the evaluation and selection of business partners. - To be transparently and equally observe contracts, agreements and conditions given to business partners. - To refrain from demanding from accepting and paying improper commercial benefits to business partners. - To be attention to their commercial confidentiality and seeks to notify suppliers / contractors as soon as possible in the case that one or more of the agreements cannot be fulfilled.	- Corporate Governance Chapter. - Supply Chain.	- To disclose complete, correct, sufficient and undistorted information on the products and services. - To provide a communication channel for customers to submit any complaint.	- In compliance with corporate governance principles, based on good governance, transparency, and accountability.
Business Partners	- Registration Business Partners - Registration Subcontractors - Follow up system quality guarantee	- Equitable Competition with Business Competitors under law framework and Code of Business Ethics. - Do not seek confidential information from Business Competitors with dishonest or inappropriate implement.	- Corporate Social Responsibility to Business Partners. - Corporate Governance. - Supply Chain.	- Annual Report. - News on Media. - Meeting with Business Competitors.	- Ethical and Transparent Business Policy.
Business Competitors	- Annual Report. - Minutes of Annual General Meeting of Shareholders. - Complaint receipt via complaint channel.	- The related laws and regulations, as well as concepts related to Business Code of Conduct. - Not engage in slander or discrediting its competitors. - Not seek to find information about Competitors through dishonest or inappropriate means. The Company does not engage in slander or discrediting its competitors. -	- Corporate Social Responsibility to Business Competitors . - Corporate Governance Chapter.	- Annual Report on Company's website. - News on Media.	- A policy to operate in an upright and transparent manner in dealings with its business competitors.
Creditors	- Communicate via e-mail and telephone. - Complaint receipt via complaint channel. - Investor Relations Activity.	- To strictly comply with all terms of any loan agreement it enters into in a responsible and transparent manner especially guarantee condition, capital management and payment.	- Corporate Governance Chapter. - Supply Chain.	- To arrange AGM meeting. - Minutes of Annual General Meeting of Shareholders through Stock Exchange of Thailand.	- Not conceal any information or hide any facts that might possibly result in the realization of losses for its creditors. - The company unable to meet any of the criteria it agreed to, it will make immediate notification to that particular creditor to allow for a course of action to be taken

Stakeholders	Stakeholders Engagement Methods	Key Concerns	Response to Each Group of Stakeholder	Communication Channels	Outcomes
Community and Society	- Project and activity for Community and Society. - Meeting with community and local government.	- Activity for supporting the Corporate Social Responsibility. - Activity is concerned with community development.	- Community and Social Responsibility. - Corporate Governance.	- Assisting community and social, environmental conservation and sharing knowledge the education.	- Emphasizing with Corporate Social Responsibility. - Corporate Social Responsibility Policy.
Government Authorities	- Communicate via telephone. - Direct contact with officer via telephone, letter and e-mail. - Complaint receipt via complaint channel.	- Strict compliance with the laws governing the conduct of business.	- Corporate Governance.	- Annual Report. - Minutes of Annual General Meeting of Shareholders.	- Ethical and Transparent Business Policy. - Strictly legal compliance policy.
Media	- Public Relations and Newsletter. - Direct contact with media via telephone and e-mail.	- The timely and accurate public relations.	- The timely and accurate public relations.	- Newsletter. - News on Website. - Public Relations. - Press conference.	- Responsibility and Transparency not conceal information or the fact is advantage and disadvantage result with shareholders, vendors and employees.
Joint Venture	- Minutes of Annual General Meeting of Shareholders. - Meeting with Board of Directors.	- High relation to the related management with investors. - Important information disclosure and necessary to decision in the business of the joint venture company to be infallibly, sufficient and timely.	- Corporate Governance. - Continuous dividend payment and according with the operating results of the company's business.	- Regular meeting with Board of Management and Board of Directors as law.	- Ethical and Transparent Business Policy. - Business Performance Policy for the best benefit of shareholders on basic transparent and cod of business ethics.

Providing construction project based on supply chain

The sustainable building of supply chain has 3 levels as 1) Customer 2) Vendor and 3) Employee.

TTCL has identified the scope and relevance of construction project based on company's supply chain to consider and analyze the issues and responsibilities arising from operations. As the company held on service mind principles that build with confidence and trust to stakeholders such as customers and vendors by operation process as follows;



Supply Chain Structure of TTCL

Supply Chain	Concerned Persons	Impact / Risk	Results
Contract and project specifications	• Company • Customer • Vendors / Suppliers • Business Partners • Employee • Licensors • Government Authorities • Business Competitors • Sub-contractors • Consultants (Project Management Consultant)	• More expenses. • Can not hire the big dealers. • Find out new sub-contractors and spend to find out employees. • Equipment and employees are not standard. • Cannot deliver the project on schedule • Less Profit. • Can find out standard equipment from many stakeholders.	• Offering competitive and fair prices • Offering short construction periods to reduce costs and benefit customers. • Design cost control purchase and construction for efficiency.
Design	• Company • Customer • Vendors / Suppliers • Employee • Licensors • Government Authorities • Consultants (Project Management Consultant)	• Get delayed details from customers making delayed project delivery • No specific experience, spend time of studying to make the design to be delay.	• Design planning control takes more time and mistakes • Design control and resource allocation for effective design. • Quality control of design for efficiency.
Purchasing and Procurement	• Company • Employee • Customer • Sub-contractors • Vendors / Suppliers • Licensors	• Limit cost and difficult recruiting. • Good management experiences. • Control closely.	• Effective control of procurement planning and procurement. • Effective control of procurement. • Cost control of procurement and • Cost control of procurement for efficiency. • Delivered on schedule • Good quality work.
Transportation	• Company • Employee • Customer • Vendors / Suppliers	• Delayed shipping and packaging. • Packaging may be damaged in the assessment. • In case of product or packaging conflict, the company contact the insurance agent to evaluate the person responsible for the product caused. • Damage to products delivered on the schedule, guaranteeing the safety of products protection of goods.	• Effective transportation control. • Inspection, transportation and reduce damage from transportation to be effective and reduce damage from transportation to be effective and reduction • Delivered on the schedule. • Quality guarantee.
Construction	• Company • Employee • Customer • Sub-contractors • Vendors / Suppliers • Community	• Construction has a negative effect on the environment and communities such as noise, dust and waste water • In the case of community complaints, construction projects are interrupted and costs increase.	• Effective construction planning control. • Construction control and resource allocation in construction for efficiency. • Effective construction quality control. • Safety control during construction for efficiency.
System Test	• Company • Employee • Customer • Sub-contractors • Vendors / Suppliers	• No experience. • Effective is not standard and makes delaying work.	• System testing planning control for efficiency • Control of system testing and resource allocation for effective system testing. • Safety control during system testing to be sufficient safety • Products accord the requirement of customers.
Delivery	• Company • Employee • Customer	• Delayed operations cause fines. • Famous. • The future of getting new construction projects.	• Gained trust and reputation. • Reduce costs. • Save time. • Gain new construction project.
Service After Project Delivery	• Company • Employee	• The customer is not satisfied with the service after the project delivery	• Effective control of service operations after the project delivery

Supply Chain	Concerned Persons	Impact / Risk	Results
	• Customer	• The time is not on the schedule. • Famous.	• Monitoring service after the delivery of the project to be effective. • Checking the satisfaction of the service after delivering the project to the customers. • Gained trust and reputation. • Reduce the cost of after-sales service. • Receive additional work and compliments from customers. • Get the profit from construction project's operation.

Social Activity

TTCL social responsibility divided into 3 main principles which are community and society, education, and environment, so these consist of the result of using the education building as 3 schools; Long-Term Social Responsibility Project (Continuing) and Short-Term Social Responsibility Project as follows;

The company has the concept of building 3 school buildings near the construction project of the company in Rayong along with giving school supplies, computer, study desk and textbooks. The company continues to monitor the performance of using the building, computer and the study desk continues in the following.

Baan Klongsai School, Rayong

The company built the building named that Toyo-Thai Upatham 2553, which was delivered to Baan Klongsai School on 19th June 2010, so there are the students enter to study in school and graduate from school in grade 12 in the following details.

Student (persons)	2014	2015	2016	2017	2018
	121	127	162	167	163
Building	The classroom is divided the level of education grade 1-6 as computer room, library and Director of school.	The classroom is divided the level of education grade 1-6 as computer room and library.	Repairing the damaged school building roof.	The classroom is divided the level of education grade 1-6 as computer room and library.	The classroom is divided the level of education grade 1-6 as computer room and library.
Computer	Using for teaching the level of education grade 5-6.	Using for teaching the level of education grade 5-6.	Using for teaching the level of education grade 4-6 and delivered more computers.	Using for teaching the level of education grade 5-6.	Using for teaching the level of education grade 5-6.
Study Desk	The study desk is still in good condition.	The study desk is still in good condition.	Delivered Office Equipment to school.	The study desk is still in good condition.	The study desk is still in good condition.

Wat Bankhai School, Rayong

The company built the building named that Toyo-Thai Upatham 2554, which was delivered to Wat Bankhai School on 24th September 2011, so there are the students enter to study in school and graduate from school in grade 12 in the following details.

Student (persons)	2014 162	2015 168	2016 127	2017 188	2018 174
Building	The classroom is divided the level of education grade 1-6 as computer room, library, Director of school and meeting room.	The classroom is divided the level of education grade 1-6 as computer room, library, Director of school and meeting room.	The classroom is divided the level of education grade 1-6 as computer room, library, Director of school and meeting room.	The classroom is divided the level of education grade 1-6 as computer room, library, Director of school and meeting room.	The classroom is divided the level of education grade 1-6 as computer room, library, Director of school and meeting room.
Computer	Using for teaching the level of education grade 4-6.	Using for teaching the level of education grade 4-6.	Using for teaching the level of education grade 4-6.	Using for teaching the level of education grade 4-6.	Using for teaching the level of education grade 4-6.
Study Desk	Using the study desk for the level of education grade 4-6.	The study desk is still in good condition.	The study desk is still in good condition.	The study desk is still in good condition.	The study desk is still in good condition.

Wat Lahanrai School, Rayong

The company built the building named that Toyo-Thai Upatham 2555, which was delivered to Wat Lahanrai School on 18th November 2012, so there are the students enter to study in school and graduate from school in grade 12 in the following details.

Student (persons)	2014 130	2015 135	2016 155	2017 155	2018 140
Building	The classroom is divided the level of education such as Kindergarten, grade 1-6 as computer room, library and Director of school.	The classroom is divided the level of education such as Kindergarten, grade 1-6 as computer room, library and Director of school.	The classroom is divided the level of education such as Kindergarten, grade 1-6 as computer room, library and Director of school.	The classroom is divided the level of education such as Kindergarten, grade 1-6 as computer room, library and Director of school.	The classroom is divided the level of education such as Kindergarten, grade 1-6 as computer room, library and Director of school.
Computer	Using for teaching the level of education grade 4-6.	Using for teaching the level of education grade 4-6.	Using for teaching the level of education grade 4-6.	Using for teaching the level of education grade 4-6.	Using for teaching the level of education grade 4-6.
Study Desk	Using the study desk for the level of education grade 4-6.	Using the study desk for the level of education grade 4-6.	Using the study desk for the level of education grade 4-6.	The study desk is still in good condition.	The study desk is still in good condition.

Long-Term Social Responsibility Project (Continuing)

The company proceeds the business with the social responsibility and encourages the stakeholders engagement through the activities for the benefit of the company, community, locality, and society by the company operations that focus on reinforcement and improvement the quality of life. Also protects the environment for the sustainable improvement which is related to the goals of SDGs. It is the process to be improved activities of social responsibility and ready to build the balance with the company growth. The company has conducted several projects that would be the lead to the max success for society and business to be strength, valuable, and make a good relationship with stakeholders.

Activity / Goals	Description	Value to Social	Plan 2017	Plan 2018	Plan 2019
Social					
TTCL Blood Donation	Cooperated with Rajavithi Hospital in "TTCL Blood Donation Project" in order to be a reliable supply of safe blood for patients at Head Office	Help the patients to live a good life with their family.	Employees participate the activities amount 424 donors and 185,550 cc. collected blood	Employees participate the activities amount 375 donors and 164,650 cc. collected blood	Expected to have more employees to join the activity
TTCL Platelets Donation	Cooperated with Rajavithi Hospital in "TTCL Platelets Donation Project" to help patients survive major surgeries or serious injuries.	Help the patients to live a good life with their family.	Employees participate the activities amount 60 donors.	Employees participate the activities amount 107 donors.	Expected to have more employees to join the activity.
Unusable Electric Appliances and Office Equipment.	Donated the unusable electric appliances and office equipment to Kanlayano Srankaew Foundation. The handover activity was held at Head Office.	Create a career and income for foundation employees to feed their family.	There were 456 unusable electric appliances and office equipment.	There were 583 unusable electric appliances and office equipment.	The unusable electric appliances and office equipment will be increased
Education					
Training for Employees	Arranged " Training " in order to develop and strengthen the knowledge, understanding and capacity in working as procedure correctly. The Training was arranged at Fabrication Shop, Rayong as follows; - Confined Space. - Basic Lifting.	Increase skills and knowledge for employees to create good potential.	Increase skills and knowledge for employees to create good potential.	Increase skills and knowledge for employees to create good potential.	Increase skills and knowledge for employees to create good potential.
Support journals	Supporting journals every 3 months to 50 schools in Rayong for cultivating to students in reading and learning science	Need the students to have knowledge and love to read outside of school hours	Need the students love to read increased outside of school hours.	The students to get knowledge from increased reading	The students use knowledge from reading to do the examination.
Environment					
Checked the Light Intensity	Checked the Light Intensity for reducing light safety to optimum working condition.	For the safety of the eyes of the stakeholders in the building and outside.	Measure the average of light and measure the average intensity of the light according to the standard.	Measure the average of light and measure the average intensity of the light according to the standard.	Measure the average of light and measure the average intensity of the light according to the standard.
Dust and Soils Protection	Controlled the trucks to go out from the construction project in using the canvas to prevent dust and soils fall on the community area in vicinity of the site.	Preventing the respiratory system of stakeholders in vicinity of the site.	Reduce accident and prevent the respiratory system.	Reduce accident and prevent the respiratory system.	Reduce accident and prevent the respiratory system.

Activity / Goals	Description	Value to Social	Plan 2017	Plan 2018	Plan 2019
HSE Delivery	Arranged the HSE Delivery activity for employees to participate in inquiring about Health, Safety and Environment.	Create engagement with employees.	Employees are interested in participating more activities.	Employees are interested in participating more activities.	Employees are interested in participating more activities.
Occupational Health and Safety Award	Gave the occupational health and safety award to the outstanding staffs in order to build up the consciousness of occupational safety and be the good model in the workplace.	Creating encouragement for employees in performing	Creating encouragement for employees in performing.	Creating encouragement for employees in performing.	Creating encouragement for employees in performing.
Monthly Talk	Arranged " Monthly Talk " about the project operation, HSE information and HSE campaign regarding Safety in the Confined Space in order to raise awareness of understanding correctly.	Need employees to understand information before accurate working.	Need employees to understand information before accurate working.	Need employees to understand information before accurate working.	Need employees to understand information before accurate working.
Pre-Work Health Check	Arranged " Pre-Work Health Check " about drug, alcohol and blood pressure from TTCL's staffs and subcontractors for safety in working.	Accident protection in working	Accident protection in working	Accident protection in working	Accident protection in working
Cleaning Public Road	Made a clean-up campaign by cleaning the dust and soil up in the workplace and the community area in vicinity of the site.	Prevent spreading dust	Prevent spreading dust	Prevent spreading dust	Prevent spreading dust
Safety & Environment Protection	Conducted the activities for Safety & Environment Protection to employees in construction area and subcontractor's camps for dengue prevention by spraying and sanding to eliminate the sources of mosquito breeding. The activity was arranged at Utility for SCC RAPID Project (F-042/OFFSITE), Malaysia	Eliminate the sources of animal - borne diseases.	Eliminate the sources of animal - borne diseases.	Eliminate the sources of animal - borne diseases.	Eliminate the sources of animal - borne diseases.
Sound Measurement	Checked the Sound Measurement for reducing sound to appropriate with working place and to comply with Environmental Impact Assessment.	In order not to disturb the community and surrounding areas of the project	Sound Measurement in standard	Sound Measurement in standard	Sound Measurement in standard
Used Ink and Toner Cartridges Return and Recycling	Company emphasizes on the environmental impact prevention in every step of work. In order to reduce hazardous waste from office activities, the company has participated in the HP Planet Partners Program to return used ink and toner cartridges to manufacturer, these returned cartridges will be recycled by digest and transform in to raw material for reproduction (close loop). In 2018, 313 Units of used ink and toner cartridges were returned to manufacturer for recycling.	Reduce global warming and reduce greenhouse gases that affect the environment.	Reduce global warming and reduce greenhouse gases that affect the environment.	Reduce global warming and reduce greenhouse gases that affect the environment.	Reduce global warming and reduce greenhouse gases that affect the environment.

Short-Term Social Responsibility Project

The company proceeds the business with the social responsibility and encourages in both internal and external stakeholders to participate in company activities for participation to stakeholders by consider about the community and society, education, and environment.

Activity / Goals	Description	Value to Social	Plan 2017	Plan 2018	Plan 2019
Economic					
Contract Signing Ceremony – Petrochemical Plant	Entered into an Engineering, Procurement and Construction Contract, Vietnam.	Creating good relationship between vendors, customers and stakeholders to know more company's business.	Expand more businesses.	Expand more businesses.	Expand more businesses.
Contract Signing Ceremony – Petrochemical Plant	Entered a Procurement and Construction Contract, will be built in Rayong Province, Thailand and be completed within 1st Quarter of 2021.	Creating good relationship between vendors, customers and stakeholders to know more company's business.	Expand more businesses.	Expand more businesses.	Expand more businesses.
Received the certificate	Received the certificate of working 3,000,000 man-hours without LTA.	Creating pride in delivering work to customers without accidents in work and build good relationships with the community.	Creating satisfaction for customers efficiently.	Creating satisfaction for customers efficiently.	Creating satisfaction for customers efficiently.
Arranged the Celebration	Arranged the celebration for delivering MAA#2 Project to Thai MMA Co., Ltd. by cooperation from employees and subcontractors.	Creating encouragement for stakeholders.	Creating satisfaction for stakeholders.	Creating satisfaction for stakeholders.	Creating satisfaction for stakeholders.
Social					
Children's Day	Arranged Children's Day for students to offer lunch and donated computers, books, toys, dolls, snacks in Rayong and in order to make a good relationship with the Head Office and communities around the project site.	Creating happiness and joy for students and parents.	Creating happiness and joy for students and parents.	Creating happiness and joy for students and parents.	Creating happiness and joy for students and parents.
Magic Box Project	Supported " Magic Box Project " to produce a roofing sheet for the community in the project of the Volunteer Relief Foundation (PAD) and to reduce pollution in the environment and global warming.	Bring the UHT box to produce a house roof to help the poor to have a house.	Helping the communities to have increased accommodation.	Helping the communities to have increased accommodation.	Helping the communities to have increased accommodation.
Rajavithi Medical Center Building	Supported to join donating 22,000 Baht for purchasing the medical instruments and to build the Digestive Endoscopy Unit, Rajavithi Medical Center Building at Rajavithi Hospital.	The hospital has more equipment to help patients.	Helping increased patients.	Helping increased patients.	Helping increased patients.
Charity Rajavithi Mini Marathon 2018	Supported the " Charity Rajavithi Mini Marathon 2018 " in order to promote for our staff health consciousness through exercise with a series of walk-run at Ministry of Public Health, Nonthaburi province.	To encourage employees to have good health.	To encourage employees to have increased good health.	To encourage employees to have increased good health.	To encourage employees to have increased good health.

Activity / Goals	Description	Value to Social	Plan 2017	Plan 2018	Plan 2019
The room partitions	Provided the room partitions to Muslim women for Islamic ritual prayer.	Protection the safety and convenience of Muslim women.	Protection the safety.	Protection the safety.	Protection the safety.
Roof Installation	Installed the roof for sunshade and rainproof.	Protecting the sun and rain against those attending.	Create facilities for the community.	Create facilities for the community.	Create facilities for the community.
Drug Examination	Arranged " Drug Examination Program " such as drug and alcohol to TTCL staffs in order to safe in working.	Reduce accident during the work.	Reduce accident during the work.	Reduce accident during the work.	Reduce accident during the work.
Education					
World Skills Thailand National Competition 2018	Promoted the standard of workmanship through competitive activities.	Encourage the ability and skills to Disabled	Encourage the ability and skills to Disabled.	Encourage the ability and skills to Disabled.	Encourage the ability and skills to Disabled.
Donated Computer	Donated 5 sets of computer to Buddhist Sunday Schools in Chiang Mai and 10 sets of computer to Srirattana Kindergarten School in Srisaket province for supporting the education to students.	Encourage the knowledge and skill development for students.	Encourage the knowledge and skill development for students.	Encourage the knowledge and skill development for students.	Encourage the knowledge and skill development for students.
Environment					
Emergency Drill 2018	Cooperated with Thai MMA Co.,Ltd (TMMA) arranged " Emergency Drill " in order to enlighten for employees to understanding the principles of fire, emergency procedures and using fire extinguishers.	Need employees to have helping skills when an emergency occurs.	Need employees to have helping skills when an emergency occurs.	Need employees to have helping skills when an emergency occurs.	Need employees to have helping skills when an emergency occurs
Thailand Safe@Work 2018	Participated the event of "Thailand Safe@Work 2018" to realize the importance of safety health and environment in working at Bangkok International Trade & Exhibition Centre.	Need employees to have more knowledge and understanding.	Need employees to have more knowledge and understanding	Need employees to have more knowledge and understanding	Need employees to have more knowledge and understanding.
Big Cleaning	Made a clean-up campaign by cleaning in the construction site to go out the community area in vicinity. The activities were arranged as follows; - Project Cleaning : To deduct the accident risk of working. - Drain Cleaning : To avoid clogging of drainage gutters and to eliminate the sources of animal-borne diseases. - Road Cleaning at Construction Site : To deduct the dust and soil in the construction site. Cleaning the Wheels . To prevent the environmental impact by cleaning the wheels before leaving the construction site.	Eliminate the sources of animal - borne diseases.	Eliminate the sources of animal - borne diseases.	Eliminate the sources of animal - borne diseases.	Eliminate the sources of animal - borne diseases.

Activity / Goals	Description	Value to Social	Plan 2017	Plan 2018	Plan 2019
Road Improvement	Managed the road improvement for traffic safety in construction area to employees and community.	Reduce accident	Reduce accident	Reduce accident	Reduce accident
Weed Prevention and Respiratory Diseases	Conducted the activities to improve the landscape and to prevent diseases from pigeons in construction area. The activities were arranged as follows; - Mowing and Weeding : To improve the landscape and to eliminate the habitat of poisonous animals. - Bird Netting Installation : To prevent birds for building the nests and preventing disease from pigeons such as Bird Flu and Respiratory Diseases etc.	Improve the landscape to reduce the spread of germs.	Improve the landscape to reduce the spread of germs.	Improve the landscape to reduce the spread of germs.	Improve the landscape to reduce the spread of germs.
Basic Safety and Basic Fire Fighting	Participated the topic of training " Basic Safety and Basic Fire Fighting " in order to enlighten the staffs the knowledge of Occupational Health, Safety and Environment. This training was arranged by The Federation of Thai Industries and IRPC Public Company Limited in Rayong.	Enhance skills in using knowledge on a daily life.	Enhance skills in using knowledge on a daily life	Enhance skills in using knowledge on a daily life	Enhance skills in using knowledge on a daily life.

Responsibility for Environmental and Safety

TTCL has responsible for environment and safety by implemented the Occupational Health, Safety and Environmental Management System (OHSAS 18001, TIS 18001 and ISO 14001) in order to ensure that employees and concerned parties can execute in the workplace with safely and prevent the impact to environment, social and community.

Occupational Health, Safety and Environmental Policy

TTCL has established the Occupational Health, Safety and Environmental Policy Statement. This policy states:

1. TTCL committed to establish and maintain safe and healthy working conditions in order to prevent injury or ill health of employees and concerned parties including environmental protection.
2. TTCL shall execute project and construction management activities in compliance with applicable legal and other HSE requirements including company and project's procedures.

3. TTCL regards that the compliance with company and project's procedures to establish and maintain safe and healthy working conditions including environmental protection are duty and responsibility of employees and concerned parties which included subcontractors and business partners. Supervisor and manager at all levels have to act as role models by leading, supporting and encouraging their subordinates to be aware of working safely and environmentally conscious.
4. TTCL shall provide the necessary resources to support the implementation of the Occupational Health, Safety and Environmental Management Systems including hazard elimination and hazards and HSE risks reduction.
5. TTCL shall support and promote employees' participation and consultation in the implementation of the Occupational Health, Safety and Environmental Management.
6. HSE Policy, Objectives and its effectiveness shall be reviewed annually by Top management for theirs suitability and determine the opportunity for continual improvement of the Occupational Health, Safety and Environmental Management Systems.

Occupational Health, Safety and Working Environment Committee

TTCL has established the Occupational health, safety and working environment committee in compliance with the Ministerial regulation set standard in administration and management of safety, occupational health, and work environment B.E. 2549 to support and encourage the occupational health, safety and environment activities to ensure that all activities are effectively complied with HSE's Policy. The committee has a two-year term from 21st July 2017 to 19th July 2019.

Occupational Health, Safety and Working Environment Committee Consist of:

1.	Mr. Ong-art	Tunprawat	Chairman (Employer's representative in management level)
2.	Ms. Jaruwan	Sookthauyart	Committee (Employer's representative in commanding level)
3.	Mr. San	Jaisong	Committee (Employer's representative in commanding level)
4.	Mr. Somboon	Tachasevarakul	Committee (Employer's representative in commanding level)
5.	Mr. Anuchit	Piyamanit	Committee (Employer's representative in commanding level)
6.	Mr. Somchai	Klomraksa	Committee (Employee's representative)
7.	Ms. Natthapat	Sirikongsuwan	Committee (Employee's representative)
8.	Ms. Inthira	Manoonyo	Committee (Employee's representative)
9.	Ms. Kanyawee	Unsue	Committee (Employee's representative)
10.	Mr. Sitthan	Chaipong	Committee (Employee's representative)
11.	Mr. Nuttapol	Sinkajohn	Committee and Secretary (Safety officer in professional level)

Corporate Social Responsibility Activities of QA/QC Department

TTCL recognizes that employees are valuable and essential resources in driving to achieve business goals. Therefore, the company conducted programs and activities to develop knowledge and skills of employees. Programs and activities were organized by QA/QC department as table below;

Programs and Activities	Participants
1 New Employee Training Course	
1.1 Basic safety training course	89
1.2 Quality, occupational health, safety and environmental management systems awareness training course	84
2 Employee Potential Development	
2.1 Basic fire fighting training course	122
2.2 First aid and rescue training course	58
2.3 Safety officer in management level training course	8
2.4 Company's quality management system training course	120
3 Programs and Activities	
3.1 Healthy TTCL	22
3.2 HSE Delivery	96

Programs and Activities

1. New Employee Training Course

1.1 Basic safety training course

TTCL conducted basic safety training course for new employees in order to provide knowledge and raise awareness of Occupational health, safety and environment.

Basic safety training course

1.2 Quality, Occupational Health, Safety and Environmental Management Systems Awareness Training Course

TTCL conducted quality, occupational health, safety and environmental management systems awareness training course for new employees to make understanding of the company management system.

Quality, occupational health, safety and environmental management systems awareness training course

2. Employee Potential Development

2.1 Basic fire fighting training course

TTCL conducted basic fire fighting training course at Klong Toey fire station in order to provide knowledge and understanding about fire prevention and basic fire fighting to employees. The course was instructed by Disaster prevention and mitigation officers.

Basic fire fighting training course

2.2 First Aid and Basic Rescue Training Course

TTCL conducted first aid and basic rescue training course in order to provide knowledge and understanding about first aid and basic rescue principles to employees. These principles could be applied in an occurrence of emergency situation appropriately. The course was instructed by nurse from Kluaynumthai hospital and TTCL's HSE department.

First aid and basic rescue training course

2.3 Safety officer in management level training course

TTCL conducted Safety officer in management level training course for manager and management who got promoted recently to provide knowledge and understanding about roles and responsibility of management regarding to HSE issues. In order to enable their efficiently support toward an occupational health, safety and environmental execution. The training course was provided by instructor from Safety and Health at Work Promotion Association (Thailand).

Safety officer in management level training course

2.4 Company's Quality Management System Training Course

TTCL conducted Company's quality management system training course for refreshment of work instruction, procedure and knowledge sharing as a part of the organization's continual and sustainable knowledge management.

Company's quality management system training course

3. Programs and Activities

3.1 Healthy TTCL

TTCL conducted exercise activity to provide knowledge about office syndrome prevention for employees which could be properly applied in daily life.

Exercise activity for office syndrome prevention

3.2 HSE Delivery

TTCL published HSE Delivery program to communicate Occupational health, safety and environmental articles to employees. Furthermore, TTCL also encouraged employees to participate in this program to raise awareness in Occupational health, safety and environmental protection.

Reward for participation in HSE delivery activity

Compliance with Occupational Health, Safety and Environmental Laws, Regulations and Requirements

TTCL determined that all construction projects shall conduct compliance assessment with occupational health, safety and environmental laws, regulations and other requirements that applicable to the project. Furthermore, an internal audit was performed for monitoring to ensure that project's execution complied with that laws, regulations and requirements.

Company Innovation related to CSR

The Company has encouraged the innovation, research and development to accord with Sustainability Development as valued to economic, social and environment.

TTCL's Innovation Management

Innovation is the essence to support the organization to success in sustainable growth and continue delivers the values to stakeholders under economics, social and environmental as well as competition in innovation among Engineering, Procurement and Construction Business (EPC) and Energy Business.

With our commitment to increase our business potentiality (competency) and sustainable growth development meanwhile values development in economic, social and environmental perspective, the company has the policy to extend from organization internal to the related supply chain, from upstream to downstream. Company has put business ethics, standards, safety, social responsibility and environmental as priority by promote to establish the Innovation Management System to promote of creation of supportive innovations for present business and initiate new businesses in the future.

To achieve the innovation target, the organization has to plan to make a systematic innovation management i.e. Context, Innovation Management Planning, Driving Factors, Innovation Management Process and Assessment of Innovation Management System.

Innovation for Future

With our commitment to be leader in engineering and energy business and to improve life quality, stable and sustainable business growth, company has planned strategies on innovation development and innovation management system as a business driving force as well as knowledge management on transferred knowledge and experiences, focusing on collaboration with business alliances both domestic and overseas, this will add both business values and competency to the company and its affiliates. The company has designate innovation development plant, set up a committee and working group as well as supporting activities to be in line with long term innovation development approach.

The company has designated innovation development directive to be in line with the company business development plan and collaborate with outside entities i.e. business alliances and affiliated companies both domestic and overseas, for examples Biomass Torrefaction Pilot Plant with Siam Steel International Plc. and Idemitsu Kosan Inc. of Japan, Combined Cycle Power Plant Optimization by AI (Deep Learning & Machine & Learning) technology with Skydisc Inc. of Japan

Master Plan

1. Increase present business competitiveness

Achievement

Engineering Business Unit

1. Apply of modern design and engineering technologies as following;
   1.1 Apply of latest 3D computer aid design to design, review and check prior to procurement, construction and installation in order to improve the construction efficiency and avoid any mistake in every step of works.
   1.2 Apply of 3D visualization for presentation to clients and stakeholders.
   1.3 Apply of 3D printing technology to build the plastic plant model for presentation to clients and stakeholders.
   1.4 Apply of Solar PV specific design and engineering software which will assist to having Solar PV site selection, layout design and installation for optimum efficiency while still competitive costing.
   1.5 In-house software development in Process Engineering as following;
   - Calculation of Boil-Off gasses in storage.
   - Sea Water Intake Sizing calculation.
   - Knock –Out Drum calculation.
   - 2-Phase Flow Pattern Predication.
   - Emergency Hatch Sizing.
   - Pressure Safety Valve design calculation.
   - Software development for piping material take-off for procurement and material management.

2. Construction cost data collection, analysis and estimation for future projects from past purchasing data with Big Data and AI Technologies
3. Introduce of Waste Water Treatment Innovation for Chemical plant having Tetrahydro Furan in waste water which rarely found in conventional process as the first of a kind in Thailand.
4. Knowledge Management to collect and analysis of knowledge, experiences and mistake in execution of projects included searching system for internal study and avoid repeating mistake for present and future projects (Lesson Learn System).
5. Apply of modern inspection techniques as following;
   - Inspection of welding works and materials with PAUT (Phase Array Ultrasonic Test) to reduce inspection time, improve accuracy and reduce difficulty which normal found in X-RAY welding work inspection.

Energy Business Unit

1. Collaborate with Skydisc Inc., AI Developer in Japan to develop Combined Cycle Power Plant Optimization using AI (Machine Learning & Deep Learning) Technology.

Continuing Development

1. To develop innovation related to design technology for reduction of time, losses in procurement of equipment and materials, increase of design accuracy and efficiency.
2. To improve and development of system for quality control, quality management and reduction of construction cost and time.
3. To improve and development of system for health, safety and environment control.
4. Seeking for technology which can be extended and value added to the business in industrial segment which the company is continuing having engineering and construction works.
5. Promote and support to establish new innovation which can be applied into industrial segment where the company continuing having engineering and construction works.
6. Collaborate with technology owners which their technologies can be added values to the industrial segment which company continuing having engineering and construction works for project development and co-investment or propose to clients.
7. Support employee for training, seminar and join on any activities or event related to new technologies or innovation i.e. AI (Machine Learning & Deep Learning) Technology, IoT (Internet of Things) Technology, Block Chain Technology and other technologies which may lead to Industry 4.0 development.

8. Organize the contests internally or with outside organization to present the ideas, innovation and new invention which may possible to support the current business or industries which the company is continuing having engineering and construction works, company will support for the resources and incubation for future business values.
9. Collaborate with Chulalongkorn University by supporting the students to work on the project in business environment related to the design of the Heat Recovery Steam Generator Optimization System as a senior project of the engineering study, Bachelor Degree.

2. Increase potential business growth in new industrials or markets.

Achievement

1. Seeking for advance engineering and design which related to Process Simulation to add values to company's engineering works.
2. Collaborate with domestic and overseas alliances for development of biomass quality for the purpose of co-firing in coal-fired power plant, target to increase of carbon dioxide emission reduction and reduce of logistic cost and storage.
3. Collaborate with business alliances for development of hybrid power generation in conjunction with energy storage for remote area application which don't need external energy source.

Continuing Development Plan

1. Seeking and development of innovation and knowledge to support future projects which will be in the industrial sector which company is having business and other new industrial segments in the target markets.
2. Seeking for new business alliances who own the innovations which can be add values to present business segment and new industrial segment in target markets for project development, investment of engineering business.
3. Signing the MoU with King Mongkut's University of Technologies Thonburi to support "Activities of Education and Research on Work-Integrated Learn (WiL)" which related to "Certificate of Digital Innovation Program", Department of Digital Innovation, Faculty of Information Technology and Arts.

3.Support for future business growth.

Achievement

1. Development of process related to energy business both alternative energy and commercial fuel to obtain clean energy, environmental friendly, efficient and acceptable to stakeholders.
2. Seeking for potential technologies which can be create future works and add values to company related industrial segment i.e. Energy Storage, Waste Heat Recovery and Waste Energy Conversion.

3. Seeking and development of innovation and knowledge related to artificial intelligence i.e. Machine Learning and Deep Learning which can be apply to engineering business and energy business.
4. Seeking and development of innovation and knowledge related to industrial IoT (Industrial Internet of Things).
5. Development and improve of engineering and design to be the last updated technology.
6. Development and seeking of new innovation technology to build up the competitiveness, reduction of time and add values.

The company has realized the essential in innovation management. In order or achieve the objective in engineering business, design to increase the quality of life of stakeholders and sustainable business growth.

Auditor Remuneration

Audit fee

The Company and its subsidiaries paid annual audit fee for the year amounting to THB 10,759,341.00 comprising of

- The Company's audit fee amounting to THB 4,000,000.00
- Branches and Subsidiary Companies' audit fee amounting to THB 6,759,341.00

Non Audit Fee

The Company and its subsidiaries paid tax advisory fee to the Auditor amounting to THB 3,563,723.00

Connected Transactions

Value and Outstanding Amount of Connected Transactions that might lead to Conflict of Interest

For 2017 – 2018, the Company has connected transactions with the related parties as follows:

Unit: Thousand Baht

NAME / BUSINESS	RELATIONSHIP	TYPE	VALUE OF TRANSACTIONS		Outstanding as of		Audit Committee Comments for Transaction Rationality
			2017	2018	31 Dec 2017	31 Dec 2018	
1. Toyo Engineering Corporation – Japan "TEC / EPC Contractor	TEC is main shareholder in TTCL at 15.00% in 2016 and 10.00% in 2017 of Paid-Up Registered Capital with a jointed director, Mr. Makoto Fusayama. (On Feb 6, 2018, TEC had disposal all share hold in TTCL to Third Party)	- Construction and Service income - Trade Accounts Receivable - Unbilled Contract Revenue	1,306,284	-	- 166,759 487,754	 - -	In 2017 TTCL's revenue generated from TEC were amounting THB 1,306.28 million. Trade A/R and Unbilled Contract Revenue in 2017 as amounting THB 654.51 million. The Company had provided engineering services and procurement services to Toyo Engineering Corporation – Japan The Audit Committee considered the transaction was done in a normal course of business practice.

Unit: Thousand Baht

NAME / BUSINESS	RELATIONSHIP	TYPE	VALUE OF TRANSACTIONS		Outstanding as of		Audit Committee Comments for Transaction Rationality
			2017	2018	31 Dec 2017	31 Dec 2018	
2. Toyo – Engineering & Construction. Sdn. Bhd. (Malaysia) (TEC – Malaysia)	TEC–Malaysia is Subsidiaries of TEC–Japan (who is main shareholder in TTCL) (On Feb 6, 2018, TEC had disposal all share hold in TTCL to Third Party)	- Construction and Service income	3,038,278	142,784			In 2017 and 2018, TTCL - Malaysia Sdn. Bhd who is Subsidiaries of The Company had generated from TEC – Malaysia were amounting THB 3,038.28 million and 142.78 million respectively.
		- Trade Accounts Receivable			97,837	-	Trade A/R in 2017 as amounting THB 97.84 million
		- Deferred Construction revenue			299,785	-	Deferred Construction revenue in 2017 as amounting THB 299.79 million.
		- Advances Received from customers under Construction Contracts.			13,222	-	Advances Received from customers under Construction Contracts in 2017 as amounting THB 13.22 million. TTCL–Malaysia had provided Construction service, Engineering services & procurement services to Toyo Engineering Corporation - Malaysia The Audit Committee considered the transaction was done in a normal course of business practice.

Unit: Thousand Baht

NAME / BUSINESS	RELATIONSHIP	TYPE	VALUE OF TRANSACTIONS		Outstanding as of		Audit Committee Comments for Transaction Rationality
			2017	2018	31 Dec 2017	31 Dec 2018	
3. Global New Energy Company Limited "	TTCL is shareholder at 40% and The Company owned by TTCL's Management is shareholder at 60%	- Rental Service and Service Fee	303	124			In 2017 and 2018 TTCL's revenue generated from Global New Energy Co., Ltd. were amounting THB 0.30 million and 0.12 million respectively
		- Accrued Income			31	18	Account Receivable in 2017 and 2018 as amounting THB 0.03 and 0.02 million The Company had provided Rental services and Service fee to Global New Energy Co., Ltd.
		Interest Expenses	-	6,548			TTCL's Interest expenses generated from working Capital Loan from Global New Energy Company Limited
		Accrued Interest Expenses			-	1,950	Accrued Interest expenses in Y 2017 as amounting THB 1,950 million The Audit Committee considered the transaction was done in a normal course of business practice.
4. Italian-Thai Development Plc. ("ITD) / Construction, Contractor	2018, ITD held 0.92% in TTCL's paid-up registered capital. In 2013 and 2014, One of ITD's major shareholders, Mrs. Nijaporn Charanachitta, represented one seat of TTCL's board of directors.	- Cost of Construction and Service	53	-	-	-	In 2017 TTCL's expenses generated from Italian-Thai Development Plc. was amounting THB 0.05 million.

Unit: Thousand Baht

NAME / BUSINESS	RELATIONSHIP	TYPE	VALUE OF TRANSACTIONS		Outstanding as of		Audit Committee Comments for Transaction Rationality
			2017	2018	31 Dec 2017	31 Dec 2018	
5. Global Business Management Co., Ltd. (Investment in Security)	TTCL's board of Directors is major board Directors of Global Business Management Co., Ltd.	Interest Expenses	-	1,760	-	-	TTCL's Interest expenses generated from working Capital Loan from Global New Energy Company Limited
6. Mr. Hinorobu Iriya	He is shareholder and TTCL's President	Interest Expenses	-	3,727	-	-	TTCL's Interest expenses generated from working Capital Loan from Mr. Hinorobu Iriya
7. Mr. Yamane Hisanori	He is board Directors of TTCL Power Holding Pte. Ltd (TTPHD) which is Subsidiaries of TTCL (TTCL hold 100% in TTPHD)	Interest Expenses	-	8,830	-	-	TTPHD's Interest expenses generated from working Capital Loan from Mr. Yamane Hisanori

Connected Transactions with Related Parties

Measure and procedure of approval for making connected transaction

The Company will arrange to have a department responsible for transaction verification in relation to reasonableness, general trading terms and conditions, and other details of the transaction to be in the normal course of business. The Company shall proceed as following.

1) In case of general trading terms and conditions as well as normal course of business, the board of directors or the person assigned by the board of directors shall proceed with the transactions and shall report those transactions to the Audit Committee quarterly
2) In any case other than 1) above, the transaction shall be reviewed and provided with opinions by the audit committee prior to the submission for approval by the board of directors and/or shareholders

After the initial public offering, the board of directors shall manage the Company in accordance with the Stock Exchange of Thailand (SET)'s rules, regulations, instructions, and notifications as well as in compliance with the requirement in information disclosure regarding connected transactions or acquisition/disposition of assets of the Company and its subsidiaries and also in compliance with the Thai Accounting Standard (TAS)

In case of connected transactions, the audit committee shall review and provide opinions in terms of its necessity and reasonableness by considering the conditions to be in line with normal course of business and general trading terms and conditions of the Company. The Company may appoint a professional or the Company's auditor to provide opinions regarding the connected transactions to the audit committee and/or the board of directors and/or shareholders as necessary for the best interest of the Company and transparency of the transactions. The Company shall disclose the connected transactions in the notes to its audited financial statements.

The Company has set up the scope of normal trade transaction for the Company and its subsidiaries, the transaction shall have the nature of normal trade terms and conditions per the following details:

Normal Course of Business shall refer to:

The provision of integrated engineering, procurement and construction services including consultancy to industrial clients or other project's contractors, both individual and juristic person.

The purchase of raw material, construction material, consumable goods, machine and equipment, as well as the engagement of a sub contractor, which is required in the Company's business operation including other expenses normally incurred in the business course such as warehouse rental fee, transportation charge, etc. from an individual or a juristic person.

Fair Price shall refer to:

The price in which the buyer and the supplier agree to exchange goods or services when both parties have knowledge and willingness to enter into an agreement and the price is independently negotiable. The price shall be specified based on a market price, resulting from an independent negotiation on the same basis for all parties.

Policy or tendency of further connected transactions

There may be a doing connected transactions by the Company in the future that need to comply with the law concerning securities and exchanges, regulations, notification, orders or rules of the Stock Exchange of Thailand including the Accounting Standard Re: the Disclosure of information concerning Related Persons or Activities, required by the Institute of Certified Accountants and Auditors of Thailand.

Measure for conflict of interest with third party who has other types of conflict of interest.

In addition to connected transaction, the company has connected transaction with the other party who may have conflict of interest i.e. collaboration as consortium or compete in business. The company has measurement as follows:

Work together with other company as consortium

In case of jointly bid or work together as consortium, the company and its consortium member will jointly consider scope of work and responsibility in each section of such project base on its specialized and competitiveness. The consortium will have chance to win if there is suitable scope of work and responsibility of each members. Each consortium member will prepare proposal on its scope and combined each party proposal to be consortium proposal.

To prepare proposal, the company considers that the proposal shall be benefit to the company. The proposal is prepared based on accurate actual cost plus appropriate profit with approval from the Board of Directors and Board of Management. Audit Committee will review scope of work and benefit sharing amount consortium to ensure that such division of scope of work is reasonable and maximize benefit of the company.

In Consortium Operation, the Company and consortium members will separately be responsible for income and expenses in accordance with each party's scope of works.

Competition between the Company and the third party which is defined as Conflict of Interest Transaction

In competition, the Company has never practiced a conflict of interest transaction. Competition with any third party. ITD, for example, engages in Civil Engineering for large scale infrastructure projects and essentially differs from the Company's core businesses, integrated EPC. Competition, if any, will not be directly effect to the Company. In terms of transparency and fair competition, ITD might be involved as subcontractor provided that it has conformed to the Company's criteria and procedures in subcontractor selection and its offering is best for the Company's benefit compared to others.

For TEC who appears to be in the same business, relationship seems to be more on supportive to the Company rather than competition. In bidding for a project, factors that bar competition between TEC and the Company are as follow:

- TEC emphasizes its efforts to project size over USD 500 million while the Company is focusing on USD 300 – 500 million project.
- Technological complexity and past experiences (Track Record) required for a specific project.
- Relationship and Customers' Preferences.
- Fixed cost differences between TEC and the Company. This also holds true for competitors from other developing country like Korea. Entry for low scale competition is impossible due to their high fixed costs.

For other companies within in TEC group and located in other countries, some of them concentrate only in a specific area or scope of EPC, therefore, their engagement differ from the Company's nature of businesses, integrated EPC contractor. For this reason, from the Company's point of view, theses companies act as global network and risk mitigation rather than competitors whenever overseas assistance from overseas is required, local subcontractor dealing, suppliers negotiation, etc.

For Sojitz Group is engaged in a wide range of business globally, including buying, Selling, importing, and exporting goods, manufacturing and selling products, Providing services, and planning and coordinating projects, in Japan and oversea. The Group also invests in various sectors and conducts financing activities The board range of sectors in which Sojitz operates includes those related to automobiles, plants, aerospace, medical infrastructure , energy, mineral resources, chemicals, foodstuff resources, agricultural and forestry resources, consumer goods, and industrial parks.

Besides, considering the balance of the Company's shareholders structure and board of directors, the shareholders can be categorized into 4 groups, (1) Sojitz 9.09%, (2) ITD, 0.92%, (3) direct holding by the Company's management, 12.18%, and indirectly holding by the Company's management through Global Business Management Co., Ltd., 6.27%, (4) the Company's employees 3.15%, and (5) other investor, 68.33%.

In addition, the management structure is designed independently apart from any group of shareholders' influence. The Board of Directors consists of 9 seats, Independent Directors (3), Sojitz Corporation Representative (1), ITD (1), and Executive Directors (4). None of these shareholders represents in the Board of Management, therefore, decision being made will be carried out under business norm and free of any shareholders' interference.

The Audit Committee's Comments on Related Party Transactions

The Company's related transactions are considered and addressed by its Audit Committee to ensure that they are normal business transactions with no special conditions and no transfer of interest among the Company, subsidiaries, associate companies, related companies or shareholders. In addition, regarding pricing, the policy for related transactions between the Company and related business is similar to the policy between the Company and non-related persons/businesses and carried out in the Company's interests.

The Company's Dividend Policy

The Company has a policy to pay dividend at the rate of not less than 50% of the net profit after tax and reservation required by law. However, the Board of Directors of the Company has the authority to consider the exception of compliance to this policy or change the policy from time to time but subject to the conditions that in all aspect it shall be proceeded for the best benefit of the shareholders for example to maintain the reserved fund to repay the loan, to invest in expansion of Company's business or to use as working capital in case of there is any change in the market situation which effecting the company's cash flow in the future.

Dividend Policy of the subsidiary

Dividend Policy of the subsidiary shall be considered by the Board of Directors of the subsidiary by taking into the remaining cash flows to compare with the investment of the subsidiary without having to pay any fixed rates of dividend. In case the cash flows has sufficient amount after satisfaction to the reservation law, the Board of Directors of such subsidiary has the right to consider for payment of dividend in each case.

The Board of Director's Report on their Responsibilities for Financial Reports for the year 2018

The Financial Statements for TTCL Public Company Limited and its subsidiaries have been prepared in accordance with generally accepted accounting principles by choosing a proper accounting policy which has been regularly observed. Due circumspection of estimation has also been given in the preparation of the financial statements to adequately reflect substantial performance for the interest of the shareholders and investors.

In this regard, the Board of Directors has appointed the Audit Committee comprising independent members of the Board to oversee the quality of the financial statements and internal control system. The Committee's comments have already been shown in this annual report.

The Board is of an opinion that the overall picture of Company's internal control system is at a satisfactory level which can reasonably create confidence upon the reliability of the financial statements of the Company and its subsidiaries as of 31 December 2018.

(Mr. Hironobu Iriya)
Chairman of Board of Directors

(Mr. Tiwa Jaruke)
Director

Management Discussion and Analysis

1. Operating Performance for the Year Ended 2018

The Company reported its Gross Profit at THB -102 million mainly caused by increasing in the Costs of construction of Lao's Rock Salt Processing project and Qatar's Desalination project at THB 243 million and THB 250 million respectively. On the other hand, the revenue from operating power plant was improved by THB 220 million or 29% from the last year. However, the Net loss was recorded at THB -2,009 million mainly from setting up the allowance for doubtful debt in Lao's Rock Salt Processing project which was under the Administrative expenses in which the company had already commenced the arbitration process and seek for settlement in accordance with EPC contract.

The management expects the improvement of the performance in accordance with the progress of two EPC projects i.e. MOCD2 Project and package D (LLDPE Plant) of Long Son Petrochemicals Project which will dramatically contribute financially in Year 2019 and Year 2020. In addition to EPC projects, we will provide both investment and EPC service to new IPP projects in Myanmar including, but not limited to, 388 MW Alhone Expansion Power Plant utilizing LNG which expected to conclude the Power Purchase Agreement by the first half of this year.

The Foreign Exchange Difference on Translation Financial Statement was recorded at THB -50 million caused by stronger Thai baths. Therefore, the Total Comprehensive Income for the Period was THB -2,033 million. The above Net Loss, THB -2,009 million, was attributed to the Company at THB -1,980 million.

2. Management Discussion and Analysis Report according to consolidated financial statements

For The Period Ended

Revenues	31 Dec 2018		31 Dec 2017		Changes
	THB Min.	%	THB Min.	%	%
Construction and service revenues (EPC)	7,353.97	88.31%	9,692.95	92.78%	(24.13%)
Revenue from operation power plant	973.91	11.69%	754.16	7.22%	29.14%
Total Revenues	8,327.89	100.00%	10,447.11	100.00%	(20.29%)
Less Cost of constructions and services (EPC)	(7,904.61)	94.92%	(9,082.54)	86.94%	(12.97%)
Less Costs of operation power plant	(524.79)	6.30%	(512.72)	4.91%	2.35%
Total Costs	(8,429.40)	101.22%	(9,595.27)	91.85%	(12.15%)
Gross profit	(101.52)	(1.22%)	851.84	8.15%	N/A
Add Other income	704.31	8.46%	464.09	4.44%	51.76%
Less Gain (Loss) on Exchange Rate, net	(66.31)	0.80%	64.38	0.62%	N/A
Less Administrative Expenses	(2,261.75)	27.16%	(953.71)	9.13%	137.15%
Add Share of Profit/(Loss) of Associate	22.57	0.27%	18.46	0.18%	22.27%
Add Share of Profit/(Loss) of joint venture	0.67	0.01%	0.73	0.01%	(8.27%)
Profit before Financial Costs & Income Tax	(1,702.01)	20.44%	445.80	4.27%	N/A
Less Financial Costs	(461.84)	5.55%	(419.42)	4.01%	10.11%
Profit before Income Tax	(2,163.85)	25.98%	26.38	0.25%	N/A
Less Income Tax	154.09	1.85%	68.65	0.66%	124.47%
Net Profit for this Period	(2,009.76)	(24.13%)	95.03	0.91%	N/A
Other comprehensive income (expense)					
Remeasurements of post-employment benefit	26.11	0.31%	5.99	0.06%	335.93%
Share of other comprehensive income of associate from equity method	0.28	0.00%	-	-	N/A
Add/(Less) FX Translation on Financial Statements and Others	(50.48)	0.61%	(455.35)	4.36%	(88.92%)
Total Comprehensive Income for the Period	(2,033.84)	(24.42%)	(354.33)	(3.39%)	473.99%
Profit Attributable to:					
Owners of the parent	(1,979.73)		52.56		N/A
Non-controlling interests	(30.03)		42.47		N/A
	(2,009.76)		95.03		N/A
Basic earnings per share (THB)	(3.41)		0.09		N/A

2.1 Analysis of Revenues, Costs and Expenses

2.1.1 Revenues

Revenues	31 Dec. 2018	31 Dec. 2017	% Change
Construction and service revenues (EPC)	7,353.97	9,692.95	(24.13%)
Revenue from operation power plant	973.91	754.76	29.14%
Total Revenues	8,327.88	10,447.11	(20.29%)

- **EPC Businesses**

The Revenue from EPC Construction and Services was down to THB 7,354 million or declined -24% from last year. Since most of the revenue of major construction projects awarded in year 2018 will be recognized from year 2019 onward.

- **Power Plant Businesses**

Revenue from Operation of Power Plant increased 29% to THB 974 million which was considerably improved from last year because the Power Plant has fully operated without having any interruption.

2.1.2 Costs & Gross Profit

Gross Profit Margin Comparison

31 Dec. 2018	Revenue	Cost	Gross Profit	Margin %
EPC Construction	7,353.97	(7,904.61)	(550.64)	(7.49%)
Operation of Power Plant	973.91	(524.79)	449.12	46.12%
Total	8,327.88	(8,429.40)	(101.52)	(1.22%)

31 Dec. 2017	Revenue	Cost	Gross Profit	Margin %
EPC Construction	9,692.95	(9,082.54)	610.41	6.30%
Operation of Power Plant	754.16	(512.72)	241.44	32.01%
Total	10,447.11	(9,595.26)	851.85	8.15%

Gross Profit Margin was dropped from 8.2% to -1.2% which was explained as above. However, the Margin of operation of power plant was improved from 32.0% to 46.1% due to stable operation of Power Plant during the period.

2.1.3 Other income and Gain (Loss) on Exchange Rate

The Other Income increased 52% to THB 704 million mainly came from the interest income of TTPMC and the Gain from disposal of investment in GNE-Togo at THB 265 million and THB 361 million respectively.

The Company also recorded Loss on Exchange Rate at THB -66 million as a result of stronger Thai Bath during the period.

2.1.4 Administrative expenses

The Administration Expenses increased to THB 2,262 million mainly caused by setting up the allowance for doubtful debt in Lao's Rock Salt Processing project as above explained.

2.1.5 Share of Profit of Associate and Joint Venture

Share of Profit of Associate and Joint Venture were slightly changed which came from investment in Siam Solar Power Co., Ltd. (SSP), the owner of 8MW Solar Farm Power Plant in Ang Thong, at THB 23 million.

2.1.6 Finance Cost and Income Tax

The financial cost for the period was increased to THB 462 million and Income Tax became positive at THB 154 million when the consolidated statement took into account of the Deferred tax asset from TTCL's statement.

3. Analysis of Financial Status

3.1 Analysis of Assets

Figures in THB Million	31-Dec-18	31-Dec-17	Increase/ (Decrease)	% Change
Current assets	12,095.58	16,037.37	(3,941.79)	(-24.58%)
Non-current assets	7,264.75	7,827.58	(562.83)	(-7.19%)
Total assets	**19,360.33**	**23,864.96**	**(4,504.62)**	**(-18.88%)**

As of 31 December 2018, Total Assets decreased -19% from the end of last year to THB 19,360 million.

Total Current Assets were THB 12,096 million, decreasing -25% mainly from the following items:

○ Cash and cash equivalent decreased of THB -1,249 million due to the company has repaid the debenture and short-term loans to financial institutions during the period.

○ Unbilled contract revenue decreased of THB -1,248 million due to the company has already issued invoice to the project owner of Rapid Project in Malaysia and set up the allowance for doubtful debt in Lao's Rock Salt Processing project.

○ Construction in progress – Third Parties decreased of THB -785 million mainly from Lao's Rock Salt Processing project and Qatar's Desalination project.

Total Non-current Assets were THB 7,265 million, decreasing -7% mainly from Plant and Equipment of Togo Mega Solar Project in Japan which was disposed of investment in December 2018.

3.2 Analysis of Liabilities and Shareholders' Equity

Figures in THB Million	31-Dec-18	31-Dec-17	Increase/ (Decrease)	% Change
Current Liabilities	9,534.27	12,528.92	(2,994.65)	(-23.90%)
Non-Current Liabilities	6,829.22	7,241.14	(411.92)	(-5.69%)
Total Liabilities	16,363.49	19,770.06	(3,406.57)	(-17.23%)
Shareholders' equity	2,996.85	4,094.90	(1,098.05)	(-26.82%)
Total Liabilities and shareholders' equity	**19,360.33**	**23,864.96**	**(4,504.62)**	**(-18.88%)**

Significant changes in Liabilities and Shareholder's equity were as follows:

Total Liabilities decreased -17% from the end of last year to THB 16,363 million.

Total Current Liabilities were THB 9,534 million, decreasing -24% mainly from the following items:

○ Short-term loans from financial institutions decreased of THB 1,780 million from loan repayment.

○ Debentures due within one year of THB 1,424 million have been repaid since Q1 2018.

Total Non-current Liabilities were THB 6,829 million, decreasing -6% came from the repayment in Long-Term Loan from Financial Institution in accordance with the Loan Agreement for Ahlone's Project Financing.

Shareholder's equity were THB 2,997 million, decreasing -27%. The Shareholders' Equity Opening Balance as at the beginning of the year was THB 4,095 million. Changing in equity of the year consist of, increasing in ordinary shares of THB 436 million, total Comprehensive income for the period THB -2,033 million and issuance of subordinated perpetual debentures of THB 500 million. Therefore, the Closing Balance of Shareholders' Equity as of 31 December 2018 was THB 2,997 million.

4. Leverage Ratios

Leverage Ratios	31-Dec-18	31-Dec-17	Favorable/Unfavorable
Current ratio	1.27	1.28	Neutral
Debt/ Equity ratio	5.46	4.83	Unfavorable
Interest-Bearing Debt/ Equity ratio	2.85	2.98	Favorable

5. Analysis of Cash Flows

Figures in THB Million	31-Dec-18	31-Dec-17	Increase/ (Decrease)
Net cash generated from (used in) operating activities	(180.07)	(2,199.93)	2,019.86
Net cash generated from (used in) investing activities	765.18	403.36	361.83
Net cash generated from (payments for) financing activities	(1,831.45)	1,835.43	(3,666.87)
Net increase (decrease) in cash and cash equivalents	(1,246.34)	38.85	(1,285.19)
Beginning balance	2,235.90	2,208.35	27.55
Exchange rate gain/(loss) on cash and cash equivalents	(2.35)	(11.30)	8.95
Ending Balance	987.21	2,235.90	(1,248.69)

As of 31 December 2018, the ending balance of cash and cash equivalents was THB 987 million, decreased THB 1,249 million compare the last year. Such change was caused by a combination of the Net cash generated used in operating activities THB 180 million and the Net cash generated from investing activities THB 765 million and the Net cash used in financing activities THB 1,831 million. All of which were detailed in the following.

5.1 Net cash used in operating activities, THB 180 million. The significant changes were:

- Cash flows before changes in operating and liabilities THB 810 million
- Interest paid THB 444 million
- Deferred construction revenue THB 315 million
+ Construction in progress THB 742 million
+ Advance received from customers under construction contracts THB 601 million

5.2 Net cash receipts from investing activities, THB 765 million. The significant changes were:

+ Cash receipt from disposals of subsidiary THB 902 million

5.3 Net cash payments for financing activities, THB 1,831 million. The significant changes were:

+ Cash receipts from short-term loan from financial institutions THB 8,003 million
- Cash payment for short-term loan from financial institutions THB 9,784 million

5.4 Exchange rate loss on cash and cash equivalents THB 2.35 million.

TTCL PUBLIC COMPANY LIMITED

CONSOLIDATED AND SEPARATE FINANCIAL STATEMENTS

31 DECEMBER 2018

Independent Auditor's Report

To the shareholders of TTCL Public Company Limited

My opinion

In my opinion, the consolidated financial statements of TTCL Public Company Limited (the Company) and its subsidiaries (the Group) and the separate financial statements of the Company present fairly, in all material respects, the consolidated and separate financial position of the Group and of the Company as at 31 December 2018, and its consolidated and separate financial performance and its consolidated and separate cash flows for the year then ended in accordance with Thai Financial Reporting Standards (TFRSs).

What I have audited

The consolidated financial statements and separate financial statement comprise:

- the consolidated and separate statements of financial position as at 31 December 2018;
- the consolidated and separate statements of comprehensive income for the year then ended;
- the consolidated and separate statements of changes in equity for the year then ended;
- the consolidated and separate statements of cash flows for the year then ended; and
- the notes to the consolidated and separate financial statements, which include a summary of significant accounting policies.

Basis for opinion

I conducted my audit in accordance with Thai Standards on Auditing (TSAs). My responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the consolidated and separate financial statements section of my report. I am independent of the Group and the Company in accordance with the Federation of Accounting Professions under the Royal Patronage of his Majesty the King's Code of Ethics for Professional Accountants together with the ethical requirements that are relevant to my audit of the consolidated and separate financial statements, and I have fulfilled my other ethical responsibilities in accordance with these requirements. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Emphasis of matter

I draw attention to Notes 8 and 9 of the financial statements, which describe the estimation of allowance for doubtful debt for an account receivable and unbilled contract revenue overdue more than 12 months of the construction Rock Salt project in Laos People's Democratic Republic engaged by the state enterprise in an oversea. The Group's management used the assumptions and significant judgment to estimate the allowance for doubtful debt for this account receivable and unbilled contract revenue to ensure that the estimation is adequate and appropriate with the current situation. My opinion is not modified in respect to this matter.

Key audit matters

Key audit matters are those matters that, in my professional judgment, were of most significance in my audit of the consolidated and separate financial statements of the current period. These matters were addressed in the context of my audit of the consolidated and separate financial statements as a whole, and in forming my opinion thereon, and I do not provide a separate opinion on these matters.

Key audit matter	How my audit addressed the key audit matter
Revenue recognition on construction contracts and construction costs Refer to Note 2.22 (a) 'Accounting policies -Revenue recognition on construction contracts', Note 4.1 'Accrued construction costs' and Note 4.2 'Construction revenue', to the financial statements. *Revenue recognition on construction contracts* Construction revenue and construction costs are recognised using the percentage of completion method. The percentage of completion is measured by reference to the physical proportion of the contracted work performed, as assessed by the project engineers and the owners or customers. *Construction costs* Construction costs are estimated based on management's experience in taking into consideration work progress and the updated estimation of budget project costs incurred appropriately. I focussed on these areas because of their material impact on the financial statements of revenue recognition using the percentage of completion method. These areas also involved management's judgement in determining the percentage of completion and estimated budget projects costs.	I assessed and tested the design and operating effectiveness of the key controls related to the budgeting process and the process to record contract revenue and construction costs. For the budgeting process, I inspected the price breakdowns that were the source used in the preparation of the budget. The following procedures were part of my inspection: • inquiring management on the significant difference between the percentage of completion based on the proportion of the contract work completed, as assessed by the project engineers, and the percentage of completion determined by the actual costs incurred at the reporting period as well as the estimated total costs for the contract • assessing the construction costs based on the budget by examining the supporting documents. These included the detailed breakdown of budget costs compared to actual costs incurred. I also inquired management whether the budget was updated to reflect the current situation • testing the actual costs incurred to underlying documents, e.g. for equipment and machinery looking at shipping documents, invoices and goods received. I also compared the working hours incurred to the status of the project • testing the calculation of the percentage of completion in the monthly progress report. This report was previously reviewed by the Company's project managers and the owner's project managers, and • performing site visits and observing the method used for measuring the percentage of completion. I found management's judgements and estimates associated with revenue recognition on construction contracts and construction costs to be appropriately supported by the available evidence.

Key audit matter	How my audit addressed the key audit matter
Impairment of property, plant and equipment Refer to Note 19 'Property, plant and equipment' to the financial statements. As at 31 December 2018, the Group had property, plant and equipment amounting to Baht 353.12 million net, when subtracting an allowance for impairment of Baht 101.80 million. Bio Natural Energy Co., Ltd, a subsidiary, operates a renewable energy power plant and has a loss from operations for several years. So the Group management reviewed the adequacy of the allowance for the impairment of the power plant. In 2018, the Group management prepared an estimation of the value-in-use of the power plant by discounting the estimated cash flow generated. Also, the Group management estimated the future performance of the plant, such as the waste volume, selling price and cost of operation and maintenance. From the assessment, the Group management considered recording an additional Baht 85.06 million allowance for impairment for the power plant in the statement of income for the year. As a result, as at 31 December 2018 the Group had an allowance for impairment of power plant of Baht 101.80 million. I focussed on this area due to its material impact on the consolidated financial statement and the subjectivity of management's judgement of the reasonableness of key assumptions used in the cash flow projection. These assumptions included the Company's future performance, the Company's growth rate and discount rate.	My procedures in relation to management's impairment assessment included: • assessing the valuation method used by management using the value in use method and considering it was appropriate in accordance with Thai Financial Reporting Standards • challenging the Group management on the reasonableness of key assumptions by . testing the assumptions used in predicting the Company's future performance and growth rates to compute the cash flow projection that are expected to be derived from the assets assessing the appropriateness of the discount rate used to discount the estimates of cash flow projection and found that it was consistent with the subsidiary's cost of capital testing on a sample basis the, accuracy and relevance of the input data that the Group management used in estimating the value-in-use of the power plant e.g. the waste volume, selling price and cost of operation and maintenance. I used my knowledge of valuation, and the Company's internal and external factors to assess the reasonableness of the assumptions used by management. I performed sensitivity analysis around the key drivers of the growth rates in the cash flow projection to ascertain the extent of change in those assumptions that would be required for assessing the impairment of assets. Based on the procedures above, I found management's assumptions and the factors used in assessing the value-in-use of the power plant to be reasonable and based on available evidence.

Other Information

The directors are responsible for the other information. The other information comprises the information included in the annual report, but does not include the consolidated and separate financial statements and my auditor's report thereon. The annual report is expected to be made available to me after the date of this auditor's report.

My opinion on the consolidated and separate financial statements does not cover the other information and I will not express any form of assurance conclusion thereon.

In connection with my audit of the consolidated and separate financial statements, my responsibility is to read the other information identified above when it becomes available and, in doing so, consider whether the other information is materially inconsistent with the consolidated and separate financial statements or my knowledge obtained in the audit, or otherwise appears to be materially misstated.

When I read the annual report, if I conclude that there is a material misstatement therein, I am required to communicate the matter to the audit committee.

Responsibilities of the directors for the consolidated and separate financial statements

The directors are responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with TFRSs, and for such internal control as the directors determine is necessary to enable the preparation of consolidated and separate financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated and separate financial statements, the directors are responsible for assessing the Group and Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the Group and Company or to cease operations, or has no realistic alternative but to do so.

The audit committee assists the directors in discharging their responsibilities for overseeing the Group and Company's financial reporting process.

Auditor's responsibilities for the audit of the consolidated and separate financial statements

My objectives are to obtain reasonable assurance about whether the consolidated and separate financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with TSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated and separate financial statements.

As part of an audit in accordance with TSAs, I exercise professional judgment and maintain professional scepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the consolidated and separate financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group and Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.
- Conclude on the appropriateness of the directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group and Company's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the consolidated and separate financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Group and Company to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the consolidated and separate financial statements, including the disclosures, and whether the consolidated and separate financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion.

I communicate with the audit committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

I also provide the audit committee with a statement that I have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on my independence, and where applicable, related safeguards.

From the matters communicated with the audit committee, I determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. I describe these matters in my auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, I determine that a matter should not be communicated in my report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

PricewaterhouseCoopers ABAS Ltd.

Vichien Khingmontri
Certified Public Accountant (Thailand) No. 3977
Bangkok
28 February 2018

TTCL Public Company Limited
Statement of Financial Position
As at 31 December 2018

		Consolidated financial statements		Separate financial statements	
		31 December 2018	31 December 2017	31 December 2018	31 December 2017
	Notes	Baht	Baht	Baht	Baht
Assets					
Current assets					
Cash and cash equivalents	7	987,208,371	2,235,896,443	436,835,872	218,599,272
Temporary investments		84,000	-	-	-
Trade accounts receivable, net					
- related parties	8, 11	-	264,596,256	44,693,147	475,703,926
- third parties	8	1,634,051,296	1,759,308,556	1,020,223,649	1,419,545,391
Accounts receivable from operation power plant		215,813,260	141,125,449	-	-
Financial assets under concession arrangement due within one year	10	162,983,997	113,787,473	-	-
Unbilled contract revenue, net					
- related parties	9.1, 11	1,507,859	489,544,731	644,222,329	1,408,197,549
- third parties	9.2	2,168,446,758	2,927,998,625	1,754,712,871	2,560,261,777
Other accounts receivable					
- related parties	11	-	28,341,853	115,095,128	19,701,122
- third parties		9,992,348	72,648,192	2,733,173	51,628,664
Construction in progress					
- related parties	11	-	-	2,370,658	81,726
- third parties		5,398,743,256	6,183,503,598	4,712,314,681	5,462,797,685
Advance payments to sub-contractors					
- related parties	11	-	-	39,925,145	56,346,029
- third parties		204,419,149	462,429,769	58,918,972	17,484,354
Advance payments for share subscription	12	-	141,314,917	-	-
Loans to related parties - due within one year	11	1,526,316	1,526,316	-	96,361,869
Loans to third party - due within one year	13	535,746,904	674,597,075	535,746,904	674,597,075
Interest receivable from loan to related parties	11	174,909	211,322	6,301,509	39,877,879
Withholding income tax		500,160,570	326,204,059	492,175,782	323,126,072
Input tax refundable		192,541,597	71,803,313	12,798,693	14,800,938
Other current assets		82,180,670	142,535,587	17,576,812	74,177,590
Total current assets		12,095,581,260	16,037,373,534	9,896,645,325	12,913,288,918

The notes to the consolidated and separate financial statements on pages 169 to 246 are an integral part of these financial statements.

TTCL Public Company Limited
Statement of Financial Position
As at 31 December 2018

		Consolidated financial statements		Separate financial statements	
		31 December	31 December	31 December	31 December
		2018	2017	2018	2017
	Notes	Baht	Baht	Baht	Baht
Assets (Cont'd)					
Non-current assets					
Trade accounts receivable, net					
- related party	11	-	-	22,762,065	70,579,416
- third parties		165,116,122	330,862,991	165,116,122	330,862,991
Deposit at bank used as collateral	14	129,858,312	130,770,231	-	-
Retention		3,852,685	27,016,552	3,852,685	27,016,552
Held-to-maturity investments		-	71,999	-	71,999
Loan to related parties, net	11	6,105,262	7,631,578	13,266,039	43,629,749
Loan to third party	13	278,763,468	325,321,119	278,763,468	325,321,119
Financial assets under concession arrangement due over one year	10	4,733,203,746	4,931,057,267	-	-
Investments in subsidiaries, net	15	-	-	3,937,876,138	4,091,976,063
Investments in associate, net	16	244,355,488	222,933,576	-	-
Investments in joint ventures, net	17	12,252,904	11,636,058	-	-
General investment, net	18	726,379,900	726,379,900	726,379,900	726,379,900
Spare parts		181,011,436	183,320,856	-	-
Property, plant and equipment, net	19	353,124,076	653,645,825	37,276,194	58,096,059
Intangible assets, net	20	26,357,756	28,821,808	24,309,364	25,767,867
Deferred tax assets	25	360,165,137	209,144,763	283,839,848	132,511,327
Other non-current assets		44,206,140	38,970,079	17,117,293	16,585,418
Total non-current assets		7,264,752,432	7,827,584,602	5,510,559,116	5,848,798,460
Total assets		19,360,333,692	23,864,958,136	15,407,204,441	18,762,087,378

The notes to the consolidated and separate financial statements on pages 169 to 246 are an integral part of these financial statements.

TTCL Public Company Limited
Statement of Financial Position
As at 31 December 2018

		Consolidated financial statements		Separate financial statements	
		31 December	31 December	31 December	31 December
		2018	2017	2018	2017
	Notes	Baht	Baht	Baht	Baht
Liabilities and equity					
Current liabilities					
Short-term loans from financial institutions	21	1,718,939,760	3,499,748,609	1,680,000,000	3,475,237,934
Trade accounts payable					
- related parties	11	-	389,016	1,393,759,165	1,285,884,205
- third parties		1,076,144,037	1,090,809,874	492,932,967	625,329,583
Other accounts payable		40,063,457	38,254,397	25,254,042	37,048,099
Long-term loan from financial institution, net					
- current portion	22	363,437,760	366,026,064	-	-
Debentures due within one year, net	23	-	1,424,414,935	-	1,424,414,935
Short-term loans from related parties	11	-	70,263,935	434,483,880	-
Interest payable from related parties	11	-	2,152,222	2,045,912	-
Retention payable to sub-contractors		204,882,997	249,072,803	108,545,977	176,317,828
Accrued construction costs		4,027,399,005	4,037,688,795	2,442,494,185	1,781,641,155
Advances received from customers					
under construction contracts					
- related parties	11	-	13,222,248	29,353,320	-
- third parties		1,705,481,440	1,090,904,228	1,205,969,089	514,820,740
Deferred construction revenue					
- related parties	9.3, 11	-	299,784,912	-	-
- third parties	9.4	10,800,081	26,140,013	10,800,081	26,140,013
Corporate income tax payable		3,881,697	2,207,583	-	74,349
Accrued expenses		184,545,261	270,136,677	86,689,280	103,330,031
Other current liabilities		198,692,535	47,704,726	65,782,504	37,580,640
Total current liabilities		9,534,268,030	12,528,921,037	7,978,110,402	9,487,819,512
Non-current liabilities					
Long-term loan from financial institution, net	22	1,882,088,400	2,261,518,273	-	-
Debentures, net	23	4,568,098,919	4,564,606,887	4,568,098,919	4,564,606,887
Deferred income	24	133,035,106	144,340,111	-	-
Deferred tax liabilities	25	108,433,247	114,314,908	114,982	-
Employee benefits obligation	26	137,562,905	156,355,795	135,576,218	153,797,465
Total non-current liabilities		6,829,218,577	7,241,135,974	4,703,790,119	4,718,404,352
Total liabilities		16,363,486,607	19,770,057,011	12,681,900,521	14,206,223,864

The notes to the consolidated and separate financial statements on pages 169 to 246 are an integral part of these financial statements.

TTCL Public Company Limited
Statement of Financial Position
As at 31 December 2018

		Consolidated financial statements		Separate financial statements	
		31 December	31 December	31 December	31 December
		2018	2017	2018	2017
	Notes	Baht	Baht	Baht	Baht
Liabilities and equity (Cont'd)					
Equity					
Share capital					
Authorised share capital					
Ordinary shares 896,000,000 shares of par 1 Baht each (2017 : Ordinary shares 560,000,000 shares of par 1 Baht each)	27	896,000,000	560,000,000	896,000,000	560,000,000
Issued and paid-up share capital					
Ordinary shares 616,000,000 shares of par 1 Baht each (2017 : Ordinary shares 560,000,000 shares of par 1 Baht each)		616,000,000	560,000,000	616,000,000	560,000,000
Premium on share capital	27	3,285,759,197	2,905,496,747	3,285,759,197	2,905,496,747
Retained earnings (Deficits)					
Appropriated - legal reserve	29	56,000,000	56,000,000	56,000,000	56,000,000
Unappropriated		13,310,264	1,966,927,532	(1,597,006,892)	1,155,156,416
Premium on share capital from share-based payment		23,188,454	23,188,454	23,188,454	23,188,454
Discount from dilution of investment in subsidiaries		(1,214,269,245)	(1,214,269,245)	-	-
Other components of equity		(265,555,701)	(215,366,069)	(158,159,980)	(143,978,103)
Total		2,514,432,969	4,081,977,419	2,225,780,779	4,555,863,514
Subordinated perpetual debentures	30	499,523,141	-	499,523,141	-
Equity attributable to owners of the parent		3,013,956,110	4,081,977,419	2,725,303,920	4,555,863,514
Non-controlling interests		(17,109,025)	12,923,706	-	-
Total equity		2,996,847,085	4,094,901,125	2,725,303,920	4,555,863,514
Total liabilities and equity		19,360,333,692	23,864,958,136	15,407,204,441	18,762,087,378

The notes to the consolidated and separate financial statements on pages 169 to 246 are an integral part of these financial statements.

TTCL Public Company Limited
Statement of Comprehensive Income
For the year ended 31 December 2018

		Consolidated financial statements		Separate financial statements	
		2018	2017	2018	2017
	Notes	Baht	Baht	Baht	Baht
Revenues					
Construction and service revenues		7,353,972,594	9,692,949,012	5,012,686,395	6,566,684,937
Revenues from operating the power plant		973,912,511	754,157,896	54,099,411	51,884,352
Total revenues	6	8,327,885,105	10,447,106,908	5,066,785,806	6,618,569,289
Costs					
Costs of construction and services	35	(7,904,614,835)	(9,082,544,003)	(5,761,728,710)	(6,147,769,790)
Costs of operating the power plant		(524,789,327)	(512,722,344)	(14,780,969)	(16,324,562)
Total costs	6	(8,429,404,162)	(9,595,266,347)	(5,776,509,679)	(6,164,094,352)
Gross profit (loss)		(101,519,057)	851,840,561	(709,723,873)	454,474,937
Other income	33	704,313,440	464,087,072	294,033,166	71,248,156
Administrative expenses	35	(2,261,745,010)	(953,705,617)	(2,175,790,542)	(769,123,504)
Gain(loss) on exchange rate, net		(66,310,216)	64,384,652	(42,446,390)	(130,027,523)
Finance costs	36	(461,839,036)	(419,420,642)	(301,973,948)	(254,237,527)
Share of profit of associate	16	22,574,316	18,462,294	-	-
Share of profit of joint ventures	17	673,797	734,543	-	-
Profit (loss) before income tax		(2,163,851,766)	26,382,863	(2,935,901,587)	(627,665,461)
Income tax expense	34	154,092,734	68,646,230	157,624,010	102,948,128
Profit (loss) for the year		(2,009,759,032)	95,029,093	(2,778,277,577)	(524,717,333)
Other comprehensive income (expense)					
Items that will not be reclassified subsequently to profit or loss, net of taxes					
Remeasurements of employee benefits obligation		26,114,269	5,990,454	26,114,269	5,990,454
Share of other comprehensive income of associate	16	280,356	-	-	-
Item that will be reclassified subsequently to profit or loss, net of taxes					
Exchange differences on translating financial statements		(50,475,224)	(455,350,986)	(14,181,877)	(132,734,182)
Other comprehensive income (expense) for the year, net of tax		(24,080,599)	(449,360,532)	11,932,392	(126,743,728)
Total comprehensive expense for the year		(2,033,839,631)	(354,331,439)	(2,766,345,185)	(651,461,061)
Profit (loss) attributable to:					
Owners of the parent		(1,979,731,537)	52,558,961	(2,778,277,577)	(524,717,333)
Non-controlling interests		(30,027,495)	42,470,132	-	-
		(2,009,759,032)	95,029,093	(2,778,277,577)	(524,717,333)
Total comprehensive expense attributable to :					
Owners of the parent		(2,003,806,900)	(333,282,926)	(2,766,345,185)	(651,461,061)
Non-controlling interests		(30,032,731)	(21,048,513)	-	-
		(2,033,839,631)	(354,331,439)	(2,766,345,185)	(651,461,061)
Earnings (loss) per share for the owners of the parent					
Basic earnings (loss) per share	31.1	(3.41)	0.09	(4.79)	(0.94)
Diluted earnings (loss) per share (Baht)	31.2	(3.41)	0.09	(4.79)	(0.94)

The notes to the consolidated and separate financial statements on pages 169 to 246 are an integral part of these financial statements.

TTCL Public Company Limited
Statement of Changes in Equity
For the year ended 31 December 2018

		Consolidated financial statements														
		Attributable to owners of the parent														
								Other components of equity								
								Other comprehensive income								
				Retained earnings												
	Notes	Issued and paid-up share capital Baht	Premium on share capital Baht	Appropriated- Legal reserve Baht	Unappropriated Baht	Premium on share capital from share-based payment Baht	Discount from dilution of investment in subsidiary Baht	Premium on dilution of investment Baht	Remeasurements of employee benefits obligation Baht	Currency translation differences Baht	Other comprehensive loss from associate Baht	Total other component of equity Baht	Subordinated perpetual debentures Baht	Total owners of the parent Baht	Non-controlling interest Baht	Total equity Baht
Opening balance																
as at 1 January 2017		560,000,000	2,905,496,747	56,000,000	2,031,577,259	23,188,454	(465,610,157)	9,410,796	-	167,499,017	(443,541)	176,466,272	-	5,287,118,575	1,053,751,563	6,340,870,138
Change in equity for the year																
Dividends paid	32	-	-	-	(123,199,142)	-	-	-	-	-	-	-	-	(123,199,142)	-	(123,199,142)
Total comprehensive expense for the year		-	-	-	52,558,961	-	-	-	5,990,454	(391,832,341)	-	(385,841,887)	-	(333,282,926)	(21,048,513)	(354,331,439)
Transfer from actuarial gain		-	-	-	5,990,454	-	-	-	(5,990,454)	-	-	(5,990,454)	-	-	-	-
Discount from dilution of investment in subsidiary		-	-	-	-	-	(748,659,088)	-	-	-	-	-	-	(748,659,088)	(1,019,779,344)	(1,768,438,432)
Closing balance																
as at 31 December 2017		560,000,000	2,905,496,747	56,000,000	1,966,927,532	23,188,454	(1,214,269,245)	9,410,796	-	(224,333,324)	(443,541)	(215,366,069)	-	4,081,977,419	12,923,706	4,094,901,125
Opening balance																
as at 1 January 2018		560,000,000	2,905,496,747	56,000,000	1,966,927,532	23,188,454	(1,214,269,245)	9,410,796	-	(224,333,324)	(443,541)	(215,366,069)	-	4,081,977,419	12,923,706	4,094,901,125
Change in equity for the year																
Increase in ordinary shares	27	56,000,000	380,262,450	-	-	-	-	-	-	-	-	-	-	436,262,450	-	436,262,450
Total comprehensive expense for the year		-	-	-	(1,979,731,537)	-	-	-	26,114,269	(50,469,988)	280,356	(24,075,363)	-	(2,003,806,900)	(30,032,731)	(2,033,839,631)
Transfer from actuarial gain		-	-	-	26,114,269	-	-	-	(26,114,269)	-	-	(26,114,269)	-	-	-	-
Issuance of subordinated perpetual debentures	30	-	-	-	-	-	-	-	-	-	-	-	499,523,141	499,523,141	-	499,523,141
Closing balance																
as at 31 December 2018		616,000,000	3,285,759,197	56,000,000	13,310,264	23,188,454	(1,214,269,245)	9,410,796	-	(274,803,312)	(163,185)	(265,555,701)	499,523,141	3,013,956,110	(17,109,025)	2,996,847,085

The notes to the consolidated and separate financial statements on pages 169 to 246 are an integral part of these financial statements.

TTCL Public Company Limited
Statement of Changes in Equity
For the year ended 31 December 2018

										Separate financial statements
				Retained earning (Deficits)			Other component of equity			
	Notes	Issued and paid-up share capital Baht	Premium on share capital Baht	Appropriated -Legal reserve Baht	Unappropriated Baht	Premium on share capital from share-based payment Baht	Remeasurements of employee benefits obligation Baht	Currency translation difference Baht	Subordinated perpetual debentures Baht	Total equity Baht
Opening balance as at 1 January 2017		560,000,000	2,905,496,747	56,000,000	1,797,082,437	23,188,454	-	(11,243,921)	-	5,330,523,717
Change in equity for the year										
Dividends paid	32	-	-	-	(123,199,142)	-	-	-	-	(123,199,142)
Total comprehensive expense for the year		-	-	-	(524,717,333)	-	5,990,454	(132,734,182)	-	(651,461,061)
Transfer from actuarial gains		-	-	-	5,990,454	-	(5,990,454)	-	-	-
Closing balance as at 31 December 2017		560,000,000	2,905,496,747	56,000,000	1,155,156,416	23,188,454	-	(143,978,103)	-	4,555,863,514
Opening balance as at 1 January 2018		560,000,000	2,905,496,747	56,000,000	1,155,156,416	23,188,454	-	(143,978,103)	-	4,555,863,514
Change in equity for the year										
Increase in ordinary shares	27	56,000,000	380,262,450	-	-	-	-	-	-	436,262,450
Total comprehensive expense for the year		-	-	-	(2,778,277,577)	-	26,114,269	(14,181,877)	-	(2,766,345,185)
Transfer from actuarial gains		-	-	-	26,114,269	-	(26,114,269)	-	-	-
Issurance of subordinated perpetual debentures	30	-	-	-	-	-	-	-	499,523,141	499,523,141
Closing balance as at 31 December 2018		616,000,000	3,285,759,197	56,000,000	(1,597,006,892)	23,188,454	-	(158,159,980)	499,523,141	2,725,303,920

The notes to the consolidated and separate financial statements on pages 169 to 246 are an integral part of these financial statements.

TTCL Public Company Limited
Statement of Cash Flows
For the year ended 31 December 2018

		Consolidated financial statements		Separate financial statements	
		2018	2017	2018	2017
	Notes	Baht	Baht	Baht	Baht
Cash flows from operating activities					
Profit (loss) before income tax		(2,163,851,766)	26,382,863	(2,935,901,587)	(627,665,461)
Adjustments					
- Depreciation and amortisation	19, 20	40,483,203	49,759,194	21,840,265	29,088,039
- Losses from write-off of equipment and intangible assets	19, 20	50	9,489	45	7,872
- Gains from disposals of equipment		(3,848,367)	(193,516)	(3,848,362)	(193,516)
- Unrealised (gains) losses from exchange rate		(43,022,144)	(557,952,878)	65,278,938	25,525,750
- Dividend income	11, 15	-	-	(238,602,711)	-
- Interest income	33	(159,624,305)	(199,165,545)	(46,149,781)	(66,225,053)
- Share of profit of associate	16	(22,574,316)	(18,462,294)	-	-
- Share of profit of joint venture	17	(673,797)	(734,543)	-	-
- Gain from disposal of subsidiary	15, 33	(360,600,107)	-	-	-
- Employee benefit expenses	26	21,574,281	22,327,901	21,535,089	22,225,298
- Reserve expense from lawsuit		805,490	12,139,892	805,490	12,139,892
- Allowance for doubtful debt		1,324,508,743	-	1,330,928,655	-
- Bad debt		118,611,939	-	118,611,939	-
- Impairment loss on general investment	18	-	-	-	1,233,200
- Impairment loss on investment in subsidiary	15	-	-	154,349,300	-
- Amortisation of deferred financing fee		4,825,013	11,357,961	4,077,097	4,469,061
- Amortisation of income from government grant		(11,305,005)	(1,113,840)	-	-
- Interest expenses		444,082,547	408,062,682	297,346,851	249,768,467
Cash flows before changes in operating assets and liabilities		(810,608,541)	(247,582,634)	(1,209,728,772)	(349,626,451)
Changes in operating assets and liabilities					
- Trade accounts receivable		114,065,307	1,674,584,306	587,053,057	667,275,390
- Unbilled contract revenue		296,176,807	306,096,839	487,067,813	(153,249,836)
- Accounts receivable from operation of power plant		(94,815,868)	3,956,364	-	-
- Financial assets under concession arrangement		148,656,996	717,285,189	-	-
- Other accounts receivable		44,917,750	13,716,056	(188,139,562)	33,769,560
- Construction in progress		742,457,937	(1,043,362,424)	748,194,072	(1,009,011,667)
- Advance payments to sub-contractors		258,010,620	170,753,740	(25,268,366)	(28,916,815)
- Withholding income tax		(173,956,512)	(15,827,266)	(169,058,080)	(28,745,593)
- Spare parts		2,309,419	(3,755,553)	-	-
- Input tax refundable		(120,738,285)	(22,765,809)	2,002,245	17,649,223
- Retention receivable		18,455,030	(18,190,759)	13,580,308	(18,342,853)
- Other current assets		(264,968,663)	(84,417,648)	56,572,126	(64,345,962)
- Other non-current assets		(67,447,681)	2,441,642	(531,878)	5,246,642
- Trade accounts payable		(2,688,332)	(911,059,370)	64,946,941	466,056,561
- Other accounts payable		(7,950,301)	2,538,959	(188,590,119)	1,735,263
- Retention payable to sub-contractors		(44,189,806)	(57,503,847)	(67,771,851)	(120,730,157)
- Accrued construction costs		(10,289,790)	(1,252,089,677)	856,845,831	(1,809,488,232)
- Advance received from customers under construction contracts		601,354,963	(270,143,599)	694,079,471	(108,874,211)
- Deferred construction revenue		(315,124,844)	(704,444,535)	(15,339,932)	26,140,013
- Accrued expense		(78,930,521)	47,019,532	(10,922,030)	(43,910,579)
- Other current liabilities		42,285,386	(87,319,073)	28,201,868	(38,856,916)
- Employee benefit obligations	26	(7,724,336)	(3,184,165)	(7,113,500)	(3,099,000)
Cash generated from (used in) operations		269,256,735	(1,783,253,732)	1,656,079,642	(2,559,325,620)
- Interest paid		(443,893,675)	(392,889,846)	(302,510,542)	(236,267,047)
- Income tax paid		(5,435,344)	(23,786,105)	(209,297)	(14,310,587)
Net cash generated from (used in) operating activities		(180,072,284)	(2,199,929,683)	1,353,359,803	(2,809,903,254)

The notes to the consolidated and separate financial statements on pages 169 to 246 are an integral part of these financial statements.

TTCL Public Company Limited
Statement of Cash Flows
For the year ended 31 December 2018

		Consolidated financial statements		Separate financial statements	
		2018	2017	2018	2017
	Notes	Baht	Baht	Baht	Baht
Cash flows from investing activities					
Cash receipts from refund of advance payments for share subscription	12	135,392,654	-	-	-
Payment for short-term investment to financial institutions		(84,000)	-	-	-
Payment for shares in subsidiary		-	-	(249,375)	-
Payment for shares in joint venture		-	(33,761,363)	-	-
Proceeds from sales of investments in maturities security		71,999	-	71,999	-
Payment for held to maturities security		-	(75,548)	-	(75,548)
Payment for loan to related party	11	-	-	(38,261,067)	(104,795,464)
Proceeds from loan to related parties	11	1,526,316	291,676,245	234,745,386	289,386,771
Proceeds from loan to third parties		182,600,110	55,925,578	182,600,110	55,925,578
Proceeds from disposals of equipment		16,588,510	2,213,937	16,588,505	1,417,481
Cash receipts from interest income		179,827,025	203,972,939	82,194,686	55,907,526
Cash receipts from dividend income		-	-	238,602,711	-
Cash payment for purchases of equipment	19	(635,427,537)	(116,126,183)	(2,382,867)	(17,719,262)
Payment for borrowing cost included in fixed assets		(16,015,347)	-	-	-
Cash payment for purchases of intangible assets	20	(827,195)	(468,976)	(119,500)	(10,600)
Cash receipt from disposals of subsidiary	15	901,531,803	-	-	-
Net cash receipts from investing activities		765,184,338	403,356,629	713,790,588	280,036,482
Cash flows from financing activities					
Cash payment for long-term loan from financial institution	22	(362,988,640)	(384,337,240)	-	-
Cash receipt for long-term loan from financial institution	22	889,149,500	-	-	-
Cash payment for deferred financing fee	22	(13,383,215)	-	-	-
Cash receipts from short-term loan from financial institutions	21	8,003,460,281	7,680,000,533	7,988,857,871	7,655,489,858
Cash payment for short-term loan from financial institutions	21	(9,784,095,805)	(5,559,732,430)	(9,784,095,805)	(5,559,732,430)
Cash receipts from issuing debentures	23	-	3,000,000,000	-	3,000,000,000
Cash repayment for debentures	23	(1,425,000,000)	(1,000,000,000)	(1,425,000,000)	(1,000,000,000)
Cash payment for financing fee in issuing debenture		-	(8,867,000)	-	(8,867,000)
Cash receipts from issuing perpetual bond		500,000,000	-	500,000,000	-
Cash payment for fee in issuing perpetual bond		(596,074)	-	(596,074)	-
Dividend payment	32	-	(123,199,142)	-	(123,199,142)
Cash receipts from short-term loan from related party	11	490,444,683	-	705,267,614	-
Cash payment for short-term loan from related party	11	(564,701,034)	-	(270,000,000)	-
Payment for investment in non-controlling interests		-	(1,768,438,432)	-	(1,768,438,432)
Cash receipts from issuing ordinary shares	27	436,262,450	-	436,262,450	-
Net cash receipts from (payments for) financing activities		(1,831,447,854)	1,835,426,289	(1,849,303,944)	2,195,252,854
Net increase (decrease) in cash and cash equivalents		(1,246,335,800)	38,853,235	217,846,447	(334,613,918)
Cash and cash equivalents at the beginning of the year		2,235,896,443	2,208,345,528	218,599,272	558,459,569
Exchange rate gains (losses) on cash and cash equivalents		(2,352,272)	(11,302,320)	390,153	(5,246,379)
Cash and cash equivalents at the ending of the year	7	987,208,371	2,235,896,443	436,835,872	218,599,272

The notes to the consolidated and separate financial statements on pages 169 to 246 are an integral part of these financial statements.

TTCL Public Company Limited
Statement of Cash Flows
For the year ended 31 December 2018

		Consolidated financial statements		Separate financial statements	
		2018	2017	2018	2017
	Note	Baht	Baht	Baht	Baht
Non-cash items					
Accounts payable for purchases of equipment		90,402,893	253,724,698	10,154,810	395,448
Conversion of accounts receivable					
- subsidiary to loan to subsidiary	11	-	-	100,122,450	-
Increase in loan due to changing from associate to general invetsment		-	1,052,452,513	-	1,052,452,513
Increase in general investment from lose significant influence in associate		-	-	-	1,233,200

The notes to the consolidated and separate financial statements on pages 169 to 246 are an integral part of these financial statements.

1 General information

TTCL Public Company Limited ("Company") is a public limited company incorporated in Thailand. The address of head office of the Company's registered office is at 159 Sermmit Tower Floor 27-30, Soi Sukhumvit 21, Asoke Road, Klong-Toeynua, Wattana, Bangkok 10110.

Philippines Branch: Suite B, 5th Floor Builder's Center, 170 Salcedo Street, Legaspi Village, Makati City

Qatar Branch: Area No.90, Street No.720, Sheikh Abdulrahman Bin Jassim Street, Building No.24, Plot No.26, Flat No.90, P.O.Box 80364 A1 Wakra-Qatar

The Company is listed on the Stock Exchange of Thailand. For reporting purposes, the Company and its subsidiaries are referred to as the Group.

The principal business operations of the Group are engineering services including design, procurement and construction for integrated industrial factories and energy business.

These consolidated and separate financial statements were authorised by the Board of Directors on 28 February 2019.

2 Accounting policies

The principal accounting policies applied in the preparation of these consolidated and separate financial statements are set out below:

2.1 Basis of preparation

The consolidated and separate financial statements have been prepared in accordance with Thai generally accepted accounting principles under the Accounting Act BE 2543, being those Thai financial reporting standards issued under the Accounting Profession Act BE2547, and the financial reporting requirements of the Securities and Exchange Commission under the Securities and Exchange Act

The consolidated and separate financial statements have been prepared under the historical cost convention.

The preparation of financial statements in conformity with Thai generally accepted accounting principles requires the use of certain critical accounting estimates. It also requires management to exercise its judgement in the process of applying the Group's accounting policies. The areas involving a higher degree of judgement or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements are disclosed in Note 4.

An English version of the consolidated and separate financial statements have been prepared from the statutory financial statements that are in the Thai language. In the event of a conflict or a difference in interpretation between the two languages, the Thai language statutory financial statements shall prevail.

2 Accounting policies (Cont'd)

2.2 Revised financial reporting standards and accounting standards and related interpretations (collectively "the accounting standards")

2.2.1 The accounting standards are effective for accounting periods beginning on or after 1 January 2018

The Group adopted the accounting standards, which are effective for accounting period beginning on or after 1 January 2018 and relevant to the Group. There is no significant impact to the financial statements being present from the adoption of those standards by the Group.

2.2.2 New financial reporting standard is effective for annual periods beginning on or after 1 January 2019. The Group has not yet adopted this standard.

Thai Financial Reporting Standard (TFRS) 15 "Revenue from contracts with customers" provides the requirements for the recognition of revenue. This standard will supersede the following standards:

TAS 11 (revised 2017)	Construction Contracts
TAS 18 (revised 2017)	Revenue
TSIC 31 (revised 2017)	Revenue - Barter Transactions Involving Advertising Services
TFRIC 13 (revised 2017)	Customer Loyalty Programmes
TFRIC 15 (revised 2017)	Agreements for the Construction of Real Estate
TFRIC 18 (revised 2017)	Transfers of Assets from Customers

The new standard is based on the principle that revenue is recognised when control of a good or service transfers to a customer, so the notion of control replaces the existing notion of risks and rewards.

An entity recognises revenue in accordance with that core principle by applying the following steps:
1) Identify the contract(s) with a customer
2) Identify the performance obligations in the contract
3) Determine the transaction price
4) Allocate the transaction price to the performance obligations in the contract
5) Recognise revenue when (or as) the entity satisfies a performance obligation

Key changes to current practice are:
- Any bundled goods or services that are distinct must be separately recognised, and any discounts or rebates on the contract price must generally be allocated to the separate elements
- Revenue may be recognised earlier than under current standards if the consideration varies for any reasons (such as for incentives, rebates, performance fees, royalties, success of an outcome etc) - minimum amounts must be recognised if they are not at significant risk of reversal
- The point at which revenue is able to be recognised may shift: some revenue which is currently recognised at a point in time at the end of a contract may have to be recognised over the contract term and vice versa
- There are new specific rules on licenses, warranties, non-refundable upfront fees and, consignment arrangements
- As with any new standard, there are also increased disclosures.

The Group will have the choice to apply this standard retrospectively in accordance with TAS 8 'Accounting Policies', Changes in Accounting Estimates and Errors, subject to the expedients or retrospectively with the cumulative effect recognised as an adjustment to the opening balance of retained earnings of the annual reporting period, which includes the date of initial application with additional disclosures. The Group's management is currently assessing the impact of initial adoption of this standard.

2 Accounting policies (Cont'd)

2.2 Revised financial reporting standards and accounting standards and related interpretations (collectively "the accounting standards") (Cont'd)

2.2.3 Revised financial reporting standards are effective for annual periods beginning on or after 1 January 2019 and are relevant to the Group. The Group has not yet adopted these standards.

TFRS 2 (revised 2018)	Share-based Payment
TFRS 4 (revised 2018)	Insurance Contracts
TAS 28 (revised 2018)	Investments in Associates and Joint Ventures
TAS 40 (revised 2018)	Investment Property
TFRIC 22	Foreign Currency Transactions and Advance Consideration

TFRS 2 "Share-based Payment", the amendments clarify;

- The measurement basis for cash-settled share-based payments, vesting conditions, other than market conditions, shall not be taken into account when estimating the fair value of the cash-settled share-based payment at the measurement date. Instead, vesting conditions, other than market conditions, shall be taken into account by adjusting the number of awards included in the measurement of the liability arising from the transaction.
- Where an employer is obliged to withhold an amount for the employee's tax obligation associated with a share-based payment and pay that amount to the tax authority, the whole award will be treated as if it was equity-settled provided it would have been equity-settled without the net settlement feature, and
- The accounting for modifications that change an award from cash-settled to equity-settled.

TFRS 4 has been amended to provide insurance companies an optional exemption from compliance with TFRS 9 and TFRS 7. The exemption is temporarily effective and not mandatory. Entities who choose to use the exemption must follow the 'financial instruments and disclosure for insurance companies' accounting guidelines to be issued by the Federation of Accounting Professions (upon announcement) until TFRS 17 becomes effective.

TAS 28 "Investments in Associates and Joint Ventures", the amendment clarifies that the election by venture capital organisations, mutual funds, unit trusts and similar entities to measure investments in associates or joint ventures at fair value through profit or loss should be made separately for each associate or joint venture at initial recognition.

TAS 40 "Investment Property", the amendments clarify that transfers to, or from, investment property can only be made if there has been a change in use that is supported by evidence. A change in use occurs when the property meets, or ceases to meet, the definition of investment property. A change in intention alone is not sufficient to support a transfer.

The TFRIC 22 interpretation provides guidance for determining the exchange rate to be used on the initial recognition of a related asset, expense or income where an entity pays or receives an advance consideration in a foreign currency. The interpretation requires an entity to use the exchange rate at the date on which an entity recognises the non-monetary assets, such as prepayments and advances, or non-monetary liability, such as deferred income arising from the advance consideration. If there are multiple advance payments or receipts of payments, the exchange rate is to be used on the date when each non-monetary asset or liability is recognised.

The Group management is currently assessing the impact of initial adoption of these standards.

2.2.4 The Group of financial instruments reporting standards are effective for annual periods beginning on or after 1 January 2020. The Group has not yet adopted these standards.

TAS 32	Financial Instruments: Presentation
TFRS 7	Financial Instruments: Disclosures
TFRS 9	Financial Instruments
TFRIC 16	Hedges of a Net Investment in a Foreign Operation
TFRIC 19	Extinguishing Financial Liabilities with Equity Instruments

The above new standards and interpretations will supersede the following standards:

TAS 101	Bad and Doubtful Debts
TAS 103	Disclosures in the Financial Statements of Bank and Similar Financial Institutions
TAS 104	Accounting for Troubled Debt Restructuring
TAS 105	Accounting for Investment in Debts and Equity securities
TAS 106	Accounting for Investment Companies
TAS 107	Financial Instruments: Presentation and Disclosure

2 Accounting policies (Cont'd)

2.2 Revised financial reporting standards and accounting standards and related interpretations (collectively "the accounting standards") (Cont'd)

2.2.4 The Group of financial instruments reporting standards are effective for annual periods beginning on or after 1 January 2020. The Group has not yet adopted these standards. (Cont'd)

TAS 32 "Financial Instruments: Presentation", provides the requirements for the presentation financial instruments as liabilities or equity and for offsetting financial assets and financial liabilities. It applies to the classification of financial instruments, from the perspective of the issuer, into financial assets, financial liabilities and equity instruments; the classification of related interest, dividends, losses and gains; and the circumstances in which financial assets and financial liabilities should be offset.

TFRS 7 "Financial Instruments: Disclosures", provides the requirements for the disclosure that are intended to enable users to evaluate the significance of financial instruments for an entity's financial position and performance, and to understand the nature and extent of risks arising from those financial instruments to which the entity is exposed during the period and at the end of the reporting period, and how the entity manages those risks.

TFRS 9 "Financial Instruments", establishes principles for the classification, measurement and derecognition of financial assets and financial liabilities, impairment requirement and hedge accounting as follow:

- Classification and measurement:
  - The classification and measurement of debt instrument financial assets has three classification categories, which are amortised cost, fair value through profit or loss and fair value through other comprehensive income. Classification of debt assets will be driven by the entity's business model for managing the financial assets and contractual cash flows characteristics of the financial assets.
  - Equity instrument financial assets shall be measured at fair value through profit or loss. An entity can make an irrevocable election to recognise the fair value change in other comprehensive income without subsequent recycling to profit or loss
  - Financial liabilities are classified and measured at amortised cost, except for financial liabilities that are measured at fair value to profit or loss. An entity can choose to measure a liability at fair value through profit or loss when the conditions are met.
  - Derivatives are classified and measured at fair value through profit or loss.
- The impairment requirements relating to the accounting for an entity's expected credit losses on its financial assets measured at amortised cost, investments in debt instruments measured at fair value through other comprehensive income, lease receivables, loan commitments and financial guarantee contracts. It is no longer necessary for a credit event to have occurred before credit losses are recognised. The entity always accounts for expected credit losses which involves a three stage approach. The stage dictates how the entity measures impairment losses and applies the effective interest rate method. Except for trade receivables and contractual assets which apply in TFRS 15 and have no significant financial components and lease receivables, they are permitted to measure by simplified approach for credit impaired consideration.
- The objective of hedge accounting is to represent, in the financial statements, the effect of an entity's risk management activities that use financial instruments to manage exposures arising from particular risks that could affect profit or loss (or other comprehensive income, in the case of investments in equity instruments for which an entity has elected to present changes in fair value in other comprehensive income). This approach aims to convey the context of hedging instruments for which hedge accounting is applied in order to allow insight into their purpose and effect.

TFRIC 16 "Hedges of a Net Investment in a Foreign Operation", clarifies the accounting treatment in respect of net investment hedging, provides guidance on identifying the foreign currency risks that qualify as a hedged risk. Clarifying that hedging instruments that are hedges of a net investment in a foreign operation may be held anywhere in the group not only by the parent. This includes the guidance on how an entity should determine the amount to be reclassified from equity to profit or loss for both the hedging instrument and the hedged item.

TFRIC 19 "Extinguishing Financial Liabilities with Equity Instruments", provides the requirements for accounting treatment when the entity issues equity instruments to a creditor to extinguish all or part of a financial liability. The equity instruments issued shall be measured at fair value. The entity shall remove a financial liability (or part of a financial liability) from its statement of financial position when it is extinguished in accordance with TFRS 9. The difference between the carrying amount of the financial liability (or part of a financial liability) extinguished and the fair value of equity instruments issued shall be recognised in profit or loss.

The Group management is currently assessing the impact of initial adoption of these standards.

2 Accounting policies (Cont'd)

2.3 Group Accounting - Investments in subsidiaries, associate and joint ventures (Cont'd)

2.3.1 Subsidiaries

Subsidiaries are all entities (including structured entities) over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns though its power over the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the Group. They are deconsolidated from the date that control ceases.

The Group applies the acquisition method to account for business combinations except business combination under common control. The consideration transferred for the acquisition of a subsidiary is the fair value of the assets transferred, the liabilities incurred to the former owners of acquiree and the equity interests issued by the Group. The consideration transferred includes the fair value of any asset or liability resulting from a contingent consideration arrangement. Acquisition-related costs are expensed as incurred. Identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date. On an acquisition-by-acquisition basis, the Group recognises any non-controlling interest in the acquiree at the non-controlling interest's proportionate share of the acquiree's net assets.

If the business combination is achieves in stages, the acquisition date carrying value of the acquirer's previously held equity interest in the acquiree is re-measured to fair value at the acquisition date; any gains or losses arising from such re-measured are recognised in profit or loss.

Any contingent consideration to be transferred by the Group is regcognised at fair value at the acquisition date. Subsequent changes to the fair value of the contingent consideration that is deemed to be an asset or liability is recognised in profit or loss. Contingent consideration that is classified as equity is not re-measured, and its subsequent settlement is accounted for within equity.

The excess of the consideration transferred, the amount of any non-controlling interest in the acquiree and the acquisition-date fair value of any previous equity interest in the acquiree over the fair value of the identifiable net assets acquired is recorded as goodwill. If the total of consideration transferred, non-controlling interest recognise and previously held interest measured is less than the fair value of the net assets of the subsidiary acquired in the case of a bargain purchase, the difference is recognised directly in profit or loss.

Intercompany transactions, balances and unrealised gains on transactions between group companies are eliminated. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the transferred asset. Accounting policies of subsidiaries have been changed where necessary to ensure consistency with the policies adopted by the Group.

A list of the Group's subsidiaries is shown in Note 15.

2.3.2 Transactions Non-controlling interests

The Group treats transactions with non-controlling interests as transactions with equity owners of the Group. For purchases from non-controlling interests, the difference between any consideration paid and the relevant share acquired of the carrying value of net assets of the subsidiary is recorded in equity. Gains or losses on disposals to non-controlling interests are also recorded in equity.

2.3.3 Disposal of subsidiaries

When the Group ceases to have control it shall ceased to consolidate its subsidiaries. Any retained interest in the entity is re-measured to its fair value, with the change in carrying amount recognised in profit or loss. The fair value is the initial carrying amount for the purposes of subsequently accounting for the retained interest as an associate, joint venture or financial asset. In addition, any amounts previously recognised in other comprehensive income in respect of that entity are accounted for as if the Group had directly disposed of the related assets or liabilities.

2.3.4 Associates

Associates are all entities over which the Group has significant influence but not control, generally accompanying a shareholding of between 20% and 50% of the voting rights. In the consolidated financial statements, investments in associates are accounted for using the equity method of accounting.

A list of the Group's associate is shown in Note 16.

2 Accounting policies (Cont'd)

2.3 Group Accounting - Investments in subsidiaries, associate and joint ventures (Cont'd)

2.3.5 Joint arrangements

Investments in joint arrangements are classified as either joint operations or joint ventures depending on the contractual rights and obligations of each investor, rather than the legal structure of the joint arrangements.

Joint venture

A joint venture is a joint arrangement whereby the Group has rights to the net assets of the arrangement. In the consolidated financial statements, interests in joint ventures are accounted for using the equity method.

A list of the joint venture is shown in Note 17.

2.3.6 Accounting under equity method

Under the equity method, the investment is initially recognised at cost, and the carrying amount is increased or decreased to recognise the investor's share of the profit or loss of the investee after the date of acquisition. The Group's investment in associates and joint ventures includes goodwill identifies on acquisition.

If the ownership interest in associates and joint ventures is reduced but significant influence is retained, only a proportionate share of the amounts previously recognised in other comprehensive income is reclassified to profit or loss where appropriate. Profit or loss from reduce of the ownership interest in an associates and joint ventures is recognised in profit or loss.

The Group's share of its associates and joint ventures' post-acquisition profits or losses is recognised in the profit or loss, and its share of post-acquisition movements in other comprehensive income is recognised in other comprehensive income. The cumulative post-acquisition movements are adjusted against the carrying amount of the investment. When the Group's share of losses in associates and joint ventures equals or exceeds its interest in the associates and joint ventures, together with any long-term interests that, in substance, form part of the entity's net investment in the associates or joint ventures, the Group does not recognise further losses, unless it has incurred obligations or made payments on behalf of the associates and joint ventures

The Group determines at each reporting date whether there is any objective evidence that the investments in the associates and joint ventures are impaired. If this is the case, the Group calculates the amount of impairment as the difference between the recoverable amount of the investments and its carrying value and recognises the amount adjacent to share of profit (loss) of associates and joint ventures in profit or loss.

Unrealised gains on transactions between the Group and its associates and joint ventures are eliminated to the extent of the Group's interest in the associates and joint ventures. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred. Accounting policies of associates and joint ventures have been changed where necessary to ensure consistency with the policies adopted by the Group.

2.3.7 Separate financial statements

In the separate financial statements, investments in subsidiaries, associates and joint ventures are accounted for at cost less impairment. Cost is adjusted to reflect changes in consideration arising from contingent consideration amendments. Cost also includes direct attributable costs of investment.

A test for impairment for investments in subsidiaries, associates and joint ventures is carried out when there is a factor indicating that investments might be impaired. If the carrying value of the investments is higher than its recoverable amount, impairment loss is charged to the profit or loss.

2 Accounting policies (Cont'd)

2.4 Foreign currency translation

(a) Functional and presentation currency

Items included in the financial statements of each of the group's entities are measured using the currency of the primary economic environment in which the entity operates (the functional currency). The financial statements are presented in Thai Baht, which is the Company's functional currency and the Group's presentation currency.

(b) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions or valuation where items are re-measured. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the profit or loss.

When a gain or loss on a non-monetary item is recognised in other comprehensive income, any exchange component of that gain or loss is recognised in other comprehensive income. Conversely, when a gain or loss on a non-monetary item is recognised in profit and loss, any exchange component of that gain or loss is recognised in profit and loss.

(c) Group companies

The results and financial position of all the group entities (none of which has the currency of a hyper-inflationary economy) that have a functional currency different from the presentation currency are translated into the presentation currency as follows:

- Assets and liabilities for each statement of financial position presented are translated at the closing rate at the date of that statement of financial position;
- Income and expenses for each statement of comprehensive income are translated at average exchange rates; and
- All resulting exchange differences are recognised in other comprehensive income.

2.5 Cash and cash equivalents

In the statement of cash flow, cash and cash equivalents comprise cash on hand, deposits held with financial institutions and short-term highly liquid investments with original maturities of three months or less from the date of acquisition and bank overdrafts. Bank overdrafts are shown within current liabilities in statement of financial position.

2.6 Trade accounts receivable

Trade accounts receivable are recognised initially at original invoice amount and subsequently measured at the remaining amount less allowance for doubtful debts based on a review of all outstanding amounts at the year end. The amount of the allowance is the difference between the carrying amount of the receivable and the amount expected to be collectible. Bad debts (if any) are written off during the year in which they are identified and recognised in the profit or loss as administrative expenses.

2 Accounting policies (Cont'd)

2.7 Service concession arrangements

A service concession arrangement is an arrangement involving an operator constructing and/or upgrading, operating and maintaining infrastructure used to provide a public service for a specified period of time. The operator is paid for its services over the period of the arrangement. The arrangement is governed by a contract that sets out performance standards, mechanisms for adjusting prices and arrangements for arbitrating disputes. The grantor controls (through ownership, beneficial entitlement or otherwise) any significant residual interest in the infrastructure at the end of the term of the arrangement.

The Group, as the operator for constructing and operating infrastructure, recognises receivable arising from a service concession arrangement to the extent that it has an unconditional right to receive cash or another financial asset from or at the direction of the grantor, for the construction of concession assets. Receivable recognised as a result of the service concession arrangement are measured at fair value upon initial recognition. Revenue from construction services is recognised using the percentage of completion method. The stage of completion is measured by considering the physical inspection in accordance with the condition agreed with the customers. Revenue from service from operation power plant is recognised when the services have been rendered.

The contractual obligation in commitment repair and maintenance such infrastructure which are not performed in order to improve the condition of infrastructure are measured and recognized based on the best estimation of expending to pay for the commitment as at the end of accounting period.

2.8 Spare parts

Spare parts and supplies that do not meet definitions of property, plant and equipment are carried at cost less allowance for obsolescence. Cost of spare parts and supplies is determined by the weighted average method.

The cost of purchase comprises both the purchase price and costs directly attributable to the acquisition of spare parts and supplies such as import duties and transportation charges, less all attributable discounts, allowances or rebates. The Group reviews the allowance for obsolete, slow-moving and defective spare parts and supplies on a specific case.

2.9 Construction contracts

A construction contract is a contract specifically negotiated for the construction of an asset or a combination of assets that are closely interrelated or interdependent in terms of their design, technology and functions or their ultimate purpose of use.

When the outcome of a construction contract cannot be estimated reliably, contract revenue is recognised to the extent of contract costs incurred where it is probable those costs will be recoverable. Contract costs are recognised when incurred.

When the outcome of a construction contract can be estimated reliably, contract revenue and contract costs are recognised by using the percentage of completion method. The stage of completion is measured by referencing to the completion of a physical proportion of the contract work performed as per the conditions agreed with customers. When it is probable that total contract costs will exceed total contract revenue, the expected loss is recognised as an expense immediately.

Costs incurred in the year in connection with future activity on a contract are excluded and shown as work in process.

The aggregate of the costs incurred and the profit (less recongnised losses) on each contract is compared against the progress billings up to the year end. Where the total costs incurred and recognised profits (less recognised losses) exceed progress billings, the balance is shown as "Unbilled contract revenue" under current assets in the statement of financial position. Where progress billings exceed total costs incurred plus recognised profits (less recognised losses), the balance is shown as "Deferred construction revenue" under current liabilities in the statement of financial position.

2 Accounting policies (Cont'd)

2.10 Investments

Investments other than investments in subsidiaries, associates and joint ventures are classified into the following two categories: (1) held-to-maturity investments and (2) general investments. The classification is dependent on the purpose for which the investments were acquired. Management determines the appropriate classification of its investments at the time of the purchase and re-evaluates such designation on a regular basis.

(1) Investments with fixed maturity that the management has the intent and ability to hold to maturity are classified as held-to-maturity and are included in non-current assets, except those with maturities within 12 months from the end of the reporting period, which are classified as current assets.

(2) Investments in non-marketable equity securities are classified as general investments.

Held-to-maturity investments are carried at amortised cost using the effective yield method and less impairment.

General investments are carried at cost less impairment.

A test for impairment is carried out when there is a factor indicating that an investment might be impaired. If the carrying value of the investment is higher than its recoverable amount, impairment loss is charged to the profit or loss.

On disposal of an investment, the difference between the net disposal proceeds and the carrying amount is charged or credited to the profit or loss. When disposing of part of the Group's holding of a particular investment in debt or equity securities, the carrying amount of the disposed part is determined by the weighted average carrying amount of the total holding of the investment.

2.11 Property, plant and equipment

All property, plant and equipment are initially recorded at cost. Subsequently all plant and equipment is stated at historical cost less accumulated depreciation and impairment (if any). The costs of property, plant and equipment comprise both the purchase price and any costs directly attributable to bringing the assets to location and condition necessary for them to be capable of operating in the manner intended by management. Their costs also include the initial estimate of the costs of dismantling and removing the item and restoring the site on which they are located, the obligation for which the Group incurs either when the items are acquired or as a consequence of having used the items during a particular period.

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the Group and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognised. All other repairs and maintenance are charged to profit or loss during the financial period in which they are incurred.

Depreciation is calculated on the straight-line basis to write off the cost of each asset, except for land which is considered to have an indefinite life.

Power plant	20 years
Land improvement	20 years
Building	20 years
Furniture and fixtures	5 - 10 years
Office equipment	5 years
Motor vehicles	5 years

The asset's residual values and useful lives are reviewed and adjusted if appropriate, at the end of each reporting period.

2 Accounting policies (Cont'd)

2.11 Property, plant and equipment (Cont'd)

Spare part, stand-by equipment and servicing equipment are recognised as property, plant and equipment when they meet the definition of property, plant and equipment. Otherwise such items are classified as inventory and spare part for other repair and maintenance which are recognised in profit or loss when they are utilised.

Where the carrying amount of an asset is greater than its estimated recoverable amount, it is written down immediately to its recoverable amount.

Gains and losses on disposals are determined by comparing proceeds with carrying amount and are included in the profit or loss.

Borrowing costs that are directly attributable to the acquisition or construction of qualifying assets are capitalised as part of cost of the assets, during the period of time required to complete and prepare the assets for their intended use. All other borrowing costs are recognised as expenses in the income statement.

2.12 Intangible assets

2.12.1 Computer software

Acquired computer software licenses are capitalised based on the costs incurred to acquire and for intended bring into use of the specific software acquired. These costs are amortised using straight-line method over their estimated useful lives of 10 years.

2.12.2 Golf membership

Expenditure associated with golf membership acquisition is capitalized at cost and amortised using the straight-line method over the useful life of 10 years.

2.13 Impairment of assets

Assets that have an indefinite useful life, for example goodwill, are not subject to amortisation and are tested annually for impairment. Assets that are subject to amortisation are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which the carrying amount of the assets exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest level for which there are separately identifiable cash flows. Non-financial assets other than goodwill that suffered an impairment are reviewed for possible reversal of the impairment at each reporting date.

2.14 Leases - where the Group is the lessee

Leases of assets which substantially transfer all the risks and rewards of ownership are classified as finance leases. Finance leases are capitalised at the inception of the lease at the lower of the fair value of the leased property or the present value of the minimum lease payments. Each lease payment is allocated to the principal and to the finance charges so as to achieve a constant rate on the finance balance outstanding. The outstanding rental obligations, net of finance charges, are included in other long-term payables. The interest element of the finance cost is charged to the statement of income over the lease period so as to achieve a constant periodic rate of interest on the remaining balance of the liability for each period. The property, plant or equipment acquired under finance leases is depreciated over the shorter period of the useful life of the asset or the lease term.

Leases not transferring a significant portion of the risks and rewards of ownership to the lessee are classified as operating leases. Payments made under operating leases (net of any incentives received from the lessor) are charged to the statement of income on a straight-line basis over the period of the lease.

When an operating lease is terminated before the lease period has expired, any payment required to be made to the lessor by way of penalty is recognised as an expense in the period in which termination takes place.

2 Accounting policies (Cont'd)

2.15 Provisions

Provisions are recognised when the Group has a present legal or constructive obligation as a result of past events, it is probable that an outflow of resources will be required to settle the obligation, and a reliable estimate of the amount can be made. Where the Group expects a provision to be reimbursed, the reimbursement is recognised as a separate asset but only when the reimbursement is virtually certain.

2.16 Government grants

Grants from the government are recognised at their fair value where there is a reasonable assurance that the grant will be received and the Group will comply with all attached conditions.

Government grant relating to assets

The Group initially recognise government grant relating to assets as deferred income and systematically recognise as revenue in the income statement in accordance with depreciation expense incurred from the related assets in each accounting period.

Government grant relating to revenue

The Group initially recognise government grant relating to revenue as deferred income and systematically recognise as revenue in the income statement in accordance with carbon credit portion delivered to the government in each accounting period compare to all carbon credit required to deliver.

2.17 Borrowings and debentures

Long-term loans and debentures are recognised initially at the fair value, net of transaction costs incurred. Long-term loans and debentures are subsequently stated at amortised cost using the effective yield method; any difference between proceeds (net of transaction costs) and the redemption value is recognised in profit or loss over the period of long-term loans and debentures.

Fees paid on the establishment of long-term loans and debentures facilities are recognised as transaction costs of the debentures to the extent that it is probable that some or all of the facility will be drawn down. In this case, the fee is deferred until the draw-down occurs. To the extent that there is no evidence that it is probable that some or all of the facility will be drawn down, the fee is capitalised as a pre-payment for liquidity services and amortised over the period of the facility to which it relates.

Borrowings and debentures are classified as current liabilities unless the Group has an unconditional right to defer settlement of the liability for at least 12 months after the end of reporting date.

General and specific borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use or sale, are added to the cost of those assets, until such time as the assets are substantially ready for their intended use or sale.

Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalisation.

All other borrowing costs are recognised as expense in the period in which they are incurred.

2 Accounting policies (Cont'd)

2.18 Employee benefits

The Group operate post-employment benefits schemes, which are defined contribution and defined benefit plans.

2.18.1 Defined contribution

The Company operates a provident fund that is a defined contribution plan funded by payments from employee and by the Company. The Company has no legal or constructive obligations to pay further contributions once the contributions have been paid even if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service in the current and prior periods. The Group pays contributions to a separate fund which is managed by an external fund manager in accordance with the Provident Fund Act. B.E. 2530. The contributions are recognised as employee benefit expense when they are due.

2.18.2 Retirement benefits

The Group provides for post-employment benefits, payable to employees under the labour laws. Typically defined benefit plans define an amount of retirement benefit that an employee will receive on retirement, usually depends on one or more factors such as age, years of service and compensation.

The liability recognised in the statement of financial position in respect of defined benefit retirement plans is the present value of the defined benefit obligation at the end of the reporting period. The defined benefit obligation is calculated by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using yields on government bonds which have terms to maturity approximating the terms of the related liability that are denominated in the currency in which the benefits will be paid.

Remeasurement gains and losses arising from experience adjustments and changes in actuarial assumptions are charged or credited to equity in other comprehensive income in the period in which they arise.

Past-service costs are recognised immediately in profit or loss.

2.19 Share-based payment

The Group operates a number of equity-settled, share-based compensation plans, under which the entity receives services from employees as consideration for equity instruments (options) of the Group. The fair value of the employee services received in exchange for the grant of the options is recognised as an expense. The total amount to be expensed is determined by reference to the fair value of the options granted excluding the impact of any non-vesting conditions.

Non-market vesting conditions are included in assumptions about the number of options that are expected to vest. The total expense is recognised over the vesting period, which is the period over which all of the specified vesting conditions are to be satisfied. At the end of each reporting period, the entity revises its estimates of the number of options that are expected to vest based on the non-marketing vesting conditions. It recognises the impact of the revision to original estimates, if any, in profit or loss, with a corresponding adjustment to equity.

When the options are exercised, the Company issues new shares. The proceeds received net of any directly attributable transaction costs are credited to share capital (nominal value) and share premium when the options are exercised.

The grant by the company of options over its equity instruments to the employees of subsidiary undertakings in the Group is treated as a capital contribution. The fair value of employee services received, measured by reference to the grant date fair value, is recognised over the vesting period as an increase to investment in subsidiary undertakings, with a corresponding credit to equity.

2.20 Share capital

Ordinary shares and non-redeemable preference shares with discretionary dividends are classified as equity. Other shares including mandatory redeemable preference shares are classified as liabilities.

Incremental costs directly attributable to the issue of new shares or options are shown in equity as a deduction, net of tax, from the proceeds.

2 Accounting policies (Cont'd)

2.21 Subordinated perpetual debentures

Subordinated perpetual debentures which are payable upon dissolution are recognised as equity as the Group has the sole right and discretion to early redemption as stipulated in terms and conditions of subordinated perpetual debentures, and the interest and cumulative interest payment are unconditionally deferred without time and number limitation and payable at the Company's discretion. Accordingly, any interest payment are recognised similar as dividends and directly in equity when payment obligation arises. Interest payments are presented in the same way as dividends paid to ordinary shareholders.

Incremental costs directly attributable to issue of new subordinated perpetual debentures are shown in equity as a deduction, net of tax, from the proceeds.

2.22 Revenue recognition

a) Construction revenues

Revenues from construction contracts are recognised using the percentage-of-completion method by reference to the completion of a physical proportion of the contract work performed as assessed by the project engineers and owners or customers. Provision for anticipated loss on construction project will be made in the accounts as soon as the possibility of loss is ascertained

Revenues from additional works and other services are recognised using the percentage-of-completion method and billings to customers. (accounting policy no. 2.9 construction contracts).

b) Revenue from operating the power plant

Service income under finance lease agreements related to power purchase agreements and recognised as income when service have been rendered in according to the agreement. Service income comprises of other service income received from financial assets with respect to the leased assets.

c) Interest income

Interest income is recognised on an accrual basis based on the effective interest rate.

d) Dividends

Dividends are recognised when the right to receive the dividends is established.

e) Government grants

Grants from the government are recognised at their fair value where there is a reasonable assurance that the grant will be received and the Group will comply with all attached conditions.

The Group recognises government grants relating to the purchase of property, plant and equipment are included in non-current liabilities as other liabilities and are credited to the income statement when related conditions are met, on a straight line basis over the expected lives of the related assets.

The Group recognises government grants relating to revenue are included in deferred income and are credited to the income statement in accordance with the portion of carbon credit delivered to government in each accounting period compare to carbon credit required to deliver.

2.23 Costs of construction

Costs of construction contracts comprise the costs of labour, subcontractors' charges, other services and overheads which are recognised on the percentage-of-completion method.

Contracts of which incurred construction costs exceed calculated costs of construction, and costs of project of which revenue have not yet been recognised are shown as "Construction in progress" under current assets in the statement of financial position, while contracts of which calculated costs of construction exceed incurred costs of construction are shown as "Accrued construction costs" under current liabilities in the statement of financial position.

2 Accounting policies (Cont'd)

2.24 Dividends

Dividends are recorded in the consolidated and separate financial statements in the period in which they are approved by the shareholders of the Group. Interim dividends are recorded in the consolidated and separate financial statements when they are approved by the Board of Directors of the Company.

2.25 Current and deferred income taxes

The tax expense for the period comprises current and deferred tax. Tax is recognised in profit or loss, except to the extent that it relates to items recognised in other comprehensive income or directly in equity. In such case the tax is also recognised in other comprehensive income or directly in equity, respectively.

The current income tax charge is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting period in the countries where the Company's subsidiaries operate and generate taxable income. Management periodically evaluates positions taken in tax returns with respect to situations in which the applicable tax regulation is subject to interpretation. It establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

Deferred income tax is recognised, using the liability method, on temporary differences arising from differences between the tax base of assets and liabilities and their carrying amounts in the financial information. However, the deferred income tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss. Deferred income tax is determined using tax rates and laws that have been enacted or substantially enacted by the end of the reporting period and are expected to apply when the related deferred income tax asset is realised or the deferred income tax liability is settled.

Deferred income tax assets are recognised only to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilised.

Deferred income tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities and when the deferred income tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities where there is an intention to settle the balances on a net basis.

2.26 Segment reporting

Reporting segments are referred from the Group's internal report which is reviewed by the Chief Operating Decision Maker (CODM). CODM is the President and Chief Executive Officer who makes decisions about resource allocation and assesses the segment performance.

3 Financial risk management

3.1 Financial risk factors

The Group's activities expose it to a variety of financial risks, including the effects of changes in debt and equity market prices, foreign currency exchange rates and interest rates. The Group's overall risk management programme focuses on the unpredictability of financial markets and seeks to minimise potential adverse effects on the financial performance of the Group. The Group uses derivative financial instruments such as foreign currency forward contracts to hedge certain exposures.

Risk management is carried out by management in accordance with policies approved by the Board of Directors. The Board provides principles for overall risk management, as well as policies covering specific areas, such as foreign exchange risk, credit risk, use of derivative financial instruments and investing excess liquidity.

3.1.1 Foreign exchange risk

The Group operates internationally and is exposed to foreign exchange risk arising from various currency exposures, primarily with respect to US Dollars. Entities in the Group use foreign currency forward contracts to hedge their exposure to foreign currency risk in connection with measurement currency.

3 Financial risk management (Cont'd)

3.1 Financial risk factors (Cont'd)

3.1.2 Interest rate risk

The Group's income and operating cash flows are substantially independent of changes in market interest rates. All interest rate derivative transactions are subject to approval by the Finance Director before execution. The Group has no significant interest-bearing assets. The Group policy is to maintain approximately 70% of its borrowings in fixed rate instruments. At the year ended, 1.40% - 2.73% was the fixed rate. The Group sometimes borrows at variable rates and uses interest rate swaps as cash flow hedges of future interest payments, which has the economic effect of converting borrowings from floating rates to fixed rates. The interest rate swaps allow the Group to raise long-term borrowings at floating rates and swap them into fixed rates that are lower than those available if the Group borrowed at fixed rates directly. Under the interest rate swaps, the Group agrees with the other parties to exchange, at specified intervals (generally monthly), the difference between fixed contract rates and floating rate interest amounts calculated by reference to the agreed notional principal amounts. Any differential to be paid or received on an interest rate swap agreement is recognised as a component of interest revenue or expense over the period of the agreement. Gains and losses on early termination of interest rate swaps or on repayment of the borrowing are taken to profit or loss.

3.1.3 Credit risk

The Group has no significant concentrations of credit risks. The Group has policies in place to ensure that sales of products and services are made to customers with an appropriate credit history. Derivative counterparties and cash transactions are limited to high credit quality financial institutions. The Group has policies that limit the amount of credit exposure to any one financial institution.

3.1.4 Liquidity risk

Prudent liquidity risk management implies maintaining sufficient cash and marketable securities, the availability of funding through an adequate amount of committed credit facilities and the ability to close out market positions.

3.2 Accounting for derivative financial instruments and hedging activities

The Group is party to derivative financial instruments, which mainly comprise foreign currency forward contracts. Such instruments are not recognised in the financial statements on inception.

Foreign currency forward contracts protect the Group from movements in exchange rates by establishing the rate at which a foreign currency asset will be realised or a foreign currency liability settled. Any increase or decrease in the amount required to realise the asset or settle the liability is offset by a corresponding movement in the value of the forward exchange contract. The gains and losses on the derivative instruments and the underlying financial asset or liability are therefore offset for financial reporting purposes and are not recognised in the financial statements. The fee incurred in establishing each agreement is amortised over the contract period.

3.3 Fair value estimation

The different levels have been defined as follows:

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2: Inputs other than quoted prices included within level 1 that are observable for the asset or liability, either directly (that is, as prices) or indirectly (that is, derived from prices).
- Level 3: Inputs for the asset or liability that are not based on observable market data (that is, unobservable inputs).

The fair value of publicly traded derivatives and trading investments is based on quoted market prices at the statement of financial position date. The fair value of foreign currency forward contracts is determined using forward exchange market rates at the statement of financial position date. The fair value was disclosed in Note 37 (b).

The carrying amounts of financial assets and liabilities with a maturity of less than one year are assumed to approximate their fair values.

4 Significant accounting judgments and estimates

The Group makes estimations and assumptions concerning the future. The result of accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are set out below.

4.1 Accrued construction costs

Accrued construction costs are estimated based from management experience after taking into consideration of work progress and updated budget project costs incurred as part of the budget.

4.2 Construction revenue

Construction revenue is recognised by using the percentage of completion method. The stage of completion is measured by reference to the completion of a physical proportion of the contract work performed as assessed by the project engineers and owners or customers.

4.3 Leases

In determining whether a lease is to be classified as an operating lease or finance lease, the management is required to use judgment regarding whether significant risk and rewards of ownership of the leased asset has been transferred, taking into consideration terms and conditions of the arrangement.

4.4 Employee benefits

The present value of the pension obligations depends on a number of factors that are determined on an actuarial basis using a number of assumptions such as inflation rate, salary growth rate, gold price increase rate including assumption used for discount rate. Any changes in these assumptions will have an impact on the carrying amount of pension obligations. The Group determines the appropriate discount rate which is the interest rate that should be used to determine the present value of estimated future cash outflows expected to be required to settle the pension obligations. In determining the appropriate discount rate, the Group considers the market yield of government bonds that are denominated in the currency in which the benefits will be paid, and that have terms to maturity approximating the terms of the related pension liability.

The key assumptions for defined benefit obligations and other long-term benefits are based in part on current market conditions is disclosed in Note 26.

4.5 Provision and contingent liabilities

The Group has contractual obligations to maintain or restore infrastructure which be estimated from maintenance plan over concession period.

The Group has contingent liabilities as a regarding of litigation. The Group management has used judgment to assess of the results of the litigation and believes that no significant loss will result apart from provision for liabilities which already recorded at each reporting date.

4.6 Allowance for doubtful debts

Estimation of allowance for doubtful debt, the management has used judgment for the estimated losses that may occur in collection of receivables. The allowance is generally based on the risks or the possibility of the estimated losses will incur and the possibility of the estimated losses will not incur, time value of money, collection experiences, analysis of debtor aging, financial capabilities of debtor and economic conditions.

5 Capital risk management

The Group's objectives when managing capital are to safeguard the Group's ability to continue as a going concern in order to provide returns for shareholders and benefits for other stakeholders and to maintain an optimal capital structure to reduce the cost of capital.

In order to maintain or adjust the capital structure, the Group may adjust the amount of dividends paid to shareholders, return capital to shareholders, issue new shares, or sell assets to reduce debt.

6 Segment information

The Group has two segments report which are comprised of energy business and construction business. Energy business is to provide service for generating and sell electricity to the government both in Thailand and overseas. Construction business is to provide construction service in Thailand and overseas.

Reporting segments are referred from the Group's internal report which is reviewed by the Chief Operating Decision Maker (CODM). CODM is the President and Chief Executive Officer who makes decisions about resource allocation and assesses the segment performance.

TTCL Public Company Limited
Notes to the Consolidated and Separate Financial Statements
For the year ended 31 December 2018

6 Segment information (Cont'd)

Chief Operating Decision Maker has considered reporting segments as follows:

	Consolidated financial statements									
	Energy business				Construction business					
	Thailand Baht	Myanmar Baht	Japan Baht	Singapore Baht	Thailand Baht	Malaysia Baht	Vietnam Baht	Qatar Baht	Other Baht	Total Baht
For the year ended 31 December 2018										
Construction and service revenues	-	-	-	-	4,036,776,350	896,282,990	2,178,502,852	-	242,410,402	7,353,972,594
Revenues from operating the power plant	3,728,316	970,184,195	-	-	-	-	-	-	-	973,912,511
Costs of construction and services	-	-	-	-	(4,304,309,306)	(912,482,154)	(2,236,601,781)	(250,193,448)	(201,028,146)	(7,904,614,835)
Costs of operating the power plant	(12,514,049)	(512,275,278)	-	-	-	-	-	-	-	(524,789,327)
Gross profit (loss)	(8,785,733)	457,908,917	-	-	(267,532,956)	(16,199,164)	(58,098,929)	(250,193,448)	41,382,256	(101,519,057)
Gross profit ratio	-	47%	-	-	-	-	-	-	17%	-
Other income	11,309,063	265,239,766	4,478,663	360,614,375	45,035,582	17,241,245	272,234	102,304	20,208	704,313,440
Profit from operation										602,794,383
Financial costs										(461,839,036)
Loss on exchange rate, net										(66,310,216)
Administrative expenses										(2,261,745,010)
Share of profit of associate										22,574,316
Share of profit of joint ventures										673,797
Income tax expense										154,092,734
Net loss for the year										(2,009,759,032)
Segment fixed assets	36,030,172	172,811,940	103,847,395	610,659	34,963,395	913,623	1,634,085	2,312,807	-	353,124,076
Total assets	1,025,506,843	7,037,672,139	264,815,861	16,169,623	5,236,226,201	349,472,519	3,046,371,934	784,489,714	1,599,662,858	19,360,333,692

6 Segment information (Cont'd)

	Consolidated financial statements							
	Energy business				Construction business			
	Thailand Baht	Myanmar Baht	Japan Baht	Other Baht	Thailand Baht	Malaysia Baht	Other Baht	Total Baht
For the year ended 31 December 2017								
Construction and service revenues	-	-	-	-	4,276,090,072	4,333,484,660	1,083,374,280	9,692,949,012
Revenues from operating the power plant	997,261	753,160,635	-	-	-	-	-	754,157,896
Costs of construction and services	-	-	-	-	(3,843,103,103)	(4,114,139,334)	(1,125,301,566)	(9,082,544,003)
Costs of operating the power plant	(3,819,120)	(508,903,224)	-	-	-	-	-	(512,722,344)
Gross profit (loss)	(2,821,859)	244,257,411	-	-	432,986,969	219,345,326	(41,927,286)	851,840,561
Gross profit ratio	-	32%	-	-	10%	5%	-	8%
Other income	1,120,360	362,111,026	1,354	14,159	6,720,840	41,546,560	52,572,773	464,087,072
Profit from operation								1,315,927,633
Financial costs								(419,420,642)
Gain on exchange rate, net								64,384,652
Administrative expenses								(953,705,617)
Share of profit of associates								18,462,294
Share of profit of joint ventures								734,543
Income tax expense								68,646,230
Net profit for the year								95,029,093
Segment fixed assets	109,121,364	71,791,531	411,739,696	394,048	52,324,973	1,386,501	6,887,712	653,645,825
Total assets	1,087,182,515	7,019,649,765	596,035,527	15,104,648	6,030,425,025	2,878,399,244	6,238,161,412	23,864,958,136

Chief Operating Decision Maker considers gross profit in monthly performance of reporting segments.

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6 Segment information (Cont'd)

Major customers of the Group

During the year 2018, the Group had revenues from 4 major customers who contributed 59.70% of the Group's total revenues, which was approximately Baht 4,971.91 million (2017: the Group had revenues from 3 major customers who contributed 60.91% of the Group's total revenues, which was approximately Baht 6,355.54 million).

7 Cash and cash equivalents

	Consolidated financial statements		Separate financial statements	
As at 31 December	**2018 Baht**	**2017 Baht**	**2018 Baht**	**2017 Baht**
Cash on hand	1,043,770	1,669,118	686,179	1,334,785
Saving accounts	466,300,851	598,502,334	353,776,067	201,776,002
Current accounts	513,991,187	1,629,027,903	76,501,063	8,791,397
Cheque on hand	5,872,563	6,697,088	5,872,563	6,697,088
	987,208,371	2,235,896,443	436,835,872	218,599,272

Interest rate on deposits in saving accounts are 0.01% - 0.04% per annum (31 December 2017: 0.01% - 4.30% per annum).

8 Trade accounts receivable, net

	Consolidated financial statements		Separate financial statements	
As at 31 December	**2018 Baht**	**2017 Baht**	**2018 Baht**	**2017 Baht**
Related parties				
Not yet due	-	264,596,256	15,765,756	181,712,328
Overdue				
- up to 3 months	-	-	14,896,136	15,214,359
- 3 - 6 months	-	-	13,742,040	13,201,334
- 6 - 12 months	-	-	289,215	27,329,364
- more than 12 months	-	-	-	238,246,541
	-	264,596,256	44,693,147	475,703,926

The Group management assessed and considered the outstanding trade accounts receivable - related parties which over a period of 6 months in a separate financial statements amounted to Baht 0.29 million (31 December 2017: Baht 265.58 million) has the potential for cash collection. The management has not considered the allowance for doubtful debt.

	Consolidated financial statements		Separate financial statements	
As at 31 December	**2018 Baht**	**2017 Baht**	**2018 Baht**	**2017 Baht**
Third parties				
Not yet due	804,082,192	614,903,492	465,528,263	396,694,933
Overdue				
- up to 3 months	67,651,907	74,819,279	27,307,597	69,241,251
- 3 - 6 months	137,086,313	329,739	-	-
- 6 - 12 months	139,463,508	231,483,406	102,532,478	221,309,587
- more than 12 months	822,501,483	837,772,640	716,069,585	732,299,620
	1,970,785,403	1,759,308,556	1,311,437,923	1,419,545,391
Less Allowance for doubtful debt	(336,734,107)	-	(291,214,274)	-
	1,634,051,296	1,759,308,556	1,020,223,649	1,419,545,391

8 Trade accounts receivable, net (Cont'd)

The Group management considered setting up an allowance for doubtful debt for one outstanding debtor of more than 12 months in the consolidated and separate financial statements for Baht 336.73 million and Baht 291.21 million, respectively and unbilled contract revenue in the consolidated and separate financial statements of Baht 951.41 million and Baht 922.22 million, respectively (Note 9.2). This debtor is an overseas state enterprise which engaged the Company to construct the Rock Salt project in Laos People's Democratic Republic. The Group started the construction in 2015 but during 2017, that construction project had to temporarily be suspended and business transactions relating to this project were stopped. The Group management negotiated with a person authorised by the customer to resume the project in the future and complete it within the contract period, including a collection plan for account receivables and unbilled contract revenue. At the end of 2018, the Group management decided to stop operations for this project and begin legal arbitration to get back the debt and claims incurred from the project. As at 31 December 2018, the Group management used the assumptions and its significant judgement (e.g. the risks or the possibility of the estimated losses that will be or not be incurred), and the time value of money (Note 4.6) to estimate the allowance for doubtful debt for account receivable and unbilled contract revenue to ensure that the estimation is adequate and appropriate with the current situation. However, the result from the arbitration process might be unlike from the estimation.

For other debtors, the Group management assessed and considered the outstanding balance over six months in the consolidated and separate financial statements of Baht 625.23 million and Baht 527.39 million, respectively (31 December 2017: Baht 1,069.25 million and Baht 953.61 million, respectively) to check the potential for cash collection. Therefore, the Group management hasn't considered setting up an allowance for doubtful debt for those debtors.

9 Unbilled contracts revenue and deferred construction revenue

9.1 Unbilled contract revenue - related parties, net

	Consolidated financial statements		Separate financial statements	
As at 31 December	**2018 Baht**	**2017 Baht**	**2018 Baht**	**2017 Baht**
Contract costs to date	1,687,343,712	9,695,794,340	1,567,404,230	9,589,247,747
Recognised profits to date	205,600,640	942,562,226	430,173,829	1,215,202,756
Contract costs incurred and recognised profits to date	1,892,944,352	10,638,356,566	1,997,578,059	10,804,477,503
Less Progress billings	(1,891,153,873)	(10,148,811,835)	(1,353,073,110)	(9,396,279,954)
	1,790,479	489,544,731	644,504,949	1,408,197,549
Less Allowance for doubtful debt	(282,620)	-	(282,620)	-
	1,507,859	489,544,731	644,222,329	1,408,197,549

9.2 Unbilled contract revenue - third parties, net

	Consolidated financial statements		Separate financial statements	
As at 31 December	**2018 Baht**	**2017 Baht**	**2018 Baht**	**2017 Baht**
Contract costs to date	13,572,465,414	26,665,484,928	11,767,607,701	21,087,367,905
Recognised profits to date	1,524,551,313	2,870,485,643	1,338,339,036	2,031,178,827
Contract costs incurred and recognised profits to date	15,097,016,727	29,535,970,571	13,105,946,737	23,118,546,732
Less Progress billings	(11,977,158,037)	(26,607,971,946)	(10,429,016,926)	(20,558,284,955)
	3,119,858,690	2,927,998,625	2,676,929,811	2,560,261,777
Less Allowance for doubtful debt	(951,411,932)	-	(922,216,940)	-
	2,168,446,758	2,927,998,625	1,754,712,871	2,560,261,777

The Group mangement set up the allowance for doubtful debt for unbilled contract revenue for the construction in the Rock Salt project in the consolidated and separate financial statements amounted to Baht 951.41 million and Baht 922.22 million, respectively (Note 8).

9 Unbilled contracts revenue and deferred construction revenue (Cont'd)

9.3 Deferred construction revenue - related parties

As at 31 December	Consolidated financial statements 2018 Baht	Consolidated financial statements 2017 Baht	Separate financial statements 2018 Baht	Separate financial statements 2017 Baht
Contract costs to date	-	5,804,807,520	-	-
Recognised profits to date	-	130,856,949	-	-
Contract costs incurred and recognised profits to date	-	5,935,664,469	-	-
Less Progress billings	-	(6,235,449,381)	-	-
	-	(299,784,912)	-	-

9.4 Deferred construction revenue - third parties

As at 31 December	Consolidated financial statements 2018 Baht	Consolidated financial statements 2017 Baht	Separate financial statements 2018 Baht	Separate financial statements 2017 Baht
Contract costs to date	635,056,401	23,027,300	635,056,401	23,027,300
Recognised profits to date	84,140,379	4,397,651	84,140,379	4,397,651
Contract costs incurred and recognised profits to date	719,196,780	27,424,951	719,196,780	27,424,951
Less Progress billings	(729,996,861)	(53,564,964)	(729,996,861)	(53,564,964)
	(10,800,081)	(26,140,013)	(10,800,081)	(26,140,013)

10 Financial assets under concession arrangement

	Consolidated financial statements: Minimum lease payments under concession arrangement 2018 Baht	Minimum lease payments under concession arrangement 2017 Baht	Present value of minimum lease payments 2018 Baht	Present value of minimum lease payments 2017 Baht
Financial assets under concession arrangement				
- within one year	275,604,085	229,842,628	162,983,997	113,787,473
- later than one year but not later than five years	1,095,474,902	1,086,312,019	684,050,404	656,760,242
- after five years	5,044,013,152	5,374,466,921	4,049,153,342	4,274,297,025
	6,415,092,139	6,690,621,568	4,896,187,743	5,044,844,740
Less Unearned financial income	(1,518,904,396)	(1,645,776,828)	-	-
Present value of minimum lease payments receivable	4,896,187,743	5,044,844,740	4,896,187,743	5,044,844,740

Financial assets under concession arrangement can be analysed as follows:

- Financial assets under concession arrangement due within one year	162,983,997	113,787,473
- Financial assets due over one year	4,733,203,746	4,931,057,267
	4,896,187,743	5,044,844,740

As at 31 December 2018, the fair value of financial assets under concession arrangement was disclosed in Note 37 (c).

11 Related party transactions

Enterprises and individuals that directly, or indirectly through one or more intermediaries control, or are controlled by or are under common control with, the Company, including holding companies, subsidiaries and fellow subsidiaries are related parties of the Company. Associates and individuals owning, directly or indirectly, an interest in the voting power of the Company that gives them significant influence over the enterprise, key management personnel, including directors and officers of the Company and close family members of these individuals and companies associated with these individuals also constitute related parties.

In considering each possible related party relationship, attention is directed to the substance of the relationship, and not merely the legal form.

Related parties are those parties connected with the Group and the Company through shareholders, common shareholders or directors. The significant investments in subsidiaries, associates and joint ventures are set out in Notes 15, 16 and 17. As at 31 December 2018, Individual and related parties are as follows:

	Relationship
Sojitz Corporation (incorporated in Japan)	9.09% of common shareholder, the major shareholder
Mr. Sukchai Sukchaicharoenkul	6.48% of common shareholder by having common director
Global Business Management Company Limited	6.27% of common shareholder, Chief executive officer
Mr. Hironobu Iriya	5.55% of common shareholder, the major shareholder
Mrs. Suratana Trinratana	2.57% of common shareholder, Executive director
Mr. Hiranori Yamane	The chief executive officer of subsidiaries

Transaction item	Pricing policy
Service income	The prices as agreed in the agreement
Revenue from operation and maintenance	The prices as agreed in the agreement
Other income	The prices as agreed in the agreement
Cost of service	The prices as agreed in the agreement
Administrative expense	The prices as agreed in the agreement
Interest expense	The prices as agreed in the agreement
Dividends income	From approval of shareholders of subsidiary
Dividends paid	From approval of shareholders and directors of the company
Director and management remuneration e.g. salary, bonus, meeting allowance and etc.	From approval of shareholders and directors of the company
Loans	Credit facility and interest as agreed in the contracts

TTCL Public Company Limited
Notes to the Consolidated and Separate Financial Statements
For the year ended 31 December 2018

11 Related party transactions (Cont'd)

The significant trading transactions with subsidiaries and related parties are shown below. These transactions are considered to be in the normal course of business and are based on the prices as agreed in related contracts.

	Consolidated financial statements		Separate financial statements	
For the years ended 31 December	**2018 Baht**	**2017 Baht**	**2018 Baht**	**2017 Baht**
Services income				
Major shareholders	-	1,306,283,915	-	1,306,283,915
Subsidiaries	-	-	277,450,899	406,075,620
Related parties - shareholders	-	91,403	-	91,403
Related parties - others	142,784,065	3,038,277,605	-	-
	142,784,065	4,344,652,923	277,450,899	1,712,450,938
Revenue from operation and maintenance				
Subsidiaries	-	-	54,099,411	51,884,352
	-	-	54,099,411	51,884,352
Interest income				
Subsidiaries	-	-	10,652,217	12,606,669
Associates	-	50,919,073	-	50,919,073
Joint ventures	364,214	458,360	-	-
	364,214	51,377,433	10,652,217	63,525,742
Dividends income				
Subsidiary	-	-	238,602,711	-
	-	-	238,602,711	-
Cost of services				
Subsidiaries	-	-	12,213,632	9,653,092
	-	-	12,213,632	9,653,092
Administrative expenses				
Subsidiaries	-	-	3,995,579	3,431,894
	-	-	3,995,579	3,431,894
Interest expense				
Director	12,556,749	-	3,726,693	-
Related parties - others	-	1,801,323	-	-
Subsidiaries	-	-	6,644,528	-
Related parties - shareholders	1,760,236	-	1,760,236	-
	14,316,985	1,801,323	12,131,457	-
Dividends paid				
Major shareholders	-	12,320,000	-	12,320,000
Related parties - shareholders	-	26,957,036	-	26,957,036
	-	39,277,036	-	39,277,036
Director and management remuneration				
Short-term employee benefits	44,126,678	71,976,421	39,636,489	67,517,600
Post-employee benefits	1,461,157	2,940,375	1,713,320	2,420,185
	45,587,835	74,916,796	41,349,809	69,937,785

TTCL Public Company Limited
Notes to the Consolidated and Separate Financial Statements
For the year ended 31 December 2018

11 Related party transactions (Cont'd)

The significant trading transactions with subsidiaries and related parties are shown below. These transactions are considered to be in the normal course of business and are based on the prices as agreed in related contracts. (Cont'd)

	Consolidated financial statements		Separate financial statements	
As at 31 December	**2018 Baht**	**2017 Baht**	**2018 Baht**	**2017 Baht**
Trade accounts receivable - related parties, net				
Current assets				
Major shareholders	-	166,758,832	-	166,758,832
Subsidiaries	-	-	44,693,147	308,945,094
Related parties - others	-	97,837,424	-	-
	-	264,596,256	44,693,147	475,703,926
Non-current asset				
Subsidiaries	-	-	85,241,493	82,570,436
Less Allowance for doubtful debt	-	-	(62,479,428)	(11,991,020)
	-	-	22,762,065	70,579,416
Unbilled contract revenue - related parties, net				
Major shareholders	-	487,754,253	-	487,754,253
Subsidiaries	-	-	644,222,329	920,160,676
Joint ventures	1,790,479	1,790,478	282,620	282,620
Less Allowance for doubtful debt	(282,620)	-	(282,620)	-
	1,507,859	489,544,731	644,222,329	1,408,197,549
Others receivable - related parties				
Subsidiaries	-	-	115,095,128	19,701,122
Related party - other	-	28,341,853	-	-
	-	28,341,853	115,095,128	19,701,122
Construction in progress - related parties				
Subsidiaries	-	-	2,370,658	81,726
	-	-	2,370,658	81,726
Advance payments to sub-contractors - related parties				
Subsidiaries	-	-	39,925,145	56,346,029
	-	-	39,925,145	56,346,029
Interest receivable from loans to subsidiaries - related parties				
Subsidiaries	-	-	6,301,509	39,877,879
Joint ventures	174,909	211,322	-	-
	174,909	211,322	6,301,509	39,877,879

11 Related party transactions (Cont'd)

The significant trading transactions with subsidiaries and related parties are shown below. These transactions are considered to be in the normal course of business and are based on the prices as agreed in related contracts. (Cont'd)

	Consolidated financial statements		Separate financial statements	
As at 31 December	**2018 Baht**	**2017 Baht**	**2018 Baht**	**2017 Baht**
Loans to related parties, net				
Current asset				
Subsidiaries	-	-	-	96,361,869
Joint ventures	1,526,316	1,526,316	-	-
	1,526,316	1,526,316	-	96,361,869
Non-current asset				
Subsidiaries	-	-	49,652,381	49,652,831
Joint ventures	6,105,262	7,631,578	-	-
Less Allowance for doubtful debt	-	-	(36,386,342)	(6,022,632)
	6,105,262	7,631,578	13,266,039	43,629,749

As at 31 December 2018, the fair value of loan to a related parties was disclosed in Note 37 (c).

Loans to related parties

Consolidated financial statements

As at 31 December 2018, the outstanding long-term loan granted that Global New Energy Co., Ltd., a subsidiary, granted to Siam GNE Solar Energy Co., Ltd., a joint venture, of Baht 7.63 million (31 December 2017: Baht 9.16 million). This loan bears interest at 4.5% per annum, with the interest payment due every six months and the principal instalment repayments specified in the loan agreement, with payment started in 2015 which is Baht 1.52 million due within one year and Baht 6.11 million due within 2024.

Separate financial statements

As at 31 December 2018, the outstanding loans to Bio Natural Energy Co., Ltd., a subsidiary, net of allowance for doubtful debt Baht 13.27 million (31 December 2017: Baht 43.63 million). The loan bears interest at 5.06% per annum (2017: 4.35 % per annum) with quarterly interest repayment. The principal repayments are due within 45 days from the date on which the Company calls, including the conditions specified in the loan agreement. However, the Company classified this loan to long-term loan because this subsidiary has not had sufficient cash flow from operating activities to make loan repayment for more than one year.

11 Related party transactions (Cont'd)

The significant trading transactions with subsidiaries and related parties are shown below. These transactions are considered to be in the normal course of business and are based on the prices as agreed in related contracts. (Cont'd)

Loans to related parties (Cont'd)

The movements in loans to related parties can be analysed as follows:

For the year ended 31 December 2018	Consolidated financial statements Baht	Separate financial statements Baht
Opening balance	9,157,894	139,991,618
Increase from loan to subsidiaries	-	38,261,067
Increase from conversion of account receivable subsidiary to loan to subsidiary	-	100,122,450
Decrease from loan repayment	(1,526,316)	(234,745,386)
Decrease from allowance for doubtful	-	(30,363,710)
Ending balance	7,631,578	13,266,039

As at 31 December	Consolidated financial statements 2018 Baht	Consolidated financial statements 2017 Baht	Separate financial statements 2018 Baht	Separate financial statements 2017 Baht
Account payable - related parties				
Subsidiaries	-	-	1,393,759,165	1,285,884,205
Related parties - others	-	389,016	-	-
	-	389,016	1,393,759,165	1,285,884,205
Short-term loans - related parties				
Subsidiaries	-	-	434,483,880	-
Related parties - others	-	70,263,935	-	-
	-	70,263,935	434,483,880	-

Short-term loans from related parties

Separate financial statements

As at 31 December 2018, the outstanding short-term loans from related party of Baht 434.48 million comprise the following short-term loans;

a) Short-term loan from TTCL Solar Power Pte. Ltd. (TTSP), a subsidiary, of USD 0.99 million or equivalent to Bath 32.21 million bears interest rate at 5.06% per annum with quarterly interest payments. The principal repayment is due within 30 days from the date on which TTSP calls and USD 3.44 million or equivalent to Baht 114.77 million without interest charge.

b) Short-term loan from TTCL Power Holding Pte. Ltd. (TTPHD), a subsidiary, of USD 2.01 million or equivalent to Bath 65.63 million bears interest rate at 5.06% per annum with quarterly interest payments. The principal repayment is due within 30 days from the date on which TTPHD calls and USD 1.59 million or equivalent to Baht 51.87 million without interest charge.

c) Short-term loan from Global New Energy Co., Ltd., a subsidiary, of Bath 170.00 million was issue in form of promissory note call on demand and bears interest rate at 4.55% per annum.

11 Related party transactions (Cont'd)

The significant trading transactions with subsidiaries and related parties are shown below. These transactions are considered to be in the normal course of business and are based on the prices as agreed in related contracts. (Cont'd)

Short-term loans from related parties (Cont'd)

The movements in loans from subsidiaries can be analysed as follows:

For the year ended 31 December 2018	Consolidated financial statements Baht	Separate financial statements Baht
Opening balance	70,263,935	-
Increase from short-term loans from related parties	490,444,683	705,267,614
Decrease from repayment for short-term loans from related parties	(564,701,034)	(270,000,000)
(Gain)loss from exchange rate	3,992,416	(783,734)
Ending balance	-	434,483,880

As at 31 December	Consolidated financial statements 2018 Baht	Consolidated financial statements 2017 Baht	Separate financial statements 2018 Baht	Separate financial statements 2017 Baht
Interest payable from loan from related parties				
Subsidiaries	-	-	2,045,912	-
Related parties - others	-	2,152,222	-	-
	-	2,152,222	2,045,912	-
Advance received from customers under construction contract - related parties				
Subsidiary	-	-	29,353,320	-
Related parties - others	-	13,222,248	-	-
	-	13,222,248	29,353,320	-
Deferred construction revenue - related parties				
Related parties - others	-	299,784,912	-	-
	-	299,784,912	-	-

12 Advance payment for share subscription

On 26 August 2016, the Board of Directors' meeting of TTCL Solar Power Pte. Ltd. (TTSP), a subsidiary, granted approval to invest 100% in a company in Japan to operate an energy business in Japan.

During the second quarter of 2018, TTSP received in full an advance payment for share subscription refundable of JPY 443 million or equivalents to Baht 135.39 million due to cancelling a share purchase agreement dated 7 September 2016. As at 31 December 2018, TTSP had no outstanding balance for advance payment for share subscription (31 December 2017: TTSP had an outstanding balance of advance payment for share subscription of JPY 443 million, equivalent to Baht 141.32 million).

13 Loan to third party

A long-term loan was granted to ToyoThai-USA Corporation (TTUS) of USD 25.23 million, equivalent to Baht 814.51 million. This loan bears interest at 4% per annum with the interest repayment and principal instalment repayments specified in the loan agreement, with payment starting in 2016 which is USD 16.60 million or equivalent to Baht 535.75 million due within one year and USD 8.63 million or equivalent to Baht 278.76 million, which is due in 2020.

The movements in loans to third party can be analysed as follows:

For the year ended 31 December 2018	Consolidated and Separate financial statements Baht
Beginning balance	999,918,194
Decrease from loan repayment	(182,600,110)
Loss from exchange rate	(2,807,712)
Ending balance	814,510,372

As at 31 December 2018, the fair value of loan to third party was disclosed in Note 37 (c).

14 Deposit at bank used as collateral

Toyo-Thai Power Myanmar Corporation Co., Ltd. (TTPMC) has deposits in debt service accounts are mainly cash reserves maintained under the long-term loan agreement referred to Note 22, in order to repay the principal and payments of interest. These cash reserves (denominated in US Dollars) are provided from the proceeds of services. As at 31 December 2018, TTPMC has the deposits amount of USD 4 million, equivalent to Baht 129.86 million and bear interest at the rate of 0.01% per annum (31 December 2017: the deposits were used as collateral amounting to USD 4 million which is equivalent to Baht 130.77 million and were bearing interest at the rate of 0.01% per annum).

15 Investment in subsidiaries, net

								Separate financial statements	
		Proportion of ordinary share held by parent		Proportion of ordinary share held by subsidiaries		Cost method		Dividend during the year	
As at 31 December	**Type of business**	**2018 %**	**2017 %**	**2018 %**	**2017 %**	**2018 Baht**	**2017 Baht**	**2018 Baht**	**2017 Baht**
TTCL Vietnam Corporation Limited	Constructions and engineering services	93.34	93.34	-	-	43,985,494	43,985,494	-	-
Bio Natural Energy Co., Ltd.	Renewable energy power plant	70.00	70.00	-	-	3,500,000	3,500,000	-	-
TTCL Malaysia SDN. BHD.	Constructions and engineering services	100.00	100.00	-	-	7,593,351	7,593,351	238,602,711	-
Toyo-Thai Myanmar Corporation Co., Ltd.	Constructions and engineering services	80.00	80.00	10.00	10.00	7,526,661	7,526,661	-	-
Global New Energy Company Limited	Renewable energy development	40.00	40.00	-	-	24,000,000	24,000,000	-	-
TTCL New Energy Pte. Ltd.	Investing in renewable energy business	100.00	100.00	-	-	150,849,300	150,849,300	-	-
TTCL Myanmar Engineering & Construction Company Limited	Constructions and engineering services	99.00	99.00	-	-	1,751,666	1,751,666	-	-

Note - The Company has control over Global New Energy Company Limited, a subsidiary, with the ownership interest 40% because the management and directors of the Company and such subsidiaries, who have authorization in making decision, are the same persons.

15 Investment in subsidiaries, net (Cont'd)

						Separate financial statements			
		Proportion of ordinary share held by parent		Proportion of ordinary share held by subsidiaries		Cost method		Dividend during the year	
As at 31 December	**Type of business**	**2018 %**	**2017 %**	**2018 %**	**2017 %**	**2018 Baht**	**2017 Baht**	**2018 Baht**	**2017 Baht**
TTCL Power Holdings Pte. Ltd. (TTPHD)	Investing in energy business	100.00	100.00	-	-	3,768,975,682	3,768,975,682	-	-
Subsidiaries of TTPHD:									
- TTCL Gas Power Pte. Ltd.	Investing in energy business	-	-	100.00	100.00	-	-	-	-
- Toyo-Thai Power Myanmar Corperation Co., Ltd.	Electricity Generation	5.00	5.00	95.00	95.00	83,793,909	83,793,909	-	-
- TTCL Coal Power Pte. Ltd.	Investing in energy business	-	-	100.00	100.00	-	-	-	-
- TTCL Solar Power Pte. Ltd.	Investing in energy business	-	-	100.00	100.00	-	-	-	-
- Global New Energy Japan Co., Ltd.	Operating and maintenance solar power plant	-	-	100.00	100.00	-	-	-	-
- Global New Energy Togo Co., Ltd.	Electricity generating from solar power	-	-	-	100.00	-	-	-	-
- Global New Energy Tsuno Co., Ltd.	Electricity generating from solar power	-	-	100.00	100.00	-	-	-	-
- TTCL Power Myanmar Co., Ltd.	Electricity Generation	5.00	-	95.00	-	249,375	-	-	-
- TTCL LNG Power Pte. Ltd.	Investing in energy business	-	-	100.00	-	-	-	-	-
- JSM Power Pte. Ltd.	Investing in energy business	-	-	100.00	-	-	-	-	-
Less Allowance for impairment investment in subsidiaries						(154,349,300)	-	-	-
Investment in subsidiaries, net						3,937,876,138	4,091,976,063	238,602,711	-

All subsidiary undertakings are included in the consolidation. The proportion of the voting rights in the subsidiary undertakings held directly by the parent company do not differ from the proportion of ordinary shares held. The parent company further does not have any shareholdings in the preference shares of subsidiary undertaking included in the Group.

The total non-controlling interest for the year is Baht (17.11) million, of which Baht (17.48) million is for Global New Energy Co., Ltd, Bio Natural Energy Co., Ltd, and TTCL Vietnam Corporation Limited and Baht 0.37 million is for other companies which are not material.

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15 Investment in subsidiaries, net (Cont'd)

A summary of movements in investment in subsidiaries are as follows:

For the year ended 31 December	**Separate financial statements** **2018** **Baht**
Opening net book value	4,091,976,063
Payment for shares in a subsidiary	249,375
Less Allowance for impairment of investment in subsidiaries	(154,349,300)
Closing net book value	3,937,876,138

Payment for shares in subsidiaries

On 28 February 2018, the Board of Directors' meeting of the Company and TTCL LNG Power Pte. Ltd. (TTLP), the Board approved registering a subsidiary in Myanmar under the name TTCL Power Myanmar Co., Ltd. (TPMC). The Company holds 5% and TTLP hold 95% of the registered ordinary shares for capital for investment in gas-powered electricity generation business. On 23 March 2018, TPMC registered capital with 5,000,000 shares at a par value of USD 100 and the Company made partial payment of USD 7,500 or equivalent to Baht 0.25 million on 9 July 2018 in according to the Board of Director's meeting of TPMC.

On 22 May 2018, the Extraordinary General Meeting of Shareholders of Global New Energy Togo Co., Ltd. (GNE-Togo) granted the approval to increase the registered capital from 1 ordinary share to 18,641 ordinary shares at a par value of JPY 100,000 per share amounting to JPY 1,864 million or equivalent to Baht 537.95 million, to develop a 25 MW solar power plant in Japan. GNE-Togo fully received the additional paid-up capital on 25 May 2018.

Allowance for impairment of investment in subsidiaries

As at 31 December 2018, the Group management reviewed the allowance for the impairment of investment in Bio Natural Energy Co., Ltd and TTCL New Energy Pte. Ltd, subsidiaries, as a result of loss from operation for several years.

15 Investment in subsidiaries, net (Cont'd)

Disposal of an indirect subsidiary

On 20 December 2018, TTCL Solar Power Pte. Ltd. (TTSP) entered into share transfer agreement in Global New Energy Togo (GNE-TOGO), an indirect subsidiary, to MUL Energy Investment Company Limited (MEI) at JPY 3,313 million or equivalents to THB 958.67 million. TTSP received this in full on 25 December 2018.

Details of disposal of an indirect subsidiary are as follows:

	Consolidated financial statements
	2018
	Baht
Consideration received from disposal of a subsidiary	958,669,863
Less cash and cash equivalent of a subsidiary on disposal date	(57,138,060)
Consideration received from disposal of a subsidiary, net	901,531,803
Less carrying amount of net asset sold	(406,114,458)
Gain on sale before tax and currency translation differences	495,417,345
Relevant tax from disposal of a subsidiary	(108,702,428)
Currency translation differences	(26,114,810)
Gain on disposal of a subsidiary	360,600,107

The carrying amounts of assets and liabilities as at the date of disposal a subsidiary are as follows:

	Baht
Other current assets	325,285,327
Property, plant and equipment	1,067,327,845
Other non-current assets	62,211,621
Total assets	**1,454,824,793**
Accounts payable	(159,712,330)
Other current liabilities	(11,737,705)
Long-term loans	(877,260,300)
Total liabilities	**(1,048,710,335)**
Net assets	**406,114,458**

Dividend income from a subsidiary

On 6 February 2018, the Board of Directors' meeting of TTCL Malaysia SDN. BHD. (TTML),a subsidiary, the Board approved a dividend payment from the operating results of 2017 at Malaysian Ringgit 40 per share for 750,000 shares, totaling Malaysian Ringgit 30 million or equivalent to Baht 238.60 million. The Company received dividend on 14 February 2018.

Establishment of the subsidiaries company

On 27 February 2018, the Board of Directors' meeting of TTCL Power Holding Pte. Ltd. (TTPHD) granted approval to register a subsidiary company in Singapore with the name TTCL LNG Power Pte. Ltd., which has one registered ordinary share with a par value of USD 1 per share for investing in TTCL Power Myanmar Co., Ltd.

On 31 July 2018, the Board of Directors' meeting of TTCL Power Holding Pte. Ltd. (TTPHD) granted approval to register a subsidiary company in Singapore with the name JSM Power Pte. Ltd. which has one registered ordinary share with a par value of USD 1 per share for investing in the energy business.

15 Investment in subsidiaries, net (Cont'd)

Summarised financial information on subsidiaries with material non-controlling interests

Set out below are the summarised financial information for each subsidiary that has non-controlling interests that are material to the Group.

Summarised statement of financial position

	TTCL Vietnam Corporation Limited		Bio Natural Energy Co., Ltd.		Global New Energy Co., Ltd.		Total	
	As at 31 December		As at 31 December		As at 31 December		As at 31 December	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Current								
Assets	1,295,935,116	510,772,529	18,630,196	19,980,993	200,818,576	415,328,092	1,515,383,888	946,081,614
Liabilities	(1,148,654,735)	(354,948,701)	(369,914)	(658,705)	(321,475,256)	(353,279,246)	(1,470,499,905)	(708,886,652)
Total current net assets	147,280,381	155,823,828	18,260,282	19,322,288	(120,656,680)	62,048,846	44,883,983	237,194,962
Non-current								
Assets	12,616,092	8,265,796	41,687,418	126,559,722	177,951,586	8,068,527	232,255,096	142,894,045
Liabilities	(1,986,687)	(7,952,650)	(272,522,201)	(279,176,038)	-	-	(274,508,888)	(287,128,688)
Total non- current net assets	10,629,405	313,146	(230,834,783)	(152,616,316)	177,951,586	8,068,527	(42,253,792)	(144,234,643)
Net assets (liabilities)	157,909,786	156,136,974	(212,574,501)	(133,294,028)	57,294,906	70,117,373	2,630,191	92,960,319
Non-controlling interest	10,516,792	10,398,722	(63,772,350)	(39,988,208)	34,376,944	42,070,424	(18,878,614)	12,480,938

The information above is the amount before inter-company eliminations.

15 Investment in subsidiaries, net (Cont'd)

Summarised statement of comprehensive income

	TTCL Vietnam Corporation Limited		Bio Natural Energy Co., Ltd.		Global New Energy Co., Ltd.		Total	
	For the year ended 31 December		For the year ended 31 December		For the year ended 31 December		For the year ended 31 December	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Revenue	1,601,061,036	220,238,775	3,728,315	997,261	-	-	1,604,789,351	221,236,036
Other income	272,234	184,721	11,309,063	1,120,360	6,928,121	467,411	18,509,418	1,772,492
Profit (loss) before income tax	(7,571,874)	(67,506,432)	(79,280,475)	(17,924,568)	(12,822,468)	329,975	(99,674,817)	(85,101,025)
Income tax expense	9,344,686	960,052	-	-	-	-	9,344,686	960,052
Post-tax profit (loss) from continuing operations	1,772,812	(66,546,380)	(79,280,475)	(17,924,568)	(12,822,468)	329,975	(90,330,131)	(84,140,973)
Post-tax profit (loss) from discontinued operations	-	-	-	-	-	-	-	-
Other comprehensive income (expense)	-	-	-	-	-	-	-	-
Total comprehensive income (expense)	1,772,812	(66,546,380)	(79,280,475)	(17,924,568)	(12,822,468)	329,975	(90,330,131)	(84,140,973)
Total profit (loss) allocated to non-controlling interests	118,069	(4,431,989)	(23,784,143)	(5,377,370)	(7,693,481)	197,985	(31,359,555)	(9,611,374)
Dividends paid to non-controlling interests	-	-	-	-	-	-	-	-

The information above is the amount before inter-company eliminations.

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15 Investment in subsidiaries, net (Cont'd)

Summarised statement of cash flows

	TTCL Vietnam Corporation Limited		Bio Natural Energy Co., Ltd		Global New Energy Co., Ltd.		Total	
	For the year ended 31 December		For the year ended 31 December		For the year ended 31 December		For the year ended 31 December	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Cash flow from operating activities								
Cash generated from (used in) operations	247,815,378	(106,926,667)	(974,970)	(4,855,402)	(28,830,818)	(10,008,272)	218,009,590	(121,790,341)
Interest paid	(2,483,437)	-	-	-	-	-	(2,483,437)	-
Income tax paid	-	-	-	-	-	-	-	-
Net cash generated from (used in) operating activities	245,331,941	(106,926,667)	(974,970)	(4,855,402)	(28,830,818)	(10,008,272)	215,526,153	(121,790,341)
Net cash generated from (used in) investing activities	(1,978,618)	(891,596)	(15,025)	(34,350)	(168,473,684)	2,289,474	(170,467,327)	1,363,528
Net cash generated from (used in) financing activities	(71,287,938)	70,413,172	-	4,500,000	-	-	(71,287,938)	74,913,172
Net (decrease)/increase in cash and cash equivalents	172,065,385	(37,405,091)	(989,995)	(389,752)	(197,304,502)	(7,718,798)	(26,229,112)	(45,513,641)
Cash, cash equivalents at beginning of year	143,105,918	206,634,408	1,906,380	2,296,132	215,734,233	213,565,607	360,746,531	422,496,147
Exchange gains/(losses) on cash and cash equivalents	(484,924)	(26,123,399)	-	-	358,444	9,887,424	(126,480)	(16,235,975)
Cash and cash equivalents at end of year	314,686,379	143,105,918	916,385	1,906,380	18,788,175	215,734,233	334,390,939	360,746,531

The information above is the amount before inter-company eliminations.

16 Investment in associate, net

As at 31 December 2018, the Group has investment in an associate as follows:

Siam Solar Power Public Company Limited

The Group holds in Siam Solar Power Public Company Limited, an associate. The associate engages in electricity generation using solar power which has 400,000,000 registered ordinary shares which has paid-up capital of 300,000,000 ordinary shares with a par value of Baht 1 per share. TTCL Solar Power Pte. Ltd. (TTSP), a subsidiary of TTCL Power Holdings Pte. Ltd. (TTPHD) held 40% of Siam Solar Power's authorised share capital at 120,000,000 ordinary shares amounting to Baht 201.18 million, and fully paid-up capital.

The movements in investment in associate can be analysed as follows:

For the year ended 31 December 2018	Consolidated financial statements Baht	Separate financial statements Baht
Opening book value	222,933,576	-
Share of profit of associate	22,574,316	-
Share of other comprehensive income of associate	280,356	
Currency translation differences	(1,432,760)	-
Closing book value	244,355,488	-

The share of the associate's profit is calculated on the Company's 40% interest based on Siam Solar Power Public Company Limited's statement of income audited by its auditor for year ended 31 December 2018.

Set out below are the associate of the group as at 31 December 2018, which, in the opinion of the directors, are material to the group. The associate as listed below have share capital consisting solely of ordinary shares, which are held directly by the group; the country of incorporation or registration is also their principal place of business.

Nature of investment in associate for the year 2018 and 2017:

Name of entity	Place of business/ country of incorporation	% of ownership interest 2018 %	% of ownership interest 2017 %	Nature of the relationship
Siam Solar Power Public Company Limited	Thailand	40	40	Note 1

Note 1: Siam Solar Power Public Company Limited engaged in electricity generation using solar power. Siam Solar Power Public Company Limited is strategic for the group's growth in renewable energy business.

There are no contingent liabilities relating to the group's interest in the associate.

Summary of associate's financial information

Set out below are the summarised financial information for the associate that are material to the Group. The information disclosed reflects the amounting presented in the financial statements of the relevant associate (not the Group's shares of those amounts). They have been amended to reflect adjustments made using the equity method, including fair value adjustments and modifications for differences in accounting policy.

16 Investment in associate, net (Cont'd)

Summarised statement of financial position

	Siam Solar Power Public Company Limited	
	As at 31 December	
	2018 Baht	2017 Baht
Current assets		
Cash and cash equivalents	21,426,901	25,218,640
Other current assets (excluding cash)	28,077,803	27,775,129
Total current assets	49,504,704	52,993,769
Non-current assets	606,029,060	656,208,877
	655,533,764	709,202,646
Current liabilities		
Financial liabilities (excluding trade payables)	(8,737,948)	(112,823,585)
Other current liabilities (including trade payables)	(9,355,692)	(10,324,381)
Total current liabilities	(18,093,640)	(123,147,966)
Non-current liabilities		
Financial liabilities	-	-
Other liabilities	(26,551,404)	(28,720,741)
Total non-current liabilities	(26,551,404)	(28,720,741)
	(44,645,044)	(151,868,707)
Net assets	610,888,720	557,333,939

Summarised statement of comprehensive income

	Siam Solar Power Public Company Limited	
	For the year ended 31 December	
	2018 Baht	2017 Baht
Revenue	163,712,373	173,850,364
Depreciation and amortisation	(42,997,650)	(57,239,612)
Interest expense	(2,531,430)	(7,693,647)
Profit from continuing operations	56,120,326	44,886,572
Income tax expense	315,464	1,269,163
Post-tax profit from continuing operations	56,435,790	46,155,735
Other comprehensive income	700,889	-
Total comprehensive income	57,136,679	46,155,735
Dividends received from associate	-	-

16 Investment in associate, net (Cont'd)

Reconciliation of summarised financial information

Reconciliation of the summarised financial information presented to the carrying amount of its interest in associate.

	Siam Solar Power Public Company Limited
	Baht
Opening net assets 1 January 2018	557,333,939
Profit for the period	57,136,679
Currency translation differences	(3,581,898)
Closing net assets	610,888,720
Interest in associate	40%
Carrying value 31 December 2018	244,355,488

	Siam Solar Power Public Company Limited
	Baht
Opening net assets 1 January 2017	559,998,038
Profit for the period	46,155,735
Currency translation differences	(48,819,834)
Closing net assets	557,333,939
Interest in associate	40%
Carrying value as at 31 December 2017	222,933,576

17 Investments in joint ventures

As at 31 December 2018, the Group has 2 investments in interest in joint ventures as follows;

a) Siam GNE Solar Energy Co., Ltd

Siam GNE Solar Energy Co., Ltd, a joint venture of the Group, the joint venture engaged in a renewable energy business with a total of 160,000 registered ordinary shares at a par value of Baht 100 per share. TTCL Solar Power Pte. Ltd. (TTSP) and Global New Energy Company Limited (GNE), subsidiaries, hold 48% and 2% of its authorised share capital amounting to Baht 8.00 million and Baht 0.32 million, respectively and fully paid-up capital.

b) Orient Bio-Fuels Company Limited

As at 31 December 2018, TTCL New Energy Pte. Ltd (TTNE), a subsidiary, holds 49% of its total shares totalling USD 5.13 million or equivalent to Baht 166.54 million and fully paid-up capital in a joint venture named "Orient Bio-Fuels Company Limited (OBF)".

The Group has considered and classified the joint arrangement to be a joint venture. A list of the joint venture is shown in Note 2.3.5.

The movements in investments in joint ventures can be analysed as follow:

	Consolidated financial statements
For the year ended 31 December 2018	Baht
Opening book value	11,636,058
Share of profit from joint ventures	673,797
Currency translation differences	(56,951)
Closing book value	12,252,904

17 Investments in joint ventures (Cont'd)

Share of profit from joints ventures

The share of the joint venture's profit is calculated on the Company's 48% and 2% interest based on Siam GNE Solar Energy Co., Ltd.'s statement of income for year ended 31 December 2018 but was not audited by its auditor and the share of the associate's loss is calculated on the Company's 49% interest based on OBF's statement of income audited by its auditor for the year ended 31 December 2018.

The joint ventures listed below has share capital consisting solely of ordinary shares, which is held directly by the Group.

Nature of investments in joint ventures for the year 2018 and 2017

Name of entities	Place of Business/country of incorporation	% of ownership interest 2018 %	% of ownership interest 2017 %	Nature of the relationship
Siam GNE Solar Energy Co., Ltd.	Thailand	50	50	Note 1
Orient Bio-Fuels Company Limited	Vietnam	49	49	Note 2

Note 1: Siam GNE Solar Energy Co., Ltd's major business is to generate and transmit electricity from renewable energy. Siam GNE Solar Energy Co., Ltd is a strategic partnership for the group to invest in renewable energy.

Note 2: Orient Bio-Fuels Company Limited's major business is to engage in renewable energy in Vietnam. Orient Bio-Fuels Company Limited is a strategic partnership for the group to invest in renewable energy.

Summarised financial information for joint ventures

Set out below are the summarised financial information for joint ventures that are material to the Group. The information disclosed reflects the amounting presented in the financial statements of the relevant joint ventures (not the Group's shares of those amounts). They have been amended to reflect adjustments made using the equity method, including fair value adjustments and modifications for differences in accounting policy.

Summarised statement of financial position

	Orient Bio-Fuels Company Limited As at 31 December 2018 Baht	Orient Bio-Fuels Company Limited As at 31 December 2017 Baht
Current assets		
Cash and cash equivalents	4,695,231	25,755,497
Other current assets (excluding cash)	14,384,945	12,658,593
Total current assets	19,080,176	38,414,090
Non-current assets	1,616,720,940	1,639,000,328
	1,635,801,116	1,677,414,418
Current liabilities		
Financial liabilities (excluding trade payables)	(121,142,000)	(59,836,000)
Other current liabilities (including trade payables)	(372,918,706)	(174,566,360)
Total current liabilities	(494,060,706)	(234,402,360)
Non-current liabilities		
Financial liabilities	(2,018,984,933)	(1,951,142,840)
Other liabilities	-	-
Total non-current liabilities	(2,018,984,933)	(1,951,142,840)
	(2,513,045,639)	(2,185,545,200)
Net liabilities	(877,244,523)	(508,130,782)

17 Investments in joint ventures (Cont'd)

Summarised statement of comprehensive income

	Orient Bio-Fuels Company Limited	
	For the year ended 31 December	
	2018 Baht	2017 Baht
Revenue	507,503	3,383,523
Depreciation and amortisation	(167,864,466)	(127,324,765)
Interest income	497,699	3,207,635
Interest expense	(139,810,644)	(141,260,745)
Loss from continuing operations	(308,224,852)	(279,687,984)
Income tax expense	-	-
Post-tax loss from continuing operations	(308,224,852)	(279,687,984)
Other comprehensive income (expense)	-	-
Total comprehensive income	(308,224,852)	(279,687,984)
Dividends received from joint ventures	-	-

The information above reflects the amounts presented in the financial statements of the joint ventures adjusted for differences in accounting policies between the Group and the joint ventures (and not the Group's share of those amounts).

Reconciliation of summarised financial information

Reconciliation of the summarised financial information presented to the carrying amount of its investments in joint ventures;

	Orient Bio-Fuels Company Limited	
	For the period ended 31 December	
	2018 Baht	2017 Baht
Net assets as at 1 January		
Opening net assets	-	-
Loss for the year	-	-
Closing net assets	-	-
Investments in joint ventures	49%	49%
Carrying value	-	-

Individually immaterial joint ventures

In addition to the interests in joint ventures disclosed above, the Group also has interests in a number of individually immaterial joint ventures that are accounted for using the equity method.

	2018 Baht	2017 Baht
Aggregate carrying amount of individually immaterial joint ventures	12,252,904	11,636,058
Aggregate amounts of the reporting entity's share of:		
Profit from continuing activities	1,349,051	1,471,737
Other comprehensive income	-	-
Total comprehensive income	1,349,051	1,471,737

18 General investments

As at 31 December 2018, the Group has 2 general investments as follows:

Navanakorn Electric Company Limited

The Company has investment in preferred shares of Navanakorn Electric Company Limited which has its authorised share capital of 16,500,000 shares at par value of Baht 100 per share. The Company hold 44.02% of its authorised share capital or 7,263,799 shares of Baht 726.38 million. One Company fully paid-up capital and represents less than 1% of total voting rights.

The investment in preferred shares limits the voting right of the Company to the maximum of 1% of the total voting rights in which the Company will receive its return on investment through accumulative dividends at a fixed rate. The overall objective of such investment transaction is to invest in a good prospective project in which the Company will not be involved in routine management as outlined in various terms and conditions in the Shareholders' agreement dated 26 January 2011.

ToyoThai-USA Corporation

The Company has investment in common shares of ToyoThai-USA Corporation (TTUS) which has its authorised share capital of 1,000,000 shares at par value of USD 1 per share. The Company hold 4% of its authorised share capital or 40,000 shares of USD 40,000 or equivalent to Baht 1.23 million. One Company fully paid-up capital. During 2017, the Company considered to set up allowance for impairment on general investment in TTUS in full amount.

The movements in general investments can be analysed as follows:

For the year ended 31 December 2018	Consolidated and separate financial statements Baht
Beginning balance	726,379,900
Movement in general investments	-
Ending balance	726,379,900

19 Property, plant and equipment, net

	Consolidated financial statements						
	Land and land improvement Baht	Building Baht	Furniture, fixtures and equipment Baht	Motor vehicles Baht	Power plant Baht	Assets under installation Baht	Total Baht
At 1 January 2017							
Cost	25,257,023	4,735,255	188,856,551	58,865,860	185,247,110	118,464,247	581,426,046
Less Accumulated depreciation	(346,094)	(386,265)	(141,342,322)	(34,662,674)	(31,440,812)	-	(208,178,167)
Less Allowance for impairment	-	-	-	-	(36,732,393)	-	(36,732,393)
Net book amount	24,910,929	4,348,990	47,514,229	24,203,186	117,073,905	118,464,247	336,515,486
For the year ended 31 December 2017							
Opening net book amount	24,910,929	4,348,990	47,514,229	24,203,186	117,073,905	118,464,247	336,515,486
Additions	71,116,157	-	11,759,352	8,953,130	-	278,022,241	369,850,880
Disposals, net	-	-	-	(2,020,421)	-	-	(2,020,421)
Write-off, net	-	-	(9,483)	-	-	-	(9,483)
Transfer of assets	-	-	-	-	62,005,306	(62,005,306)	-
Depreciation charge	(216,679)	(164,705)	(21,746,650)	(7,138,888)	(13,641,572)	-	(42,908,494)
Currency translation differences	(2,397,471)	-	(563,993)	(1,143,162)	(5,055)	(3,672,462)	(7,782,143)
Closing net book amount	93,412,936	4,184,285	36,953,455	22,853,845	165,432,584	330,808,720	653,645,825
At 31 December 2017							
Cost	93,975,709	4,735,255	193,755,110	61,340,604	247,247,295	330,808,720	931,862,693
Less Accumulated depreciation	(562,773)	(550,970)	(156,801,655)	(38,486,759)	(45,082,318)	-	(241,484,475)
Less Allowance for impairment	-	-	-	-	(36,732,393)	-	(36,732,393)
Net book amount	93,412,936	4,184,285	36,953,455	22,853,845	165,432,584	330,808,720	653,645,825

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19 Property, plant and equipment, net (Cont'd)

	Consolidated financial statements						
	Land and land improvement Baht	**Building Baht**	**Furniture, fixtures and equipment Baht**	**Motor vehicles Baht**	**Power plant Baht**	**Assets under installation Baht**	**Total Baht**
For the year ended 31 December 2018							
Opening net book amount	93,412,936	4,184,285	36,953,455	22,853,845	165,432,584	330,808,720	653,645,825
Additions	12,376,780	-	12,710,445	319,825	95,852,100	765,715,444	886,974,594
Transfer of assets	(59,406,954)	-	3,136,921	-	-	56,270,033	-
Disposals, net	-	-	(77,700)	(12,967,443)	-	-	(13,045,143)
Write-off, net	-	-	(20)	-	-	-	(20)
Decrease from disposal of a subsidiary	(22,187,912)	-	-	-	-	(1,045,139,932)	(1,067,327,844)
Impairment charge	-	-	-	-	(65,065,530)	-	(65,065,530)
Depreciation charge	(216,680)	(164,705)	(17,148,768)	(4,711,176)	(11,851,634)	-	(34,092,963)
Currency translation differences	(102,406)	-	(101,924)	(78,981)	(484)	(7,681,048)	(7,964,843)
Closing net book amount	23,875,764	4,019,580	35,472,409	5,416,070	184,367,036	99,973,217	353,124,076
At 31 December 2018							
Cost	24,655,217	4,735,255	175,904,524	24,838,713	343,098,911	99,973,217	673,205,837
Less Accumulated depreciation	(779,453)	(715,675)	(140,432,115)	(19,422,643)	(56,933,952)	-	(218,283,838)
Less Allowance for impairment	-	-	-	-	(101,797,923)	-	(101,797,923)
Net book amount	23,875,764	4,019,580	35,472,409	5,416,070	184,367,036	99,973,217	353,124,076

During the year 2018, the Group management considered to additional set up the allowance for impairment of the power plant 1.2 MW located at Ayutthaya province of Baht 65.06 million which resulted in the outstanding balance of allowance for impairment of the power plant as at 31 December 2018 to Baht 101.80 million (31 December 2017: Baht 36.73 million) due to the power plant generation plan not being in line with the forecast plan because there was no volume of wastewater from the ethanol plant used as fuel to operate the power plant, and the ethanol plant had temporarily stopped its operation. The Company estimated the value in use using a cash flow projection covering the volume of wastewater from the ethanol plant and the period of the Power Purchase Agreement. The cash flow projection is based on the electricity volume to sell and the estimated tariff rate based on the power plant capacity and conditions specified in the Power Purchase Agreement. The discount rate used in the calculation is 10.63% per annum.

For the year ended of 31 December 2018, the borrowing cost of Baht 16.01 million represented the borrowing to finance the construction of solar power plant in Japan. The Group use a capitalisation rate of 3.66%-3.77% per annum to compute the capitalised borrowing costs and are included as part of 'additions' during the year.

19 Property, plant and equipment, net (Cont'd)

	Separate financial statements			
	Land Baht	**Furniture, fixtures and equipment Baht**	**Motor vehicles Baht**	**Total Baht**
At 1 January 2017				
Cost	6,750,000	164,167,632	47,376,239	218,293,871
Less Accumulated depreciation	-	(122,788,605)	(29,435,056)	(152,223,661)
Net book amount	6,750,000	41,379,027	17,941,183	66,070,210
For the year ended 31 December 2017				
Opening net book amount	6,750,000	41,379,027	17,941,183	66,070,210
Additions	-	9,161,581	8,953,130	18,114,711
Write-off, net	-	(7,866)	-	(7,866)
Disposals, net	-	-	(1,223,965)	(1,223,965)
Depreciation charge	-	(18,493,934)	(5,654,693)	(24,148,627)
Currency translation differences	-	(4,194)	(704,210)	(708,404)
Closing net book amount	6,750,000	32,034,614	19,311,445	58,096,059
At 31 December 2017				
Cost	6,750,000	169,298,578	51,720,536	227,769,114
Less Accumulated depreciation	-	(137,263,964)	(32,409,091)	(169,673,055)
Net book amount	6,750,000	32,034,614	19,311,445	58,096,059
For the year ended 31 December 2018				
Opening net book amount	6,750,000	32,034,614	19,311,445	58,096,059
Additions	-	9,402,316	31,000	9,433,316
Write-off, net	-	(15)	-	(15)
Disposals, net	-	(77,700)	(12,967,443)	(13,045,143)
Depreciation charge	-	(14,018,843)	(3,139,089)	(17,157,932)
Currency translation differences	-	(567)	(49,524)	(50,091)
Closing net book amount	6,750,000	27,339,805	3,186,389	32,276,194
At 31 December 2018				
Cost	6,750,000	153,999,592	14,967,495	175,717,087
Less Accumulated depreciation	-	(126,659,787)	(11,781,106)	(138,440,893)
Net book amount	6,750,000	27,339,805	3,186,389	37,276,194

20 Intangible assets, net

	Consolidated financial statements		
	Computer software Baht	Golf membership Baht	Total Baht
At 1 January 2017			
Cost	68,195,170	4,119,865	72,315,035
Less Accumulated amortisation	(34,147,722)	(2,444,520)	(36,592,242)
Net book amount	34,047,448	1,675,345	35,722,793
For the year ended 31 December 2017			
Opening net book amount	34,047,448	1,675,345	35,722,793
Additions	468,976	-	468,976
Write-off, net	(6)	-	(6)
Amortisation charge	(6,516,913)	(333,787)	(6,850,700)
Currency translation differences	(519,255)	-	(519,255)
Closing net book amount	27,480,250	1,341,558	28,821,808
At 31 December 2017			
Cost	65,543,447	4,119,865	69,663,312
Less Accumulated amortisation	(38,063,197)	(2,778,307)	(40,841,504)
Net book amount	27,480,250	1,341,558	28,821,808
For the year ended 31 December 2018			
Opening net book amount	27,480,250	1,341,558	28,821,808
Additions	3,931,555	-	3,931,555
Write-off, net	(29)	(1)	(30)
Amortisation charge	(6,068,175)	(322,065)	(6,390,240)
Currency translation differences	(5,337)	-	(5,337)
Closing net book amount	25,338,264	1,019,492	26,357,756
At 31 December 2018			
Cost	63,575,342	3,337,865	66,913,207
Less Accumulated amortisation	(38,237,078)	(2,318,373)	(40,555,451)
Net book amount	25,338,264	1,019,492	26,357,756

20 Intangible assets, net (Cont'd)

	Separate financial statements		
	Computer software Baht	Golf membership Baht	Total Baht
At 1 January 2017			
Cost	59,930,367	4,119,865	64,050,232
Less Accumulated amortisation	(30,909,027)	(2,444,520)	(33,353,547)
Net book amount	29,021,340	1,675,345	30,696,685
For the year ended 31 December 2017			
Opening net book amount	29,021,340	1,675,345	30,696,685
Additions	10,600	-	10,600
Write-off, net	(6)	-	(6)
Amortisation charge	(4,605,625)	(333,787)	(4,939,412)
Closing net book amount	24,426,309	1,341,558	25,767,867
At 31 December 2017			
Cost	57,858,767	4,119,865	61,978,632
Less Accumulated amortisation	(33,432,458)	(2,778,307)	(36,210,765)
Net book amount	24,426,309	1,341,558	25,767,867
For the year ended 31 December 2018			
Opening net book amount	24,426,309	1,341,558	25,767,867
Additions	3,223,860	-	3,223,860
Write-off, net	(29)	(1)	(30)
Amortisation charge	(4,360,268)	(322,065)	(4,682,333)
Closing net book amount	23,289,872	1,019,492	24,309,364
At 31 December 2018			
Cost	55,190,317	3,337,865	58,528,182
Less Accumulated amortisation	(31,900,445)	(2,318,373)	(34,218,818)
Net book amount	23,289,872	1,019,492	24,309,364

21 Short-term loans from financial institutions

	Consolidated financial statements		Separate financial statements	
As at 31 December	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Short-term loans from financial Institutions				
- Promissory notes	1,718,939,760	2,494,510,675	1,680,000,000	2,470,000,000
- Bill of exchanges	-	1,005,237,934	-	1,005,237,934
Total	1,718,939,760	3,499,748,609	1,680,000,000	3,475,237,934

As at 31 December 2018, the Company had short-term loans from local financial institutions in the form of promissory notes (interest of 2.10% - 4.25% per annum) not over six months for working capital and purchases machinery and equipment. (31 December 2017: short-term loans in the form of promissory notes bearing interest 2.10% - 2.91% per annum and bill of exchanges bearing interest 2.30% - 2.50% per annum).

21 Short-term loans from financial institutions (Cont'd)

Credit facilities

As at 31 December 2018, the Group has unused credit facilities amounting of Baht 12,581.75 million which is the Company's credit facilities of Baht 10,982.07 million (31 December 2017: Baht 18,751 million which is the Company's credit facilities of Baht 17,129 million).

For the year ended 31 December 2018	Consolidated financial statements Baht	Separate financial statements Baht
Opening net book value	3,499,748,609	3,475,237,934
Cash received from short-term loans	8,003,460,281	7,988,857,871
Repayment short-term loans	(9,784,095,805)	(9,784,095,805)
Currency translation differences	(173,325)	-
Closing net book value	1,718,939,760	1,680,000,000

22 Long-term loans from financial institution, net

22.1 Long-term loans from financial institution is as follows

	Consolidated financial statements	
	2018 Baht	2017 Baht
Long-term loans in US Dollars	2,245,526,160	2,627,544,337
Less Deferred financing fee, net	-	-
Total long-term loans from financial institution, net	2,245,526,160	2,627,544,337

a) Global New Energy Togo Co., Ltd. (GNE-Togo) a subsidiary, entered into a facility agreement dated 5 March 2018 with Shinsei Bank, Limited and Mitsubishi UFJ Lease & Finance Co., Ltd. with the total loan facilities in Yen amounting to Yen 7,940 million or equivalent to Baht 2,381.21 million. The interest rate is TIBOR plus a fixed margin per annum. The interest will be repaid semi-annually, whereas the principal will be repaid in 36 instalments on the maturity date as specified in the agreement. The first repayment date is in June 2020.

The loan is for the construction of the solar power plant in Japan. It's secured with the right to receive compensation under an investment insurance policy, the share charge, and the guarantee agreement with the Company. Under the facility agreement, the subsidiary is required to comply with certain terms and conditions, such as maintaining a debt-to-equity ratio, maintaining a debt coverage ratio and setting a reserve in the deposit accounts as a provision to cover loan and interest payments etc.

During the year ended 31 December 2018, GNE-Togo has drawn down a long term loan from financial institutions in JPY amounting to JPY 2,991 million or equivalent to Baht 889.15 million. Long-term loan from a financial institution of GNE-Togo was nil as a result of entire disposal of investment in GNE-Togo on 20 December 2018 (Note 15).

b) Toyo-Thai Power Myanmar Co., Ltd. (TTPMC), a subsidiary, entered into a facility agreement with the Export-Import Bank of Thailand (EXIM Bank) for USD 100 million, or equivalent to Baht 3,296 million, loan agreement date 28 May 2014, the annual interest at LIBOR plus a margin. The principal will be repaid in 36 quarterly instalments scheduled at 35 equal instalments and the remaining amount in the last instalment. The first repayment date was on 19 January 2016.

The loan is for the construction of the power plant in Myanmar and its operations. It's secured with the right to receive compensation under an investment insurance policy, the share charge, and the guarantee agreement with TTCL Gas Power Pte. Ltd. (TTGP). Under the facility agreement, the subsidiary is required to comply with certain terms and conditions, such as maintaining a debt-to-equity ratio, maintaining a debt coverage ratio and setting a reserve in the deposit accounts as a provision to cover loan and interest payments (Note 14) etc.

As at 31 December 2018, TTPMC has outstanding long-term loans with financial institutions in USD amounting to USD 69.2 million or equivalent to Baht 2,245.53 million (31 December 2017: USD 80.40 million or equivalent to Baht 2,627.54 million).

22 Long-term loans from financial institution, net (Cont'd)

22.1 Long-term loans from financial institutions

The movements of the long-term loans from financial institution can be analysed as follows:

	Consolidated financial statements	
	2018 Baht	2017 Baht
Opening net book value, net	2,627,544,337	3,275,203,220
Cash received from a long-term loan	889,149,500	-
Deferred financing fee	(13,383,215)	-
Repayment long-term loan	(362,988,640)	(384,337,240)
Amortisation of deferred financing fee	747,916	6,888,900
Decrease from disposal a subsidiary	(877,260,300)	-
Currency translation differences	(18,283,438)	(270,210,543)
Closing net book value, net	2,245,526,160	2,627,544,337

22.2 Maturity of long-term loan is as follows:

	Consolidated financial statements	
	2018 Baht	2017 Baht
Within 1 year	363,437,760	366,026,064
Later than 1 year and not later than 5 years	1,882,088,400	1,464,104,313
Later than 5 years	-	797,413,960
Total long-term loan, net	2,245,526,160	2,627,544,337

As at 31 December 2018, the Group had drawn down the full amount of a long-term loan from a financial institution.

The fair value of a long term loan from a financial institution was disclosed in Note 37 (c).

As at 31 December 2018 the Group's effective interest rates of long term borrowing were 5.60% per annum (31 December 2017: 5.30% per annum).

23 Debentures, net

The debentures are Thai Baht debentures as follows:

	Consolidated and separate financial statements	
As at 31 December	2018 Baht	2017 Baht
Debentures		
Unsubordinated and unsecured debentures	4,575,000,000	6,000,000,000
Less Deferred financing fee	(6,901,081)	(10,978,178)
Unsubordinated and unsecured debentures, net	4,568,098,919	5,989,021,822

The movements in debentures can be analysed as follows:

	Consolidated and separate financial statements
	Baht
For the year ended 31 December 2018	
Opening net book value, net	5,989,021,822
Repayment of debentures	(1,425,000,000)
Amortisation of deferred financing fee	4,077,097
Closing net book value, net	4,568,098,919

23 Debentures, net (Cont'd)

On 12 May 2017, the Company issued such unsubordinated and unsecured debentures to specific debenture holders of Baht 3,000 million for 3,000,000 shares at par value of Baht 1,000 per share at selling price Baht 1,000 per share which the Company issued 3-year debentures of Baht 1,900 million, maturity in 2020, at fixed interest rate 3.90% per annum with quarterly interest payment, and 5-year debentures Baht 1,100 million, maturity in 2022, at fixed interest rate 4.20 per annum with quarterly interest payment.

The objective of issuing debentures is to expand business and financial management. The issue was approved in the resolution of the Annual General Meeting on 8 April 2016, which granted the Company the right to issue unsubordinated and unsecured debenture for up to Baht 6,000 million.

During the second quarter of 2018, the Group had fully repaid debentures amounting to Baht 1,425 million.

At 31 December 2018, the Company had a credit line for the issue of all types of debenture (secured and/or unsecured) for up to Baht 925 million (31 December 2017: The company had issued debentures at the full credit limit) according to the approval in the resolution of the Annual General Meeting.

As at 31 December 2018, the fair value of debentures has been disclosed in Note 37 (c).

The maturities of debentures are as follows:

	Consolidated and separate financial statements	
As at 31 December	**2018 Baht**	**2017 Baht**
- Within 1 year		
Unsubordinated and unsecured debenture	-	1,424,414,935
- Later than 1 year and not later than 5 years		
Unsubordinated and unsecured debentures	4,568,098,919	4,564,606,887
Total unsubordinated and unsecured debentures	4,568,098,919	5,989,021,822

The Group and the Company have the following undrawn committed for debentures:

	Consolidated and separate financial statements	
	2018 Baht	**2017 Baht**
Fixed rate		
- expiring within one year	-	-
- expiring not specified	925,000,000	-
	925,000,000	-

24 Government grants

During the year ended 31 Dcember 2010, Bio Natural Energy Co., Ltd., the subsidiary, entered into the government grant assistance agreement with the Energy Policy and Planning Office (EPPO) of Thailand. This government programme enabled Bio Natural Energy to receive subsidy with a total credit facility line of Baht 20 million from the Energy Conservation Promotion Fund support programme for industrial biogas technology. To receive the subsidy, the subsidiary has to operate the power plant using the biogas generated from the wastewater of Ethanol plants at the minimum volume specified in the agreement.

Bio Natural Energy is also receive a subsidy from the Ministry of Environment of Japan (MOE) to construct the biogas power plant and to sell back the carbon credit generated from production to MOE at the volume stipulated in the agreement. The subsidy received will be based on the percentage of completion of the plant not to exceed Yen 350 million or Baht 129.16 million.

During the year ended 31 December 2018, the Group recorded government grants relating to assets of Baht 20 million and recognised revenue of Baht 11.30 million in statement of comprehensive income. The group has not recognised any revenue from government grant relating to revenue of Baht 129.16 million since the Group did not start deliver carbon credit to government yet.

As at 31 December 2018, the government grants of Baht 133.04 million were included in non-current liabilities as deferred revenue (31 December 2017: Baht 144.34 million).

25 Deferred income taxes, net

The Group's corporate income tax for the year ended 31 December 2018 and 2017 are calculated based on the net profit (tax base) which excluded the interests in joint ventures. The rates are as follows:

	2018	2017
Thailand	20%	20%
Singapore	17%	17%
Philippines	30%	30%
Qatar	10%	10%
Japan	31%	33%
Vietnam	20%	20%
Malaysia	24%	24%
Myanmar	25%	25%

Deferred tax assets and liabilities can be summarised as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Deferred tax assets				
Deferred tax assets to be recovered within 12 months	3,554,245	679,910	-	-
Deferred tax assets to be recovered after 12 months	356,610,892	208,464,853	283,839,848	132,511,327
Total deferred tax assets	360,165,137	209,144,763	283,839,848	132,511,327
Deferred tax liabilities				
Deferred tax liabilities to be recovered within 12 months	(3,189,713)	(8,828,729)	(114,982)	-
Deferred tax liabilities to be recovered after 12 months	(105,243,534)	(105,486,179)	-	-
Total deferred tax liabilities	(108,433,247)	(114,314,908)	(114,982)	-

25 Deferred income taxes, net (Cont'd)

The movements in deferred tax assets and liabilities during the year are as follows:

	Consolidated financial statements					
	Baht					
	At 1 January 2018	Charged to profit loss	Credit to Other comprehensive income or expense	Currency translation differences	Charged directly to equity	At 31 December 2018
Deferred income tax assets:						
Employee benefit obligation	31,344,392	3,281,656	(6,528,567)	-	-	28,097,481
Fixed asset	73,922,239	(10,176,828)	-	(700)	-	63,744,711
Loss carry forward	100,770,243	161,750,393	-	(499,000)	-	262,021,636
Work in progress	-	38,772	-	-	-	38,772
Unbilled contract revenue	-	(88,887,348)				(88,887,348)
Accrued construction costs	-	91,635,797	-	-	-	91,635,797
Trade accounts payable	-	721,877	-	-	-	721.877
Subordinated perpetual debenture	-	-	-	-	119,215	119,215
Others	3,107,889	(433,578)	-	(1,315)	-	2,672,996
Total deferred income tax assets	209,144,763	157,930,741	(6,528,567)	(501,015)	119,215	360,165,137
Deferred income tax liabilities:						
Employee benefit obligation	511,666	(511,666)	-	-	-	-
Fixed asset	(105,149,290)	-	-	754,310	-	(104,394,980)
Construction in progress	(848,554)	-	-	-	-	(848,554)
Unbilled contract revenue	(21,215,387)	21,215,387	-	-	-	-
Accrued construction costs	14,280,189	(14,280,189)	-	-	-	-
Trade accounts payable	1,559,565	(1,559,565)	-	-	-	-
Other	(3,453,097)	262,577	-	807	-	(3,189,713)
Total deferred income tax liabilities	(114,314,908)	5,126,544	-	755,117	-	(108,433,247)
Deferred income taxes, net	94,829,855	163,057,285	(6,528,567)	254,102	119,215	251,731,890

	Consolidated financial statements					
	Baht					
	At 1 January 2017	Charged to profit loss	Credit to Other comprehensive income or expense	Currency translation differences	Charged directly to equity	At 31 December 2017
Deferred income tax assets:						
Employee benefit obligation	29,016,746	3,825,260	(1,497,614)	-	-	31,344,392
Fixed assets	68,994,338	4,900,680	-	27,221	-	73,922,239
Loss carry forward	29,326,711	71,594,697	-	(151,165)	-	100,770,243
Others	527,704	2,580,185	-	-	-	3,107,889
Total deferred income tax assets	127,865,499	82,900,822	(1,497,614)	(123,944)	-	209,144,763
Deferred income tax liabilities:						
Employee benefit obligation	580,775	3,488	-	(72,597)	-	511,666
Fixed assets	(113,010,442)	(2,144,445)	-	10,005,597	-	(105,149,290)
Construction in progress	(848,554)	-	-	-	-	(848,554)
Unbilled contract revenue	(33,309,154)	7,930,122	-	4,163,645	-	(21,215,387)
Accrued construction costs	12,080,709	3,709,569	-	(1,510,089)	-	14,280,189
Trade accounts payable	13,791,552	(10,508,043)	-	(1,723,944)	-	1,559,565
Others	(1,107,757)	(2,396,092)	-	50,752	-	(3,453,097)
Total deferred income tax liabilities	(121,822,871)	(3,405,401)	-	10,913,364	-	(114,314,908)
Deferred income taxes, net	6,042,628	79,495,421	(1,497,614)	10,789,420	-	94,829,855

TTCL Public Company Limited
Notes to the Consolidated and Separate Financial Statements
For the year ended 31 December 2018

25 Deferred income taxes, net (Cont'd)

	Separate financial statements					
	Baht					
	At 1 January 2018	Charged to profit loss	Credit to Other comprehensive income or expense	Currency translation differences	Charged directly to equity	At 31 December 2018
Deferred income tax assets:						
Employee benefit obligation	30,759,493	2,884,318	(6,528,567)	-	-	27,115,244
Fixed assets	98,958	-	-	(700)	-	98,258
Loss carry forward	99,201,821	154,716,234	-	-	-	253,918,055
Subordinated perpetual debentures	-	-	-	-	119,215	119,215
Others	2,451,055	139,247	-	(1,226)	-	2,589,076
Total deferred income tax assets	132,511,327	157,739,799	(6,528,567)	(1,926)	119,215	283,839,848
Deferred income tax liabilities:						
Loss on exchange rate	-	(115,789)	-	807	-	(114,982)
Total deferred income tax liabilities	-	(115,789)	-	807	-	(114,982)
Deferred income taxes, net	132,511,327	157,624,010	(6,528,567)	(1,119)	119,215	283,724,866

	Separate financial statements					
	Baht					
	At 1 January 2017	Charged to profit loss	Credit to Other comprehensive income or expense	Currency translation differences	Charged directly to equity	At 31 December 2017
Deferred income tax assets:						
Employee benefit obligation	28,431,847	3,825,260	(1,497,614)	-	-	30,759,493
Fixed assets	-	98,958	-	-	-	98,958
Loss carry forward	-	99,201,821	-	-	-	99,201,821
Others	-	2,451,055	-	-	-	2,451,055
Total deferred income tax assets	28,431,847	105,577,094	(1,497,614)	-	-	132,511,327
Deferred income tax liabilities:						
Loss on exchange rate	(672,609)	672,609	-	-	-	-
Fixed assets	(24,866)	24,866	-	-	-	-
Total deferred income tax liabilities	(697,475)	697,475	-	-	-	-
Deferred income taxes, net	27,734,372	106,274,569	(1,497,614)	-	-	132,511,327

26 Employee benefit obligations

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Statement of financial position:				
Employee benefits obligation	137,562,905	156,355,795	135,576,218	153,797,465
Statement of income:				
Expenses of employee benefits for the year	21,574,281	22,327,901	21,535,089	22,225,298
Statement of comprehensive income:				
Currency translation differences	-	(362,985)	-	-
Remeasurement for:				
Gain from retirement benefits	32,642,836	7,488,067	32,642,836	7,488,067

The plans are final salary retirement plans, which provide benefits to members in the form of a guaranteed level of pension payable. The level of benefits provided depends on members' length of service and their salary in the final years leading up to retirement.

The movements in the employee benefit obligation over the year are as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
As at 1 January	156,355,795	145,063,111	153,797,465	142,159,234
Current service cost	15,989,578	16,692,313	15,950,385	16,589,710
Interest expense	5,584,704	5,635,588	5,584,704	5,635,588
Currency translation differences	-	(362,985)	-	-
	177,930,077	167,028,027	175,332,554	164,384,532
Remeasurements:				
(Gain) loss from change in demographic assumptions	(21,559,585)	4,301,944	(21,559,585)	4,301,944
Gain from change in financial assumptions	(7,403,069)	(7,490,697)	(7,403,069)	(7,490,697)
Experience gain	(3,680,182)	(4,299,314)	(3,680,182)	(4,299,314)
	145,287,241	159,539,960	142,689,718	156,896,465
Payment from plans:				
Benefit payment	(7,724,336)	(3,184,165)	(7,113,500)	(3,099,000)
As at 31 December	137,562,905	156,355,795	135,576,218	153,797,465

26 Employee benefit obligations (Cont'd)

The principal actuarial assumptions used were as follows:

	2018	2017
Discount rate	3.43%	3.29%
Salary growth rate	5.36%	5.66%

			Impact on defined benefit obligation			
	Change in assumption		Increase in assumption		Decrease in assumption	
	2018	2017	2018	2017	2018	2017
Discount rate	0.5%	0.5%	Decrease by 5.11%	Decrease by 5.78%	Increase by 5.61%	Increase by 6.40%
Salary growth rate	0.5%	0.5%	Increase by 4.85%	Increase by 5.59%	Decrease by 4.45%	Decrease by 5.09%
Employee turnover	0.5%	0.5%	Decrease by 5.45%	Decrease by 6.12%	Increase by 5.98%	Increase by 6.77%

The above sensitivity analyses are based on a change in an assumption while holding all other assumptions constant. In practice, this is unlikely to occur, and changes in some of the assumptions may be correlated. When calculating the sensitivity of the defined benefit obligation to significant actuarial assumptions the same method (present value of the defined benefit obligation calculated with the projected unit credit method at the end of the reporting period) has been applied as when calculating the pension liability recognised within the statement of financial position. The methods and types of assumptions used in preparing the sensitivity analysis did not change compared to the previous period.

As at 31 December 2018, the weighted average duration of the defined benefit obligation of the group is between 5 years to 20 years, for the duration of company is 20 years (2017: benefit obligation of the group is between 5 years to 23 years, for the duration of company is 23 years).

Expected maturity analysis of undiscounted retirement benefits:

	Consolidated financial statements				
	Less than a year Baht	Between 1-2 years Baht	Between 2-5 years Baht	Over 5 years Baht	Total Baht
As at 31 December 2018					
Retirement benefit	-	35,865,388	17,716,995	135,433,207	189,015,590
Total	-	35,865,388	17,716,995	135,433,207	189,015,590

	Separate financial statements				
	Less than a year Baht	Between 1-2 years Baht	Between 2-5 years Baht	Over 5 years Baht	Total Baht
As at 31 December 2018					
Retirement benefit	-	35,865,388	15,730,307	135,433,207	187,028,902
Total	-	35,865,388	15,730,307	135,433,207	187,028,902

On 13 December 2018, the National Legislative Assembly passed a resolution approving the draft of a new Labour Protection Act, which is in the process being published in the Royal Gazette. The new Labour Protection Act stipulates additional legal severance pay rates for employees who have worked for an uninterrupted period of twenty years or more. These employees are entitled to receive compensation of not less than equivalent to the last 400 days, based on the final wage rate. This change is considered a post-employment benefits plan amendment and the Group have additional liabilities for long-term employee benefits. The Group are considering the effect from the change using independent actuaries. The Group will recognised past service cost as an expense at the date when therer is a plan amendment which is the date that the law comes into effect.

27 Share capital and premium on share capital

Issue and allotment of new ordinary shares

	Authorised ordinary shares	Issued and paid-up shares	Issued and paid-up Baht	Premium on share capital Baht	Total Baht
At 1 January 2017	560,000,000	560,000,000	560,000,000	2,905,496,747	3,465,496,747
Issued of shares	-	-	-	-	-
At 31 December 2017	560,000,000	560,000,000	560,000,000	2,905,496,747	3,465,496,747
Issued of shares	336,000,000	56,000,000	56,000,000	380,262,450	436,262,450
At 31 December 2018	896,000,000	616,000,000	616,000,000	3,285,759,197	3,901,759,197

On 27 April 2018, the Annual Meeting of the Company's shareholders passed a resolution approving the increase of the Company's registered share capital by Baht 336 million from the existing registered capital of Baht 560 million to Baht 896 million by issuing 336 million new ordinary shares with a par value of Baht 1 per share and approved the allocation of 168 million new ordinary shares to be offered to the shareholders in accordance with their shareholding portion (Right Offering) and 56 million new ordinary shares to the private placement in the form of General Mandate. The offering of newly issued ordinary shares may be made in full or in part. However, in any case, the number of new ordinary shares offered to the existing shareholders (Right Offering) and private placement according to the General Authorization (General Mandate must have a maximum of 168 million shares or not more than 30% of the Company's paid-up capital on the date the Board of Directors resolves to approve the capital increase in the form of General Mandate.

In addition, the Annual Meeting of the Company's shareholders approved the issuance and allotment of warrants to purchase ordinary shares of the Company No. 1 ("TTCL-W1") to the existing shareholders of the Company. Right Offering in the amount of not exceeding 112 million units, free of charge, at the ratio of 5 existing shares to 1 unit of warrant (Note 28).

On 2 August 2018, the Board of Directors Meeting of TTCL approved the issue and allocation of new ordinary shares of 56,000,000 newly issued ordinary shares with a par value of Baht 1 per share to specific persons (Private Placement) under a General Mandate basis which had been approved by the 2018 Annual General Meeting of Shareholders of TTCL held on 27 April 2018, at an offering price of Baht 7.7950 per share, totalling Baht 436.52 million. The specific person who has been allocated with the newly issued share is Sojitz Corporation, a listed Company in the Tokyo Stock Exchange in Japan. The said offering price is not lower than 90% of the market price pursuant to the Notification of the Capital Market Supervisory Board No. TorChor. 72/2558, Permission for Listed Companies to Offer Newly Issued Shares to Specific Persons. The market price is calculated by using the weighted average price of the Company's ordinary shares traded on the Stock Exchange of Thailand for 15 consecutive business days before the Board of Directors set the offering price, which is between 10 July 2018 to 1 August 2018 and equal to 7.9673 per share. The 90% of weighted average price is equal to 7.1706 Baht per share. On 20 August 2018 the Company fully received the additional paid-up capital and registered the capital increased with the Ministry of Commerce at the same date. The direct expenses associated with the offering of shares of Baht 0.26 million are presented as a deduction from the premium on share capital and resulted in net of Baht 3,285.76 million. The increased capital section 51 of the Public Companies Act B.E. 2535, where the company offer shares for sale at a price higher than the registered par value. The company shall allocate the excess to a reserve account ('premium on share capital'). The premium on share capital is not available for dividend distribution.

As at 31 December 2018, the total authorised ordinary shares are 896 million shares which have been issued and paid-up 616 million shares at Baht 1 par value (31 December 2017: 560 million shares at Baht 1 par value).

28 Warrants to purchase ordinary shares

On 29 June 2018, the Company issued warrants to purchase ordinary share of the Company without charge to shareholders as follows:

Type of warrant	Issue to	Issuance date of warrant	Number of warrant issued (Units)	Period of warrant	Exercise price per share	Exercise ratio per 1 warrant
TTCL-W1	General shareholders	29 June 2018	111,995,682	3 years	18.00 Baht	1 ordinary share

The holders of TTCL-W1 can exercise warrant after one year from issuance date. The first exercise will be the last business day of June 2019. For the next exercise, TTCL-W1 can be exercised on the last business day of June and December of each calendar year throughout the remaining period of the TTCL-W1.

During the year ended 31 December 2018, there was no exercised warrant.

29 Legal reserve

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Beginning balance	56,000,000	56,000,000	56,000,000	56,000,000
Appropriation during the year	-	-	-	-
Ending balance	56,000,000	56,000,000	56,000,000	56,000,000

Under the Public Limited Company Act., B.E. 2535, the Company is required to set aside as a legal reserve at least 5% of its net profit after the accumulated deficit is brought forward (if any) until the reserve is not less than 10% of the registered capital.

30 Subordinated perpetual debentures

On 21 December 2018, the Board of Directors' meeting of the Company approved an additional principal amount of debenture (at a par value) of not more than Baht 500 million, which is the principle amount previously approved in the Annual General Meeting of the shareholders of the Company held on 8 April 2016 (Note 23), with the total aggregated amount of all outstanding debentures issued by the Company at any time not exceeding Baht 6,000 million (On a Revolving Principal Basis).

On 28 December 2018, the Company issued unsecured, unconvertible and subordinated perpetual debentures in registered name form of 500,000 shares with a par value of Baht 1,000 per share, with a total of Baht 500 million (debentures no.1/2018) which are payable upon the dissolution of the Company or upon the exercise of the Company's early redemption right per condition as stipulated in the terms and conditions of the debentures issuer and holder (terms and conditions). The first date of the redemption right is on 28 December 2023 and the interest rates are specific to each period as follow:

Subordinated perpetual debentures	Issued date	Periods	Interest rate (% per annum)
No. 1/2018	28 December 2018	From the issue date to (but not including) the first date of the redemption right	8.75% per annum
		From the first date of the redemption right to (but not including) the 10th anniversary from the issue date	Sum of (a) 5-year government bond yields (b) Initial Credit Spread equals to 6.52% per annum (c) 0.25% per annum
		From the 11th year from the issue date onwards	Sum of (a) 5-year government bond yields (b) Initial Credit Spread equals to 6.52% per annum (c) 0.50% per annum which the interest rate will be adjusted every 5 years based on the 5-year government bond yields at the second business day preceeding the adjustment date

30 Subordinated perpetual debentures (Cont'd)

The interest is paid quartery basis. The Company has the sole right to unconditionally defer interest and cumulative interest payments without time and number limitation based on the Company's discretion.

If the Company defers interest and the cumulative interest payment, the Company shall not:
(a) declare or pay any dividend; and
(b) pay any interest or distribute any assets to any holder of Parity Securities or Junior Securities; and
(c) redeem, reduce, cancel, acquire, or buy-back any securities issued by the Company which rank pari passu or junior to these debentures.

As at 31 December 2018, these subordinated perpetual debentures of totalling Baht 499.52 million, net of the issuance cost of Baht 0.48 million, were recognised as a part of equity in the consolidated and separate financial statements.

As at 31 December 2018, the Company has not deferred any interest payments to the subordinated perpetual debentures holders. Cumulative interest for the year ended 31 December 2018 which the debentures holders have the right to receive if the interest payment was announced amounting to Baht 0.48 million.

31 Earnings (loss) per share

31.1 Basic earnings (loss) per share

Basic earnings (loss) per share attributable to equity holders of the parent is calculated by dividing the net profit (loss) attributable to owners of the parent less cumulative interest for the years on subordinated perpetual debentures by the weighted average number of ordinary shares issued during the year.

	Consolidated financial statements		Separate financial statements	
	2018	**2017**	**2018**	**2017**
Profit (loss) attributable to owners of the parent (Baht)	(1,979,731,537)	52,558,961	(2,778,277,577)	(524,717,333)
Less cumulative interest for the year on subordinated perpetual debentures	(479,452)	-	(479,452)	-
Profit (loss) used in calculation of basic earnings per share	(1,980,210,989)	52,558,961	(2,778,757,029)	(524,717,333)
Weighted average number of ordinary shares in issue (Shares)	580,558,904	560,000,000	580,558,904	560,000,000
Basic earnings (loss) per share (Baht)	(3.41)	0.09	(4.79)	(0.94)

31 Earnings (loss) per share (Cont'd)

31.2 Diluted earnings (loss) per share

Diluted earnings (loss) per share is calculated by adjustment the weighted average number of ordinary shares in issue to assume conversion of all dilutive potential ordinary shares to ordinary shares. The Company's dilutive potential ordinary shares is warrants. A calculation is done to determine the number of shares that could have been acquired at market price (determined as the average share price of the Company's shares during the period) based on the outstanding warrants to determine the number of potential ordinary shares would have been additionally issued. The potential shares are added to the ordinary shares outstanding but no adjustment is made to net profit (loss). However, the warrants has no dilutive effect to basic earnings (loss) per share because the exercise price of warrants are higher than the average market price of ordinary shares during the year.

	Consolidated financial statements		Separate financial statements	
	2018	**2017**	**2018**	**2017**
Diluted earnings (loss) per share				
Profit (loss) attributable to owners of the parent (Baht)	(1,979,731,537)	52,558,961	(2,778,277,577)	(524,717,333)
Less cumulative interest for the year on subordinated perpetual debentures	(479,452)	-	(479,452)	-
Profit (loss) used in calculation of basic earnings per share	(1,980,210,989)	52,558,961	(2,778,757,029)	(524,717,333)
Weighted average number of ordinary shares in issue (Shares)	580,558,904	560,000,000	580,558,904	560,000,000
Adjustment for warrant (Shares)	-	-	-	-
Weighted average number of ordinary shares diluted earnings per share (Shares)	580,558,904	560,000,000	580,558,904	560,000,000
Diluted earnings (loss) per share (Baht)	(3.41)	0.09	(4.79)	(0.94)

During the year ended 31 December 2018, the warrants to purchase the issued shares had no effect to diluted earnings (loss) per share.

32 Dividends

At the Annual General Meeting of the Shareholders on 27 April 2018, the shareholders approved no payment of dividend from the operating result of 2017.

At the Annual General Meeting of the Shareholders on 7 April 2017, the shareholders approved a dividend payment for 2016 at Baht 0.42 per share totalling Baht 235.20 million. The Company paid interim dividends in September 2016 at Baht 0.20 per share for 560 million shares, totalling Baht 112 million. The remaining dividends of Baht 0.22 per share for 560 million shares, totalling Baht 123.20 million, were paid to the shareholders on 4 May 2017.

33 Other income

	Consolidated financial statements		Separate financial statements	
	2018 Baht	**2017 Baht**	**2018 Baht**	**2017 Baht**
Interest income	159,624,305	199,165,545	46,149,781	66,225,053
Gain from disposal equipment	3,848,317	185,647	3,848,317	185,652
Gain from disposal a subsidiary	360,600,107	-	-	-
Compensation from insurance claim	148,588,128	238,105,203	293,634	1,126,250
Dividend income (Note 15)	-	-	238,602,711	-
Other income	31,652,583	26,630,677	5,138,723	3,711,201
Total	704,313,440	464,087,072	294,033,166	71,248,156

34 Income tax

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Current tax	8,964,551	10,849,191	-	3,326,441
Deferred tax (Note 25)	(163,057,285)	(79,495,421)	(157,624,010)	(106,274,569)
Total tax expense	(154,092,734)	(68,646,230)	(157,624,010)	(102,948,128)

The tax on the Group's profit before tax differs from the theoretical amount that would arise using the basic tax rate of the home country of the Company as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Profit (loss) before tax	(2,163,851,766)	26,382,863	(2,935,901,587)	(627,665,461)
Tax rate	20%	20%	20%	20%
Tax calculated at a tax rate	(432,770,353)	5,276,573	(587,180,317)	(125,533,092)
Tax effect of:				
Income not subject to tax	(170,908,784)*	(135,167,123)*	(47,720,542)	(16,443)
Profit from disposal of subsidiary	(70,164,712)	-	-	-
Expenses not deductible for tax purpose	496,983,065	41,037,871	479,950,897	26,408,927
Tax losses for which no deferred income tax asset was recognised	17,302,872	8,611,368	-	-
Share of profit of associate	(4,514,863)	(3,692,459)	-	-
Share of profit of joint venture	(134,759)	(146,909)	-	-
Employee benefit obligation	(2,884,318)	(3,825,260)	(2,884,318)	(3,825,260)
Unrealised (gain) loss on exchange rate	16,151,512	(3,456,440)	129,635	600,893
Fixed assets and construction in progress	(540,523)	2,260,080	-	(41,321)
Remeasurement of deferred tax - change in tax rate	(8,132,541)	-	-	-
Tax effect from different tax rates of foreign entities	5,520,670	20,456,069	80,635	(541,832)
Tax charge	(154,092,734)	(68,646,230)	(157,624,010)	(102,948,128)

* As at 31 December 2018, result of the accounting profit multiplied by the tax rate of Baht 88.45 million is calculated from the profit under tax exemption from foreign source income and Baht 80.42 million from the profit under promotional privileges from the Board of Investment for period of 5 years after the Group issued the first sales invoice.

* As at 31 December 2017, result of the accounting profit multiplied by the tax rate of Baht 81.45 million is calculated from the profit under tax exemption from foreign source income and Baht 52.65 million from the profit under promotional privileges from the Board of Investment for period of 5 years after the Group issued the first sales invoice.

On 5 February 2018, the Revenue Department approved the company's international headquarters (IHQ) application. Its IHQ operations are management and administrative support services and technical support services. The tax privileges period is 15 accounting periods to the year ending 31 December 2032, starting from the first accounting period, which runs from 1 February to 31 December 2018. If the Company doesn't meet the privilege requirements in any accounting period, the tax privileges is suspended for only that accounting period.

The weighted average applicable tax rate for the Group and the Company was 7% and 5%, respectively (2017: 260% and 16%, respectively).

34 Income tax (Cont'd)

The tax (charge)/credit relating to component of other comprehensive income is as follows:

	Consolidated financial statements					
	2018			2017		
	Before tax Baht	Tax credit Baht	After tax Baht	Before tax Baht	Tax credit Baht	After tax Baht
Share of other comprehensive income of associate	280,356	-	280,356	-	-	-
Remeasurement on retirement benefit obligations	32,642,836	(6,528,567)	26,114,269	7,488,068	(1,497,614)	5,990,454
Currency translation differences	(50,475,224)	-	(50,475,224)	(455,350,979)	-	(455,350,979)
Other comprehensive income	(17,552,032)	(6,528,567)	(24,080,599)	(447,862,911)	(1,497,614)	(449,360,525)
Current tax		-			-	
Deferred tax (Note 25)		(6,528,567)			(1,497,614)	
		(6,528,567)			(1,497,614)	

	Separate financial statements					
	2018			2017		
	Before tax Baht	Tax credit Baht	After tax Baht	Before tax Baht	Tax credit Baht	After tax Baht
Remeasurement on retirement benefit obligations	32,642,836	(6,528,567)	26,114,269	7,488,068	(1,497,614)	5,990,454
Currency translation differences	(14,181,877)	-	(14,181,877)	(132,734,176)	-	(132,734,176)
Other comprehensive income	18,460,959	(6,528,567)	11,932,392	(125,246,108)	(1,497,614)	(126,743,722)
Current tax		-			-	
Deferred tax (Note 25)		(6,528,567)			(1,497,614)	
		(6,528,567)			(1,497,614)	

35 Expenses by nature

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Construction supplies and subcontractor charges	5,715,229,393	5,016,096,885	2,813,419,867	3,527,577,009
Salaries, wages and other employee benefits	1,835,511,543	2,253,117,531	1,363,958,568	1,898,753,955
Consultant expenses	86,877,135	42,701,831	92,042,279	48,633,294
Rental expenses	205,300,455	290,476,359	185,459,016	267,519,592
Depreciation and amortisation expenses	40,483,203	49,759,194	21,840,266	29,088,039
Bad debt	118,611,939	-	118,611,939	-
Allowance for doubtful debt	1,324,508,743	-	1,330,928,655	-

36 Finance costs

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Interest charges	461,839,036	419,420,642	301,973,948	254,237,527
Total finance costs	461,839,036	419,420,642	301,973,948	254,237,527

37 Financial instruments

a) Financial assets and financial liabilities

As at 31 December, the Company and the subsidiary had outstanding balances of financial assets and financial liabilities denominated in foreign currencies as follows:

(Unit : Baht/foreign currencies)

	Consolidated financial statements		Separate financial statements		Exchange rate	
					As at 31 December 2018	
Currencies	Financial assets	Financial liabilities	Financial assets	Financial liabilities	Buying	Selling
United State Dollar	2,713,231,918	2,615,369,771	1,119,310,343	932,111,546	32.2848	32.6148
Yen Japan	24,517,596	2,497,734	24,324,944	2,497,734	0.2892	0.2970
Euro	496,063,761	4,240,140	468,718,537	2,647,671	36.7620	37.4884
Singapore Dollar	3,550,752	8,958,870	1,199,355	4,134,625	23.4165	23.9720
Swiss Franc	-	16,270,272	-	16,270,272	32.5851	33.2639
Sweden Krona	179,785,331	321,395,851	-	-	3.5659	3.6428
Malaysia Ringgit	326,588,271	46,954,433	-	-	7.6965	7.9146
Myanmar Kyat	15,687,940	9,536,102	-	-	0.0208	0.0210
Riyal Qatar	4,761,381	1,707,870	4,761,381	1,707,870	8.8663	8.9569
Vietnamese Dong	69,882,611	78,045,838	69,882,611	78,045,838	0.0014	0.0014
Kip Laos	876,894	1,015,150	860,925	-	0.0038	0.0038
Baht Thailand	3,384,036	14,193,230	6,700	-	1.0000	1.0000

(Unit : Baht/foreign currencies)

	Consolidated financial statements		Separate financial statements		Exchange rate	
					As at 31 December 2017	
Currencies	Financial assets	Financial liabilities	Financial assets	Financial liabilities	Buying	Selling
United State Dollar	1,764,530,566	1,800,605,115	2,708,815,921	1,490,521,236	32.5146	32.8472
Yen Japan	358,350,601	9,650,335	308,813	9,650,335	0.2860	0.2936
Euro	520,884,020	502,274,915	496,423,932	59,300,504	38.6607	39.3938
Singapore Dollar	5,630,180	4,373,020	-	826,392	24.1711	24.7294
Philippines Peso	1,116,678	7,778	1,116,678	7,778	0.6433	0.6678
Sweden Krona	777,184,492	388,225,541	-	10,678,938	3.9257	4.0025
Malaysia Ringgit	1,139,119,733	311,045,822	-	-	7.9427	8.1741
Myanmar Kyat	27,483,560	1,008,440	-	-	0.0238	0.0240
Riyal Qatar	6,564,387	1,535,259	6,564,387	1,535,259	8.9301	9.0215
Kip Laos	1,406,950	31,083,276	1,389,946	31,083,276	0.0039	0.0039
Baht Thailand	4,580,341	1,173,854	-	-	1.0000	1.0000

37 Financial instruments (Cont'd)

b) Foreign currency risk

As at 31 December 2018, the Group had forward foreign exchange contracts amounting to USD 1.00 million. The settlement dates on open forward contracts not over 59 days. Amounts in US dollar to be settled and contractual exchange rates of the outstanding contracts were as follow:

	Consolidated financial statements		Separate financial statements	
As at 31 December	**2018**	**2017**	**2018**	**2017**
US dollars :				
- Average exchange rate (Baht/US dollars)	32.4031-32.9538	-	32.4031-32.9538	-
- Foreign currency (US dollars)	1,000,000.00	-	1,000,000.00	-
- Local currency ('000 Baht)	32,614.80	-	32,614.80	-

c) Fair values

The carrying amount of cash and cash equivalents, deposits of financial institution pledged as collateral, accounts receivable, amounts due from related parties, accounts payable, amount due to related parties, short-term loans from financial institution and related parties approximates the fair value due to the short maturities.

Financial assets under concession arrangement

The fair values of financial assets under concession arrangement with fixed interest rates have been calculated from the net present value of future cash flows discounted by market interest rates using rates at the date of financial statements (This is a level 2 fair value measurement).

The fair value of financial assets under concession arrangement as at 31 December 2018 as follows:

	Consolidated financial statements		Separate financial statements	
	Contract Baht	**Fair value Baht**	**Contract Baht**	**Fair value Baht**
Financial assets under concession arrangement	4,896,187,743	3,342,158,311	-	-

Long-term loan to related party and amount due from related party

The fair values of certain long-term loan to related party and amount due from related party with fixed interest rates have been calculated from the net present value of future cash flows discounted by market interest rates using rates at the date of financial statements (This is a level 2 fair value measurement).

The fair values of certain long-term loan to related party and amount due from related party as at 31 December 2018 are as follows:

	Consolidated financial statements		Separate financial statements	
	Contract Baht	**Fair value Baht**	**Contract Baht**	**Fair value Baht**
Long-term loan - related party	-	-	13,266,039	7,605,865
Account receivable - related party	-	-	22,762,065	5,000,209

37 Financial instruments (Cont'd)

c) Fair values (Cont'd)

Long-term loans and account receivable third parties

The net fair values of certain long-term loans and account receivable third parties with fixed interest rates have been calculated from the net present value of future cash flows discounted by market interest rates using rates at the statement of financial position date (This is a level 2 fair value measurement).

The net fair values of certain long-term loans and account receivable third parties as at 31 December 2018 are as follows:

	Consolidated financial statements		Separate financial statements	
	Contract Baht	Fair value Baht	Contract Baht	Fair value Baht
Long-term loans - third party	278,763,468	260,488,935	278,763,468	260,488,935
Account receivable - third parties	165,116,122	150,014,998	165,116,122	150,014,998

Long-term loans from financial institutions and unsubordinated and unsecured debentures

The net fair values of long-term loans from financial institutions and unsubordinated and unsecured debentures with fixed interest rates have been calculated from the net present value of future cash flows discounted by market interest rates using rates at the date of financial statements (This is a level 2 fair value measurement).

The net fair values of certain long-term loans from financial institutions and unsubordinated and unsecured debentures with fixed interest rates as at 31 December 2018 are as follows:

	Consolidated financial statements		Separate financial statements	
	Contract Baht	Fair value Baht	Contract Baht	Fair value Baht
Long-term loans from financial institutions	1,882,088,400	1,752,723,540	-	-
Unsubordinated and unsecured debentures	4,575,000,000	4,358,459,744	4,575,000,000	4,358,459,744

Interest rate swap contract

The fair value of interest rate swap contract is calculated using rates quoted by the Company's bankers as though the contract is terminated at the statement of financial position date (This is a level 2 fair value measurement).

The fair values of the derivative financial instruments at the statement of financial position date were:

	Baht
Favourable forward foreign exchange contracts	5,598,580
Unfavourable forward foreign exchange contracts	-

Foreign exchange forward contract

The fair value of foreign exchange forward contract is calculated using rates quoted by the Company's bankers as though the contract is terminated at the statement of financial position (This is a level 2 fair value measurement).

The fair values of the derivative financial instruments at the statement of financial position date were:

	Baht
Favourable forward foreign exchange contracts	531,647
Unfavourable forward foreign exchange contracts	-

38 Commitments and contingent liabilities

As at 31 December 2018, the Group had commitments and contingent liabilities including contracts as follows:

1) Operating leases and services commitments

The Group have entered into lease agreements in respect of the lease of office building space and services and the rental of vehicles. As at 31 December 2018 and 2017, the non-cancellable rental payable under these contractual obligations is as follows:

Paid within	2018 Million Baht	2017 Million Baht
1 year	55.30	99.23
2 - 5 years	25.65	47.89
Later than 5 years	12.39	13.14
Total	93.34	160.26

2) Guarantees

2.1) As at 31 December 2018, the Company has guaranteed bank credit facilities of its subsidiary up to USD 42 million or equivalent to Baht 1,369.82 million (2017: to USD 39.50 million or equivalent to Baht 1,297.46 million) and MYR 148 million or equivalent to Baht 1,171.36 million (2017: MYR 148 million or equivalent to Baht 1,210 million).

2.2) As at 31 December 2018, the Group had outstanding bank guarantees in respect of certain performance bond and contractual performance as follows:

2.2.1) Letter of guarantee for contractual performance as required in the normal course of the business of the Group amounting to USD 202.96 million (2017: USD 224.49 million) or equivalent to approximately Baht 6,606.78 million (2017: Baht 7,347.72 million) and Baht 2,593.45 million and SEK 191.04 million (2017: Baht 3,119.98 million and SEK 251.80 million or equivalent to approximately Baht 986.80 million) and MYR 3.29 million.

2.2.2) Letter of guarantee for electricity use and others amounting to Baht 7.05 million (2017: Baht 5.10 million) and letter of guarantee to guarantee litigation case in court of Baht 12.67 million (2017: Baht 12.70 million).

3) Litigations

As at 31 December 2018, the Group had no any new litigations except for the update litigations from 2017 as follows:

3.1) The plaintiff as subcontractor has filed a plaint claiming that the Company has defaulted on the agreement for payment of additional costs for a construction project, the Plaintiff claimed for Baht 18.79 million. The Court of First Instance had made the judgement to order the Company to pay a total of Baht 8.88 million plus 7.50% per annum from 3 May 2014 until the entire amount has been settled. Both parties filed appeal, the Court of Appeal had made judgement to confirm the Lower Court judgment. Both parties then filed appeal to the Supreme Court. The case is under consideration of the Supreme Court of which shall take approximately 1 to 3 years to declare the final judgement. The management has appropriately recorded the provision in 2017 for this lawsuit.

38 Commitments and contingent liabilities (Cont'd)

3) Litigations (Cont'd)

3.2) The product dealer, who sold the concrete to the Company for the construction project, has filed and claimed that the Company has not paid invoices. The Company had refused to pay those invoices due to the low quality of the concrete supplied which has caused damage to the Company. The product dealer filed this case and claimed damages of Baht 12.53 million plus interest of 7.50% per annum to the International Court of Arbitration (ICC) in accordance with ICC's terms and conditions. However, the Company has filed an answer and counter-claim of Baht 172.73 million plus interest of 7.50% per annum due to the damage from the low quality of the concrete supplied. The Company has also called the concrete's manufacturer and distributor as joinder with the product dealer to be jointly liable on the damage to the Company. ICC has appointed the sole arbitrator as the arbitral tribunal to decide the case.

Subsequently, the concrete's manufacturer and distributor has filed and claimed against the Company and the arbitrator for damages of Baht 1,275 million. The defense is that: a) the Company dishonestly filed to the concrete's manufacturer and distributor as joinder with the product dealer to be liable with the Company due to low quality concrete supplied to the Company and b) the ICC's officer has dishonestly filed by accepting the request which has caused the manufacturer and distributor damages. However, the Company and the ICC officer have filed a statement of defense against all accusations and affirmed that they have taken honest and fair action according to the law and regulations that are imposed.

As at 1 October 2018, ICC finalised the case between the Company and the product dealer and decided that the Company should pay the concrete price plus interest of Baht 16.83 million and legal costs of Baht 3.85 million to the product dealer. The Company recorded this expenses in fourth quarter of 2018.

For the case between the Company and the concrete's manufacturer and distributor, the Court had finished the trial proceedings of witnesses of both parties and made appointment for hearing the judgement on 28 February 2019. The Civil Court has dismissed for the case. However, the concrete's manufacturer and distributor is able to file an appeal to Appeal Court within the specific period.

3.3) On 11 May 2015, the Company (as claimant) submitted the statement of claim to Thai Arbitration Institute, Office of Judiciary ("TAI"), against a project owner for construction in Maptaphut Industrial Estate (as respondent) for liable as follows: a) payment of outstanding fees and costs in the amount of Baht 461.87 million plus USD 0.08 million as well as the default interest at the rate of 7.50% per annum and claim for additional in amount of Baht 376.24 million b) return the bank guarantees and the retention bonds to the claimant c) payment of bank guarantees and retention bonds fees which the claimant has had to pay to the bank during the period where the respondent had no right to hold and not return such them to the claimant and d) pay compensation for the lawyer's fees and arbitration fees and expenses. The arbitral tribunal has determined the specific issues in dispute of the case on 28 April 2017. On the same date, the arbitral tribunal dismissed the additional statement of claim with regard on the additional claim amount of Baht 376.24 million. On 19 January 2018, the Parties submitted their Witnesses statements with TAI and the Tribunal. TAI extent the schedule to proceed with the examination of evidence until 31 August 2018.

3.3) However, the respondent has submitted the statement of defense and counter-claim in response to the statement of claims as follows: a) the claimant failed to achieve its performance of works by the guaranteed milestones and as a result would be liable to the liquidated damages in an amount of USD 6.11 million and Baht 198.50 million plus the default interest at the rate of 7.50% per annum b) the respondent claims for the negative change order in amount of Baht 67.47 million plus the default interest at the rate of 7.50% per annum c) the respondent claims for the equipment failure claim in the amount of Baht 18.25 million plus the default interest at the rate of 7.50% per annum.

However, on 16 August 2018 the Company and the respondent have agreed to settle the dispute through a settlement agreement and no objection to the statement of request. TAI remove this case from the ongoing dispute list.

38 Commitments and contingent liabilities (Cont'd)

3) Litigations (Cont'd)

3.4) The claimant had provided services to the Company by dispatching technicians from Japan to Thailand to supervising for undertaking and inspection and start-up and commissioning for machines and dispatching technicians for electric support works. The Company also purchased Sight Glass from the claimant. However, the Company is in default of all payments.

As a result, the claimant made the following claims against the Company arising from such breach; a) payment for outstanding service fees and purchase price in the amount of JPY 22,552,000 b) including defaulting interest at the rate of 7.50% per annum c) legal fees in connection with this arbitration proceeding in the amount of USD 45,000 d) costs and disbursement of this arbitration and e) other relief, which the arbitral tribunal deems fit. The Company filed the answer to request and counterclaims against the claimant, stating that the Company is not liable for such damages and have counter-claim for a total of Baht 0.53 million due to defects arising out of claimant's goods. The Company received a copy of Final Award on 2 January 2018 which the orders of the tribunal are as follows; 1) The Company is to pay the Claimant in the sum of JPY 17,917,000 (the overtime fees was dismissed) including the interest at the rate of 7.50% per annum from 28 November 2014 until fully paid within 30 days of this Final award 2) The Company's counterclaim on the claimant's liable for defects arising out of its goods was dismissed. The management has appropriately recorded the provision in 2017 for this lawsuit.

Due to the effective date of Final award was unclear, the Company submitted an application dated 24 January 2018 for the clarification of the award. Afterwards, the Tribunal rendered the Addendum of the Final Award dated 21 March 2018. On the same date, the Company filed a motion for setting aside the Final Award with the Intellectual Property and International Trade Court. Afterwards, on 20 August 2018, the Court ordered to combine two cases together and scheduled hearing for the Claimant witness on 11 and 12 June 2019 and the Respondent witness on 13 and 14 June 2019.

39 Significant contracts

Interest rate swap contract

On 30 December 2014, the Group entered into an Interest Rate Swap contract to manage the exposure of its floating rate loan to interest rate risk from long-term loan amount of USD 10 million. With the IRS contract, the Company receives interest at a floating rate based on 3-month LIBOR plus certain margin per annum and pays interest at a fixed rate of 1.99 % per annum from 5 January 2015 to 17 December 2021.

On 21 January 2015, the Group entered into an Interest Rate Swap contract to manage the exposure of its floating rate loan to interest rate risk from long-term loan amount of USD 10 million. Under the IRS contract, the Group received interest at a floating rate based on 3-month LIBOR plus certain margin per annum and paid interest at a fixed rate of 1.40 % per annum from 23 January 2015 to 17 January 2020.

Power purchase agreement

Bio Natural Energy Co., Ltd., a subsidiary, entered into power purchase agreement dated 9 February 2011 with Provincial of Electricity Authority. The term of this agreement began on the agreement date and will continue for 5 years and automatically continue 5 years and effective until terminated the agreement.

Service concession arrangements

Toyo Thai-Power Myanmar Corporation Ltd., a subsidiary, agreed into Power Purchase Agreement dated 15 May 2013 with Ministry of Electric of Myanmar. The term of this agreement began on the agreement date and will continue for 30 years from the commercial operation date at the rate and formula specified in the agreement. The Group has obligations to supply minimum quantities of electricity and steam to customers in each contract year. If in any contract year, the customers have not taken the minimum quantities of electricity according to the Power Purchase Agreements, customers shall pay for quantities of electricity and steam not taken ("Take-or-Pay"). The quantities of electricity that the customers have paid for but have not taken in that year ("Make-up") can be taken free of charge in subsequent years. Under the concession arrangement, the Group must deliver the specified assets to the grantor at the end of concession period (Built-Operate-Transfer). In addition, the Group has obligation for major overhaul every three years.

39 Significant contracts (Cont'd)

Land rental contract

Toyo Thai-Power Myanmar Corporation Ltd., a subsidiary, entered into land rental contract with Ministry of Electric of Myanmar. The term of this agreement began on the agreement date and will continue for 30 years from 15 May 2013 onwards.

Form 56-2 Checklist

	Page (s)
1. Overall policy and business operation	2-3
2. The Nature of Business and Services	18-21
3. Risk Management	67-68
4. Company Information	Inside Back Cover
5. Shareholders and Number of Shares	56-58
6. The Company's Dividend Policy	160
7. Organization	22
8. Good Corporate Governance	69-88
9. Occupational Health, Safety and Environmental 96-101 Implementation	91-98
10. Corporate Social Responsibility	99-151
11. The Internal Control and Risk Management	89-90
12. Connected Transactions	153-159
13. Financial Highlights	6
14. Management Discussion and Analysis	162-166

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GRI Content Index

GLOBAL REPORTING INITIATIVE (GRI)

GRI Standard	Description	Page
Organizational Profile		
GRI 102-1	Name of the organization	Cover
GRI 102-2	Activities, brands, products, and services	2-3
GRI 102-3	Location of headquarters	Back Cover
GRI 102-4	Location of operations	2-3
GRI 102-5	Ownership and legal form	2-3
GRI 102-6	Markets served	2-3
GRI 102-7	Scale of the organization	4-5
GRI 102-8	Information on employees and other workers	110
GRI 102-9	Supply chain	134-136
GRI 102-12	External initiatives	147-151
Strategy		
GRI 102-14	Statement from senior decision-maker	9
GRI 102-15	Key impacts, risks, and opportunities	2-3
Ethics and Integrity		
GRI 102-16	Values, principles, standards, and norms of behavior	69-88
GRI 102-17	Mechanisms for advice and concerns about ethics	73-76
Governance		
GRI 102-18	Governance structure	89
GRI 102-19	Delegating authority	52-53
GRI 102-22	Composition of the highest governance body and its committees	81-85
GRI 102-23	Chair of the highest governance body	52-53
GRI 102-24	Nominating and selecting the highest governance body	82-84
GRI 102-26	Role of highest governance body in setting purpose, values, and strategy	69
GRI 102-27	Collective knowledge of highest governance body	69-88
GRI 102-28	Evaluating the highest governance body's performance	84
GRI 102-30	Effectiveness of risk management processes	67-68
GRI 102-32	Highest governance body's role in sustainability reporting	69-88
Stakeholder Engagement		
GRI 102-40	List of stakeholders groups	131
GRI 102-41	Collective bargaining agreements	132-134
GRI 102-42	Identifying and selecting stakeholders	132-134
GRI 102-43	Approach to stakeholder engagement	132-134

GRI Standard	Description	Page
Reporting Practice		
GRI 102-45	Entities included in the consolidated financial statements	167-250
GRI 102-50	Reporting period	168
GRI 102-51	Date of most recent report	167
GRI 102-52	Reporting cycle	168
GRI 102-54	Claims of reporting in accordance with the GRI Standards	129-130
GRI 102-55	GRI content index	252-253
GRI 201 : Economic Performance 2016		
GRI 201-1	Direct economic value generated and distributed	111-112
GRI 203 : Indirect Economic Impacts 2016		
GRI 203-1	Infrastructure investment and services supported	123-127
GRI 203-2	Significant indirect economic impacts	123-126
GRI 205 : Anti-Corruption 2016		
GRI 205-1	Operations assessed for risks related to corruption	76-77
GRI 205-2	Communication and training about anti-corruption policies and procedures	76-77
GRI 206 : Anti-competitive Behavior 2016		
GRI 206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	74
GRI 302 : Energy 2016		
GRI 302-4	Reduction of energy consumption	96-97
GRI 306 : Effluents and Waste 2016		
GRI 306-1	Water discharge by quality and destination	95-96
GRI 306-2	Waste by type and disposal method	95-96
GRI 401 : Employment 2016		
GRI 401-1	New employee hires and employee turnover	109-111
GRI 401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	109
GRI 401-3	Parental leave	109

GRI Standard	Description	Page
GRI 403 : Occupational Health and Safety 2018		
GRI 403-1	Occupational health and safety management system	91-92, 142, 147
GRI 403-2	Hazard identification, risk assessment, and incident investigation	143
GRI 403-4	Worker participation, consultation, and communication on occupational health and safety	143-144, 147
GRI 403-5	Worker training on occupational health and safety	95-96, 144-146
GRI 403-6	Promotion of worker health	146
GRI 403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	94, 142-143
GRI 403-9	Work-related injuries	93, 98
GRI 404 : Training and Education 2016		
GRI 404-1	Average hours of training per year per employee	117
GRI 404-2	Programs for upgrading employee skills and transition assistance programs	116
GRI 404-3	Percentage of employees receiving regular performance and career development reviews	110
GRI 405 : Diversity and Equal Opportunity 2016		
GRI 405-1	Diversity of governance bodies and employees	110
GRI 405-2	Ratio of basic salary and remuneration of women to men	111-112
GRI 410 : Security Practices 2016		
GRI 410-1	Security personnel trained in human right policies or procedures	113-114
GRI 412 : Human Rights Assessment 2016		
GRI 412-2	Employee training on human rights policies or procedures	117
GRI 413 : Local Communities 2016		
GRI 413-1	Operations with local community engagement, impact assessments, and development programs	123-130
GRI 414 : Supplier Social Assessment 2016		
GRI 414-2	Negative social impacts in the supply chain and actions taken	134-136

Company Profile

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Registration No.	:	0107551000185
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Paid-up Capital	:	616,000,000.00 Baht
Par Value	:	1.00 Baht
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