

รายงานประจำปี ๒๕๖๒

annual

report 2019



T P I M A R B L E
DECORATIVE WALL AND FLOOR SOLUTION



บริษัท ทีพีโอ โพลีน จำกัด (มหาชน)
TPI POLENE
Public Company Limited



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Investors can access the information of the Company that issued security, from the annual report (form 56-1) of the Company through the website at www.sec.or.th





We Build the Future

The Company has consistently developed production efficiency to create competitive advantages in the organization as well as consistently developed corporate efficiency in all aspects of the business to keep pace with modern technology dynamics and new innovation. This is part of our policy to sustain financial stability and to consistently develop product innovations to be environmentally friendly with a focus on good corporate governance with social responsibility with an aim to create sustainability of return on investment. We build the future together.



Message from the Board of Directors

To: Shareholders

Dear Sirs,

The year 2019 and early 2020 have been times of challenges for TPI Polene Group, which was affected by the slowdown of the economy in the country and in the global market. These challenges included the China-United States trade war, the fluctuation of Thai Baht, the strict measurements and policies of Thai financial institutions in providing home loans for real estate purchases, and an ongoing outbreak of the Coronavirus disease 2019 (COVID-19), which first originated in China and has since been carried to other countries, including Thailand. All of these factors have directly affected Thailand's purchasing power in the real estate sector and in the construction industry.

TPI Polene understands that improving the working process to be in line with economic conditions and the dynamics of technological advances and new innovation are crucial in business today. Therefore, the Company has consistently improved the efficiency of our production process to create competitive advantages and maximize our investment potential so as to create sustainability within the Company Group. However, with the full cooperation of all members of the Company's staff and management team, the Company successfully pursued its business operations and achieved its objectives as planned.

Our Bright Operating Results in 2019

In 2019, the Company and its subsidiaries reported total revenues from sales of Baht 37,041 million compared with Baht 34,993 million in 2018, an increase of 5.85%. Total consolidated income in 2019 was Baht 39,268 million compared with Baht 37,315 million in 2018, an increase of 5.24%.

In 2019, the Company and its subsidiaries registered a profit for the year of Baht 2,765 million compared with the same in 2018 of Baht 1,425 million, an increase in profit of 94.05%, reflecting the Company's bright operating results in 2019.

New Products Development and Consistent Creation of New Products Innovation

TPI Polene still focuses on new product development to correspond to the wide-ranging effect of modern technology through online sales and modern trade centers. The Company also used modern technology to consistently respond to customers' demands in the market. This included tough board, as its properties are equivalent to natural wood and its weight is 40% lighter than traditional fiber cement. With a distinctly durable character, tough board can be cut, screwed or completely fill the pinholes/space on fiber cement sheets without erosion or cracks as it has better properties than traditional fiber cement. The fiber cement sheets can be suitably used to replace wood stiles, doors and windows, as well as in a variety of furniture work as fiber cement is manufactured to be long-lasting and saves costs and is more available as compared to wood. It is manufactured to ensure moisture endurance, flexibility, freedom from termites and insect infestation. Most importantly, TPIPL lightweight tough boards are toxic-free and safe for human beings.

The Company has also successfully developed and launched organic products to be used for households and in industries, such as high quality grease remover, dishwasher, hygienic soap, liquid hand soap, Biosan and Pro-vita, healthy beverage, etc.

Reduction of its paid-up capital by writing off the Company's unsold repurchase shares

On 24 July 2019, TPI Polene reduced its paid-up capital by writing off the Company's 19,180,500,000 unsold repurchase shares under the share repurchase scheme for financial management purpose. After the registration of the above changes, the Company's new registered capital reduced from Baht 20,190,000,000 to Baht 19,180,500,000, and was divided into 19,180,500,000 common shares, at the par value of Baht 1 each.

Share Repurchase Scheme In 2020

The Company's Board of Directors meeting no. 1/2563, held on 30 January 2020, passed a resolution to approve the Share Repurchase Scheme for Financial Management Purpose. The number of shares to be repurchased under the Scheme will be 383,610,000 shares, representing 2% of total issued and paid-up shares, with the maximum amount for the share repurchase of not greater than Baht 800,000,000. The repurchase period will be from 14 February 2020 to 13 August 2020.

Interim Dividend Payment of Baht 0.03 per share

With the Company's consistently improved operating performance and established sustainable return on investment to ensure shareholders' confident, the Company's Board of Directors meeting no. 11/2562, held on 28 November 2019, passed a resolution to approve the interim dividend payment from the Company's unappropriated retained earnings, at Baht 0.03 per share, totaling Baht 575,415,000 and the dividend payment date was scheduled for 26 December 2019.

Assigned Corporate Credit Rating as “BBB+” with a rating outlook revised upward to “Positive” from “Stable”

On 10 April 2019, TRIS Rating affirmed the Company rating on TPIPL as “BBB+” with a “Positive” outlook from “Stable”. The ratings also incorporated TRIS Rating’s expectation on an improving financial profile when all new power plants of TPI Polene Power achieve full-year operations. The current credit rating reflected TPIPL’s strong market position in the Thai cement market, diversified sources of revenue, and stable cash flows from the power generation business of TPI Polene Power.

Success of the Offering for Sale of Baht 17,930 million Debentures

During 2019-January 2020, TPI Polene Group successfully completed fund raising through the issuance and sale offering of debentures in total amount of Baht 17,930 million, with the TRIS affirmed credit rating of such debentures at BBB+, with an upward trend revised to a “Positive” outlook. The proceeds from the fund raising was utilized to refinance the matured debentures of Baht 10,750 million and for prepayment of outstanding debt for cement line 4 of Euro 107,683,591.41 (or an equivalent of Baht 3,700 million) in July 2019. The remaining Baht 3,480 million has been utilized for efficiency improvements of factories in power plants, the cement business and for working capital. To this end, TPI Polene Group has a policy to maintain financial stability in order to enhance stability and to constantly keep pace with economic and financial instability.

Consistently awarded the Industrial certificates

The current achievements in business operations of the Group has been reflected in the Company’s awards and certificates in 2019, such as the “Efficient Energy Saving Label” from the Department of Renewable Energy and Energy Conservation, and the Ministry of Energy and CSR-DIW Continuous Award 2019 (Standard for Corporate Social Responsibility from Department of Industrial Work), which we received for the 3rd consecutive year. These awards confirm TPI Polene Group’s strong commitment to consistently protect the surrounding environment while creating public well-being in surrounding communities.

The Company’s current success has been one of our proudest achievements as a Thai Corporation to be able to be competitive internationally. On behalf of the Company, the Company’s Board of Directors would like to take this opportunity to thank all related parties for a well-coordinated effort and their ongoing trust in the Company to create unswerving progress for the organization. It is a major goal of the management team and all levels of the Company’s staff to move the business forward to overcome obstacles to achieve the goal. We strengthened our growth potential so as to create sustainability within the group, to create stability for the organization, and to enhance the economic strength of the country. To this end, the Company realized the importance of conducting business operations by emphasizing the balanced consideration of all related parties, the fair treatment of all parties concerned, while supporting public well-being and consistently protecting the surrounding environment to further enhance the sustainable growth of the country.

Sincerely Yours,



A handwritten signature in black ink, appearing to read 'Khantchai Vichakkana'.

Mr. Khantchai Vichakkana
Chairman of the Board



A handwritten signature in black ink, appearing to read 'Prachai Leopairatana'.

Mr. Prachai Leopairatana
Chief Executive Officer

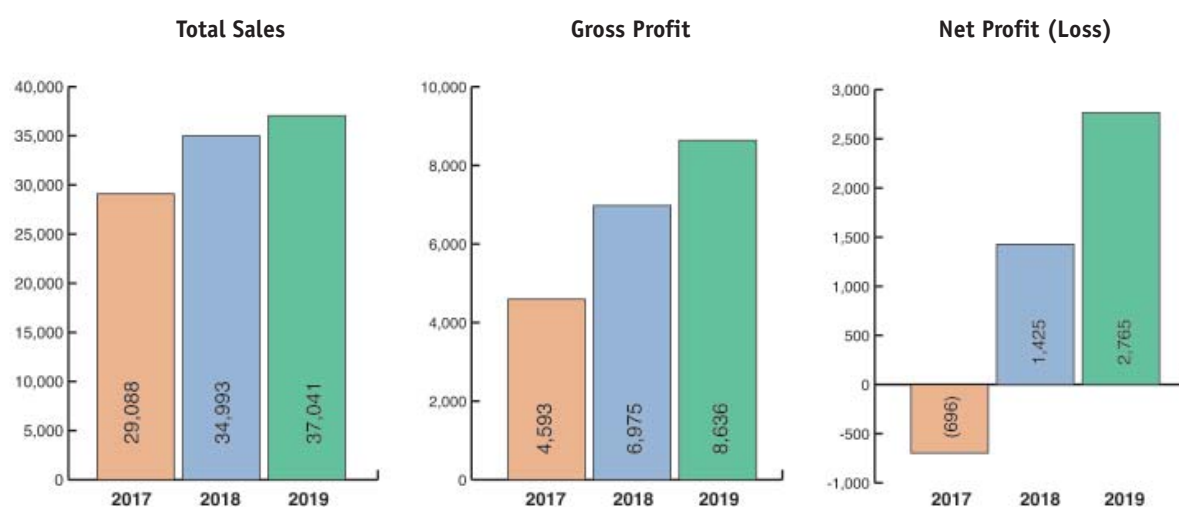
Financial Highlights

	Unit	2017	2018	2019
Operational Performance				
Total Revenues	(Baht Mil.)	30,996	37,315	39,268
Total Sales	(Baht Mil.)	29,088	34,993	37,041
Gross Profit	(Baht Mil.)	4,593	6,975	8,636
Operating Profit (Loss) before interest and income tax	(Baht Mil.)	547	2,980	4,297
Operating Profit (Loss) before income tax	(Baht Mil.)	(1,100)	1,261	2,338
Net Profit (Loss)	(Baht Mil.)	(696)	1,425	2,765
Financial Status				
Total Assets	(Baht Mil.)	103,178	110,488	114,368
Total Current Assets	(Baht Mil.)	24,195	28,391	25,378
Total Liabilities	(Baht Mil.)	51,092	59,551	62,875
Total Interest Bearing Debt	(Baht Mil.)	40,972	50,457	53,229
Total Shareholder's Equity	(Baht Mil.)	52,086	50,937	51,493
Key Financial Ratios				
Gross Profit Margin	(%)	15.79	19.93	23.32
Net Profit Margin	(%)	(2.25)	3.82	7.04
Paid-up Capital	(Baht Mil.)	20,190	20,190	19,181
Par value per share	(Baht)	1.00	1.00	1.00
Book Value per share	(Baht)	2.61	2.63	2.68
Earnings per Share	(Baht)	(0.063)	0.016	0.073
Dividend per Share	(Baht)	0.02	0.02	0.06
Dividend payout Ratio*	(%)	N/A	153.85	400.00
Debt to Equity Ratio	(times)	0.98	1.17	1.22
Net Debt to Equity Ratio**	(times)	0.85	1.00	1.12
Interest Bearing Debt to Equity Ratio	(times)	0.79	0.99	1.03
Net Interest Bearing Debt to Equity Ratio**	(times)	0.66	0.82	0.93

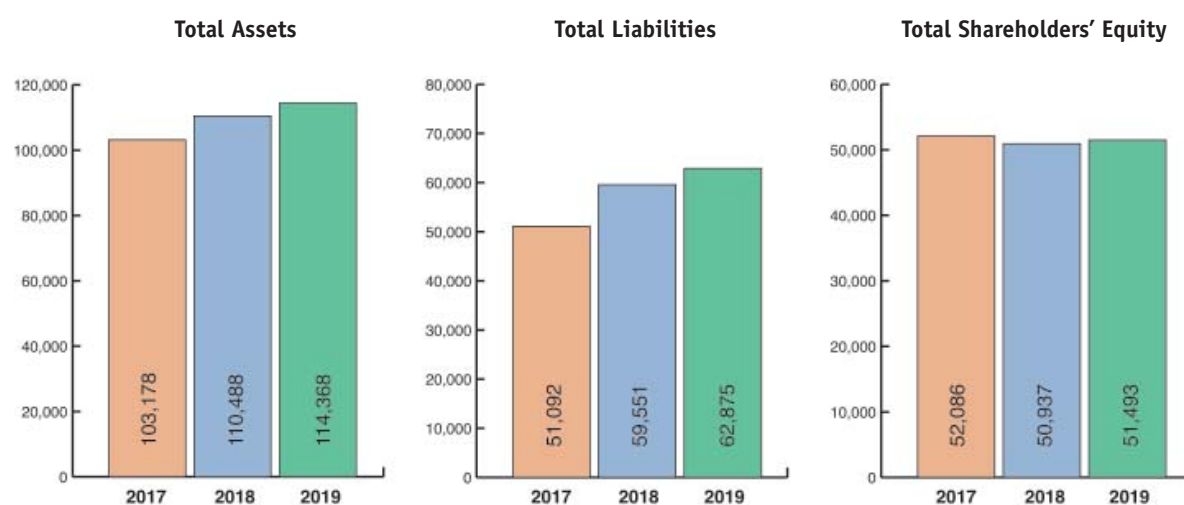
Remarks: * Based on Separate Financial Statements

** After deducting Cash and Cash Equivalent and Current Investments.

Total Revenues and Net Profit



Financial Status



Corporate Profile

Company's Name	: TPI Polene Public Company Limited
Abbreviation in the SET	: TPIPL
Registration Number	: 01075370000564 (formerly Bor. Mor. Jor. 303)
Nature of Business	: Manufacture and sale of cement, cement mortar, clinker, electricity, ready-mixed concrete, LDPE/EVA plastic resin, solar film, EVA emulsion, EVA powder, concrete roof tile, fiber cement, lightweight Concrete, industrial waste disposal, organic fertilizer and drinking water, etc.
Registered Capital	: Baht 24,815,000,000 Consisting of 24,815,000,000 ordinary shares, at the par value of Baht 1 each.
Paid-up Capital	: Baht 20,190,000,000 Consisting of 20,190,000,000 ordinary shares, at the par value of Baht 1 each.
Accounting Period	: January 1 - December 31
Location	
Head Office Location	: 26/56 Chan Tat Mai Road, Thungmahamek, Sathorn, Bangkok 10120
Tel. Number	: +66 (0) 2213-1039- 49, 285-5090-9
Fax Number	: +66 (0) 2213-1035, 213-1038
Web Address	: http://www.tpipolene.co.th
Cement Plant/Power Plant	: 299 Moo 5, Mittraparp Road, Tambol Tubkwang, Amphur Kangkhoy, Saraburi 18260
Cement Mortar Plant	
Lightweight Concrete Plant	
Pyrolysis and RDF Plant	
Tel. Number	: +66 (0) 3633-9111
Fax Number	: +66 (0) 3633-9228-30
LDPE/EVA Plant	: 299 Moo 5 Sukhumvit Road, Tambol Chuengnoen, Amphur Muang, Rayong 21000
Tel. Number	: +66 (0) 3861-1333
Fax Number	: +66 (0) 3880-2568
Concrete Roof Tiles and	: 77 Moo 7, within CRT Plant sub-road from Sai Ban Kork Street, Banlarkkaopoon and Highway no.1014,
Fiber Cement Plant	Tambol Ban Kang, Amphur Chaloem Phrakiat, Saraburi 18260
Tel. Number	: +66 (0) 3667-0370-5
Fax Number	: +66 (0) 3667-0377
Solar Film Plant	: 49/1 Moo 1, Phichainarong Songkham Road, Tambol Nachong, Amphur Muang Saraburi, Saraburi 18260
Tel. Number	: +66 (0) 3673-1724
Investors Relation Unit:	
Tel. Number	: +66 (0) 2213-1039 ext.12983 and 12985
Other Relevant Information:	
Share Registrars	: Thailand Securities Depository Company Limited
Office Location	: The Stock Exchange of Thailand, 93 Rajadapisek Road, Khwang Dindaeng, Dindaeng, Bangkok 10110
Tel. Number	: +66 (0) 2009-9000, call center +66 (0) 2009-9999
Fax Number	: +66 (0) 2009-9991

Debentures, Debentures Registrar and Debenture Holders' Representatives

Offering for Sale of Debentures on January 31, 2020

Debenture Series	Name	Type	Amount (MB)	Interest Rate (p.a.)	Issued Date	Maturity Date	Term
TPIPL207A	Debentures of TPI Polene Public Company Limited No.1/2017 Series 2 Due A.D.2020	Unsecured and Unsubordinated Debentures with a debentureholders' representative	2,000	3.50 %	7 Jul 2017	7 Jul 2020	3 Years
TPIPL208A	Debentures of TPI Polene Public Company Limited No.2/2015 Series 3 Due A.D.2020	Unsecured and Unsubordinated Debentures with a debentureholders' representative	2,205	4.65 %	5 Aug 2015	5 Aug 2020	5 Years
TPIPL214A	Debentures of TPI Polene Public Company Limited No.1/2016 Series 1 Due A.D.2021	Unsecured and Unsubordinated Debentures with a debentureholders' representative	1,600	4.35 %	1 Apr 2016	1 Apr 2021	5 Years
TPIPL218A	Debentures of TPI Polene Public Company Limited No.2/2015 Series 4 Due A.D.2021	Unsecured and Unsubordinated Debentures with a debentureholders' representative	3,600	4.90 %	5 Aug 2015	5 Aug 2021	6 Years
TPIPL224A	Debentures of TPI Polene Public Company Limited No.1/2016 Series 2 Due A.D.2022	Unsecured and Unsubordinated Debentures with a debentureholders' representative	1,200	4.60 %	1 Apr 2016	1 Apr 2022	6 Years
TPIPL228A	Debentures of TPI Polene Public Company Limited No.2/2015 Series 5 Due A.D.2022	Unsecured and Unsubordinated Debentures with a debentureholders' representative	4,000	5.20 %	5 Aug 2015	5 Aug 2022	7 Years
TPIPL234A	Debentures of TPI Polene Public Company Limited No.1/2016 Series 3 Due A.D.2023	Unsecured and Unsubordinated Debentures with a debentureholders' representative	2,645	4.80 %	1 Apr 2016	1 Apr 2023	7 Years
TPIPL214B	Debentures of TPI Polene Public Company Limited No.1/2018 Due A.D.2021	Unsecured and Unsubordinated Debentures with a debentureholders' representative	8,000	3.30 %	26 Apr 2018	26 Apr 2021	3 Years
TPIPL221A*	Debentures of TPI Polene Public Company Limited No.1/2019 Due A.D.2022	Unsecured and Unsubordinated Debentures with a debentureholders' representative	3,530	4.10 %	11 Jan 2019	11 Jan 2022	3 Years
TPIPL221B	Debentures of TPI Polene Public Company Limited No.2/2019 Series 3 Due A.D.2022	Unsecured and Unsubordinated Debentures with a debentureholders' representative	100	3.80 %	1 Mar 2019	31 Jan 2022	2 Years 10 Months 30 days
TPIPL231A	Debentures of TPI Polene Public Company Limited No.3/2019 Due A.D.2023	Unsecured and Unsubordinated Debentures with a debentureholders' representative	3,000	3.90 %	11 Jul 2019	11 Jan 2023	3 Years 6 Months
TPIPL251A	Debentures of TPI Polene Public Company Limited No.3/2019 Due A.D.2025	Unsecured and Unsubordinated Debentures with a debentureholders' representative	3,000	4.90 %	11 Jul 2019	11 Jan 2025	5 Years 6 Months
TPIPL231B	Debentures of TPI Polene Public Company Limited No.1/2020 Due A.D.2023	Unsecured and Unsubordinated Debentures with a debentureholders' representative	4,000	3.50 %	16 Jan 2020	16 Jan 2023	3 Years
		Total	39,280				
TPIPP21NA*	Debentures of TPI Polene Power Public Company Limited No.1/2018 Due A.D.2021	Unsecured and Unsubordinated Debentures with a debentureholders' representative	4,000	3.90 %	28 Nov 2018	28 Nov 2021	3 Years
TPIPP22NA	Debentures of TPI Polene Power Public Company Limited No.1/2019 Due A.D.2022	Unsecured and Unsubordinated Debentures with a debentureholders' representative	4,000	3.50 %	9 Aug 2019	9 Nov 2022	3 Years 3 Months
		Total	8,000				
		Total	47,280				

Event of Default

The Company and its subsidiaries have never had an occurrence of default or failure to pay debt principal and/or interest of debt instruments and/or unpaid debts and/or loans from any commercial banks, financial securities, creditancier companies, or financial institutions, established under the rules and regulations and has had no failure to perform to be in compliance with the provisions imposed during the past three years.

Debenture Registrar and Debenture Holders' Representative

Debentures	Debenture Registrar	Debenture Holders' Representative
Debentures of TPI Polene Public Company Limited No.2/2015 Series3 Due A.D.2020	CIMB Thai Bank Plc. 44, Langsuan Road, Lumpini Subdistrict, Pathumwan District, Bangkok 10330 Telephone +66 (0) 2626-7507-8, +66(0) 2626-7591 Fax +66(0) 2657-3390	CIMB Thai Bank Plc. 44, Langsuan Road, Lumpini Subdistrict, Pathumwan District, Bangkok 10330 Telephone +66 (0) 2626-7507-8, +66(0) 2626-7591 Fax +66(0) 2657-3390
Debentures of TPI Polene Public Company Limited No.2/2015 Series 4 Due A.D.2021		
Debentures of TPI Polene Public Company Limited No.2/2015 Series 5 Due A.D.2022		
Debentures of TPI Polene Public Company Limited No.1/2016 Series 1 Due A.D.2021		
Debentures of TPI Polene Public Company Limited No.1/2016 Series 2 Due A.D.2022		
Debentures of TPI Polene Public Company Limited No.1/2016 Series 3 Due A.D.2023		
Debentures of TPI Polene Public Company Limited No.1/2017 Series 2 Due A.D.2020		
Debentures of TPI Polene Public Company Limited No.1/2018 Due A.D.2021		
Debentures of TPI Polene Public Company Limited No.1/2019 Due A.D.2022	Bank of Ayudhya Plc. 1222, Rama 3 Road, Bang Phongphang Subdistrict, Yan Nawa District, Bangkok 10120 Telephone +66 (0) 2296-2000, +66 (0) 2296-5696 Fax +66 (0) 2683-1302	Bank of Ayudhya Plc. 1222, Rama 3 Road, Bang Phongphang Subdistrict, Yan Nawa District, Bangkok 10120 Telephone +66 (0) 2296-2000, +66 (0) 2296-5696 Fax +66 (0) 2683-1302
Debentures of TPI Polene Public Company Limited No.2/2019 Due A.D.2022	CIMB Thai Bank Plc. 44, Langsuan Road, Lumpini Subdistrict, Pathumwan District, Bangkok 10330 Telephone +66 (0) 2626-7507-8, +66(0) 2626-7591 Fax +66(0) 2657-3390	-
Debentures of TPI Polene Public Company Limited No.3/2019 Series 1 Due A.D.2023	CIMB Thai Bank Plc. 44, Langsuan Road, Lumpini Subdistrict, Pathumwan District, Bangkok 10330 Telephone +66 (0) 2626-7507-8, +66(0) 2626-7591 Fax +66(0) 2657-3390	Bank of Ayudhya Plc. 1222, Rama 3 Road, Bang Phongphang Subdistrict, Yan Nawa District, Bangkok 10120 Telephone +66 (0) 2296-2000, +66 (0) 2296-5696 Fax +66 (0) 2683-1302
Debentures of TPI Polene Public Company Limited No.3/2019 Series 2 Due A.D.2025		
Debentures of TPI Polene Public Company Limited No.1/2020 Due A.D.2023		
Debentures of TPI Polene Power Public Company Limited No.1/2019 Due A.D.2021	Bank of Ayudhya Plc. 1222, Rama 3 Road, Bang Phongphang Subdistrict, Yan Nawa District, Bangkok 10120 Telephone +66 (0) 2296-2000, +66 (0) 2296-5696 Fax +66 (0) 2683-1302	Bank of Ayudhya Plc. 1222, Rama 3 Road, Bang Phongphang Subdistrict, Yan Nawa District, Bangkok 10120 Telephone +66 (0) 2296-2000, +66 (0) 2296-5696 Fax +66 (0) 2683-1302
Debentures of TPI Polene Power Public Company Limited No.1/2019 Due A.D.2022	CIMB Thai Bank Plc. 44, Langsuan Road, Lumpini Subdistrict, Pathumwan District, Bangkok 10330 Telephone +66 (0) 2626-7507-8, +66(0) 2626-7591 Fax +66(0) 2657-3390	

Auditor

Statutory Auditor	: KPMG Phoomchai Audit Limited.
Office Location	: 1 Empire Tower, 48-50 th FL., South Sathorn, Yannawa Subdisrict, Sathorn District, Bangkok 10120
Telephone	: +66 (0) 2677-2000
Fax	: +66 (0) 2677-2222

Our Pride Awards in 2019



In 2019, TPI Polene Group has passed all assessments and was awarded and certified under Asian and National Standards as follows:

1. Efficient Energy Saving Label Award

On 14 January 2019, the Company received the “Efficient Energy Saving Label” from the Department of Renewable Energy and Energy Conservation, Ministry of Energy by surpassing standards in compliance with “the Project to promote highly efficient machinery and the use of materials for Energy Conservation with the Label Award”, in full accordance with energy saving codes.

2. CSR-DIW Continuous Awards (Standards for Corporate Social Responsibility Department of Industrial Work)

TPI Power Plc. won CSR-DIW Continuous Awards, under the category “Standards for Corporate Social Responsibility” 3 years, from the Department of Industrial Works, Ministry of Industry on 17 August 2017, 17 August 2018 and 23 September 2019 respectively.

3. Thailand Energy Award 2019

On 18 October 2019, TPI Polene received a “Thailand Energy Award 2019”, the outstanding performance reward in the category of “Innovation on Alternative Energy Project for renewable electricity generation among non-grid connected projects” from the Department of Alternative Energy Development and Efficiency under the Ministry of Energy.

4. Power Plants were certified International Standard System : ISO 9001:2015, ISO 14001:2015 and ISO50001:2011

All power plants of TPI Polene Power Public Company Limited were certified under the Quality Standard System, which can be summarized as follows:

International Standard System	Quality Standard System ISO 9001:2015	Environmental Standard System ISO 14001:2015	Energy Management System ISO 50001:2011
Waste heat recovery power plants and an RDF-fired power plant (TG4&6)	Awarded on 12 September 2019	Awarded on 12 September 2019	
Mixed fuel-fired Power Plant (TG7)	Awarded on 12 September 2019	Awarded on 12 September 2019	
Coal-fired Power Plant (TG8)	Awarded on 12 September 2019	Awarded on 12 September 2019	
RDF-fired Power Plant (TG5)	Awarded on 12 September 2019	Awarded on 12 September 2019	Awarded on 15 August 2018



5. Waste heat recovery power plants (TG 1&2) certified complete or Alternative Energy Project for renewable electricity generation (Gold Label)

On 1 October 2019, waste heat recovery power plants (TG 1&2) of TPI Polene Power Plc. were certified “Alternative Energy Project for renewable electricity generation (Gold Label)” from the Thailand Business Environment Institute Foundation (TBEIF) for recovering waste heat from power plants to be used in the cement production process.

6. Thailand Voluntary Emission Reduction Program: T-VER

On 19 September 2016, TPI Polene Power received Greenhouse Gas Mitigation Mechanism awards under the Thailand Voluntary Emission Reduction: T-VER (crediting program) from the Thailand Greenhouse Gas Management Organization (“TGO”). It was anticipated that the amount of carbon dioxide emitted will be reduced in the labeled products by the equivalent of 34,754 tons per annum from RDF production from municipal solid waste. The Company was consequently awarded for a second time on 19 September 2019 for its reduction of carbon dioxide emitted will be further reduced in the labeled products by the equivalent of 68,573 tons per annum.

7. CSR-DIW Continuous Awards 2017, 2018, and 2019

TPI Polene received the “Thailand CSR-DIW Continuous Awards 2017, 2018 and 2019” from the Department of Mineral Fuel, the Ministry of Energy of Thailand (the “MOE”). The awards confirm that TPI Polene was selected as a corporation focusing on the importance of “Corporate Social Responsibility” under the category “TPIPL strived to CSR” for the 3rd consecutive year on 17 August 2017, 17 August 2018 and 23 September 2019 respectively.

Audit Committee's Report for 2019

To: Shareholders:

Dear Sirs,

The Audit Committee of TPI Polene Public Company Limited consists of 4 independent directors, who are all qualified with knowledge of finance, law and management administration: namely, Mr. Supoj Singsane as the Chairman of the Audit Committee; Mr. Manas Sooksmarn, Mr. Pises Iamsakulrat and Mr. Thavich Taychanavakul as Audit Committee members; with Mr. Nitisit Jongphitakratana, the Corporate Secretary, as Secretary to the Audit Committee. All Audit Committee members possess appropriate qualifications and are, in all aspects, in compliance with the rules and regulations imposed by the Stock Exchange of Thailand.

The Audit Committee has fully performed its duties and responsibilities to review and evaluate internal control systems, disclosure of Company information, and to review implementation of the provisions of related governing laws, as well as any other important tasks. In 2019, the Audit Committee convened 5 meetings:

1. To review and to evaluate internal control systems.

The Company and its subsidiaries have appropriate internal control systems and have operated the business efficiently and effectively under appropriate and sufficient internal controls, as supported by the operational performance report. The Company and its subsidiaries have internal controls and risk management systems that can protect against potential risks to the Company and to all related parties. The systems are in place to ensure that any mistakes and irregularities will be identified in due course; and that financial reports are accurate, adequate and reliable; and the assets used by the Company and its subsidiaries, benefit all parties as well as shareholders. In addition, the Company has performed in compliance with the principles of good corporate governance and has embraced the Code of Conduct as a policy for all employees to follow, by emphasizing the balanced consideration of all related parties, fair treatment to all parties concerned, including shareholders, suppliers, contractors and the community as a whole. The Company also realizes the importance of public well-being creation and environmental conservation and fosters the development of all our staff to expand their knowledge so as to become a knowledge organization. This will further enhance our long-term development and create sustainable growth for the Company.

2. To review the disclosure of all relevant information for investors.

The Company has a policy of disclosing all relevant information for investors, such as connected transactions and any other transactions that might affect the interests of related parties. The Company always discloses accurate, reliable and relevant information on a timely basis.

3. To review and to ensure that the Company performs in compliance with all regulations and related governing laws.

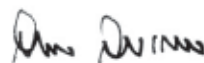
The Company has a clear policy to comply with all regulations and related governing laws, and codes of conduct, to protect against the use of insider information. As announced in the Company's Rules and Regulations, any misuse of internal information shall be subject to disciplinary action, including dismissal. The Company supervises submission by the Management of reports of their shareholding in the Company to comply with related governing laws. The Company realizes the importance of information disclosure, including financial statements and other reports, and ensures that they are complete, accurate, reliable and timely.

4. To select, nominate, and propose the remuneration of the statutory auditors of the Company for the year 2020.

The Audit Committee has taken into consideration the independence, performance, experience and an appropriate remuneration of auditors. The Audit Committee has passed a unanimous resolution to propose to the Company's Board of Directors for consideration and to propose to the shareholders' meeting to consider and approve the appointment of Mr. Ekkasit Chuthamsathit, CPA registration no. 4195 or Mr. Boonyarit Thanormcharoen, CPA registration no. 7900 or Mr. Natthapongse Thantijatthanond, CPA registration no. 8829, KPMG Phoomchai Audit Limited, to be the statutory auditors of the Company for 2020.

The Audit Committee considers that in the previous year, the Board of Directors as well as the Management of the Company, was in complete compliance with the principles of good corporate governance. They performed their duties and responsibilities ethically, with integrity, and in a professional manner, to achieve the objectives of the Company. In addition, a product quality system, in compliance with international standards and applicable laws, has been developed. The Audit Committee recognizes that the Company is committed to social and environmental responsibility. The Company has also prepared financial reports in compliance with generally accepted accounting principles, with an adequate disclosure of information, internal control and audit systems, and is able to ensure product quality and good corporate governance, without any material deficiencies.

On behalf of the Audit Committee,



Mr. Supoj Singsane

Chairman of the Audit Committee

Sustainable Development



The Policy to Create Sustainable Growth

The Company is committed to pursuing its business operations with ethics and well-managed business administration practices with an adherence to creating a corporate culture with good corporate governance in parallel with social conservation and environmental preservation. In its business operations, the Company concentrates on establishing a sustainable return on investment for shareholders. It continues to discharge its responsibilities towards relevant rules and regulations and support the community surrounding its facilities, thus providing better living standards for all related parties. The Company is continuously committed to promoting academic development, encouraging better healthcare and safety, protecting the environment and supporting beneficial activities towards society, and promoting Thai arts and traditional Thai cultures alongside social development. The Company's objective is to genuinely respond to the needs of the people in the surrounding communities in order to create sustainable growth for the Company.

Vision

TPI Polene is one of the leading cement and plastic resins manufacturers in the country and has developed a variety of construction products using Nano technology while focusing on the importance of corporate social responsibility to consistently preserve the surrounding environment.

Mission

TPI Polene is one of the leading cement and plastic resins manufacturers in the country and is well prepared for "Thailand 4.0". The Company develops sustainable energy and construction material businesses, as well as a balance of agricultural products, to fully respond to the current policy of the Thai government.

Organization's Philosophy

TPI Polene realized the importance of consistently producing good quality products while supporting the activities that discharge its responsibilities towards relevant governmental rules and regulations while providing better living standards for all related parties. The Company also concentrates on establishing a sustainable return on investment for shareholders to further enhance the sustainable growth of the business.

The Policy to Enhance Sustainable Growth of TPI Polene Group

The Company's CSR Committee is responsible for the overall assessment of TPI Polene Group's CSR activities. This also includes the development of CSR activities with a policy of full commitment to create value and sustainable growth of CSR implementation. The policies of CSR implementation have been set to promote and to monitor CSR activities. The Group CSR committee consists of the Chairman, the Vice-Chairman, and the Committee members, who were recruited from top management in the relevant departments of TPIPL group. The meetings of the CSR Committee are held regularly to set the framework of TPI Polene Group's CSR activities to consistently monitor and create a corporate culture with good corporate governance.

Selection and Nomination of the Board of Directors

The structure of the board of directors is composed of the directors themselves and Sub-Committees, namely: the Audit Committee and the Executive Directors. TPI Polene defines a clear scope, roles, and responsibilities of the board of directors and the charters of the directors and the Sub-Committees, focusing on sustainable value creation across economic, social and environmental dimensions for all groups of stakeholders. At the same time, the Company has committed to operating businesses with integrity, transparency and accountability, with the Corporate Governance Committee setting the company's good corporate governance policy and approaches.

The Stakeholders of the Company

The Company established “corporate governance policies for related parties who have conflicts of interest” by announcing the written publication of “the policies and measurements towards related parties who have conflicts of interest” as a principal guideline for employees to interact properly with the related parties who have conflicts of interest. The Company still maintains a policy of full commitment to the principles of creating value cooperatively with the related parties. Top management will be responsible for policy affairs treatment for all parties concerned and pass the opinion of the parties concerned through relevant departments which are responsible for all parties concerned. The above policies are a principal guideline for the management and employees of the group that perform in compliance with the principles of good corporate governance by putting corporate social responsibility into clear practice. All related parties, who have a direct impact on business operations, are as follows:

1. Employees - Fair practice to employees/human right compliance.
2. Shareholders/suppliers/contractors/customers - Value ethical and transparent business conduct.
3. Competitors - Enhance fair competition and new innovation.
4. Surrounding community, as well as related persons as a whole - Reduce environmental impact at the source.
5. Environmental preservation: Reduce the environmental impact at the source.

Guidelines and Practices towards the Company's Stakeholders

Stakeholders	Requirements	Procedures	Plan implementation
1. Employees	<ul style="list-style-type: none"> - Work progress in their careers - Employees' welfare and security - Membership of Co-Op - Obtaining courses and training programs for potential development - Good image of the Company - Fair treatment - Safety in the workplace 	<ul style="list-style-type: none"> - The Company schedules training programs and on-the-job training sessions as well as relevant knowledge for employees to perform their duties properly, safely and suitably for employees in each respective position. - The Company provide courses and training sessions to develop growth potential, knowledge and competitive advantages of the employees to keep pace with the future growth of the corporation and work progress in their careers. - The Company encourages on-the-job training program among employees, including in-house and external-training courses in compliance with job descriptions. - The Company provides employees the opportunities to pursue their study and obtain courses training programming in compliance with job descriptions. 	<ul style="list-style-type: none"> - The Company has clear rules and regulations on employment to be strictly applied, which also include equal opportunities for employees to progress in their career regardless of sex, age, generic information, races, religion, educational background. The employment policies and conditions of work are based on job requirements. - The Company shall not hire expatriates, which include contractors and sub-contractors. - Allow expression of views and advice. - Fair practice to employees. - The Company offers salary and wages as well as welfare to be equivalent or comparable to those in the same industry. - The Company provides a safe and healthy working environment. - To comply with rules and regulations of human rights.
2. Shareholders	<ul style="list-style-type: none"> - To create sustainable return on investment. - To conduct the business with transparency. - To take part in decision-making. - Ongoing business operations and low risk. - To obtain information regarding operating results. 	<ul style="list-style-type: none"> - The Company shall protect shareholders' fundamental rights and ensure equitable treatment to all shareholders to facilitate shareholders to access the Company's information. - The Company operates in compliance with the principles of good corporate governance with honesty, prudence and without conflicts of interest to create sustainable value to all shareholders. - Deliver the invitation to the Annual General Shareholders' Meeting with all relevant documents for shareholders in advance of the meeting - Shareholders are able to appoint proxies to delegate their votes to others to act on behalf of them. - Provide shareholders opportunities to add agenda items or propose to the meeting the name of the persons to be elected as the Directors of the Company to be in compliance with the legal Articles of Association of the Company. - Constantly disclose corporate information as well as financial statements and operating results to all shareholders accurately, completely, transparently and in a timely manner to ensure that shareholders obtain adequate corporate operational performance through a network that is easily accessed. 	<ul style="list-style-type: none"> - All shareholders have fundamental rights and must have equitable treatment. - To create long-term growth of the business and establish sustainable return on investment to shareholders.

Stakeholders	Requirements	Procedures	Plan implementation
		<ul style="list-style-type: none"> - Accept advice and complaints. - Analyst meetings, Roadshows and Investor Relations Activities - Annual company on-site visits - Other communication channels via website, e-mail, phone calls and letter, etc. - Shareholder relations activities. 	
3. Trade partners	<ul style="list-style-type: none"> - Clear purchasing policy - Fair business operation - Help develop growth potential of the purchasers. - Clear procurement policy. 	<ul style="list-style-type: none"> - TPIPL group has to obtain the best value for materials and goods and to maintain the highest ethical standards in dealing with suppliers. Value includes price, quality and service. - Purchasing personnel are not permitted personal interest in the procurement process. - The Company will not engage with the trade partners who deal with businesses that act against the law. - Employees of TPIPL group shall procure material and goods at the appropriate and fair price and ensure that its trade partners perform in compliance with guideline leading to sustainable growth for both parties. 	<ul style="list-style-type: none"> - Strictly perform in compliance with terms and conditions of the transaction and contracts. - Take into consideration of the corporate benefits of both parties, thus enhancing equitable practices for business operations - All trade partners should be treated equally.
4. Customers	<ul style="list-style-type: none"> - Good quality and safe merchandise. - Fair prices - Easy and convenient to acquire - Sales promotions and free samples. - Alternative merchandises - Provide products profiles and instruction 	<ul style="list-style-type: none"> - The Company is focused on the importance of quality product development and full-scale service to be delivered to customers in a timely manner and meet the requirements of customers. - The Company shall keep track of records of customers' profiles systematically in a safe place and protect customer information and records against unauthorized access to or misuse of customer records or information. - Offer fair prices for goods and services. - The Company provides a unit or center to be responsible for providing a range of information of products and services as well as submission of a claim or make a complaint. - An arrangement of customers seminars to consistently educate them on the variety of products. 	<ul style="list-style-type: none"> - Satisfy the needs to customers - Do not act or obtain or attempt to offer any goods or service by any means or device with the intent of fraud to the customers, who must believe in the quality of our goods or services - Provide customers goods and services which are safe and harmless for them. - Create brand loyalty.
5. Competitors	<ul style="list-style-type: none"> - Market share - Fair Competition - New innovations 	<ul style="list-style-type: none"> - Under the fair competition circumstances 	<ul style="list-style-type: none"> - Not to violate identifiable information of competitors. - To perform in compliance with good practices for trading.
6. Communities	<ul style="list-style-type: none"> - Keep the community informed of relevant information - Promoting Thai traditional cultures. - Improved Quality of life. - Participating in activities to develop public well-being - Create good opportunities for careers. 	<ul style="list-style-type: none"> - Survey the Community's needs and opinions. - Consistently provide mobile medical units for local people in the community - Supporting reforestation and rehabilitation of used mine areas. 	<ul style="list-style-type: none"> - Support of community activities - Provide training courses for employees to stimulate them to be conscious of environmental preservation.
7. Environment	<ul style="list-style-type: none"> - reduce environmental impact at the source. - Reduce the uses of national resources, raw material and coal 	<ul style="list-style-type: none"> - Enhancing production process to reduce environmental impact. - Generating renewable heat recovery to generate electricity back to the system - Generating crude oil and liquid fuel from tire pyrolysis - make use of decomposed organic substances as compost materials to produce Organic Fertilizers 	<ul style="list-style-type: none"> - Reduce energy uses from coal - Processing of RDF as alternative fuel from municipal solid wastes - minimizing residual waste from operations and purchase wastes from the community and municipal government - Operate fully integrated - industrial waste disposal business to help eliminate industrial wastes from industries

Stakeholders	Requirements	Procedures	Plan implementation
8. Government Agencies and related organizations (government agencies, state enterprises, local administration organizations, along with private companies with authority to approve licenses or permits for the company)		<ul style="list-style-type: none"> - Performance reports and operation results of related government agencies. - On-going participation in government projects and activities - Participation with government agencies as a teamwork on requested issues. 	<ul style="list-style-type: none"> - Acting in compliance with rules, regulations, and policies of relevant regulators. - Expansion to renewable energy - Social and environmental responsibility - Living sustainably with communities in a shared economy - Safety and environment management system - Collaboration with government agencies in various projects

The Company also realizes the importance of creating quality of life for consumers, employees, the community, and stakeholders through its operating activities, starting from the procurement of raw materials, the production process through to dispatching the products to customers. This will further enhance our long-term development for stakeholders and create sustainable growth for the Company as per the mission as follows:

1. TPIPL pledges its commitment to consistently create quality of life for consumers.
2. TPIPL is focused on consistently producing quality products, manufactured under top safety standards for customers and in response to the need of customers.
3. TPIPL also fosters self-development of all levels of employees, creating quality of life for the staff of the Company.
4. TPIPL maintains a policy of reducing resource employment.
5. TPIPL established a policy to reduce environmental impacts at the source, including living along with a sustainable community.
6. TPIPL is committed to sustainable communities.
7. TPIPL is committed to creating sustainable growth for our shareholders.

Anti-Corruption Policy

The Company is committed to pursuing its business operations, with an emphasis on transparency with ethics and responsibility to shareholders, customers, employees, society and other stakeholders. The Directors, the Management and all levels of employees are prohibited from operating or accepting, soliciting, demanding, or accepting assets or other benefits to other persons in business dealings with the Company, whether directly or indirectly, as a motive for them to do or refrain from doing any act to acquire or keep benefits that are unsuitable to the business, except as allowed by the laws, rules, regulations, local customs or traditions, or business customs, to create the balanced consideration of all related parties and fair treatment to all parties concerned. The Company has conducted anti-corruption awareness as guideline policies for the management and employees of the group to perform in compliance with the principles of good corporate governance, codes of conduct and/or related to the terms and regulations or any legal issues to create sustainable value and long-term growth of the business.

Objective

1. All employees must not induce to act or refrain from acting that may lead to malfeasance and corruption, and not get involved in corruption, whether directly or indirectly.
2. To support all employees' roles and responsibilities to take part in the activities of the Anti-Corruption Policy, and not to solicit, demand, or accept assets or other benefits to other persons in business dealings with the Company,
3. To conduct its business with fairness and enhance the confidence of its stakeholders.

Scope of Anti-Corruption Policy

Stakeholders of the Company who are involved in the Anti-Corruption Policy are classified into 2 major groups as follows:

1. Internal: Director, Management Team, and all levels of staff/employees
2. External: Customer or suppliers, contractors, sub-contractors, business partners, creditors, governmental authorities and private officers.

Anti-Corruption Definition

Corruption means any type of bribery; an offering, agreement to give, giving, promising to give, soliciting, or receiving of money, assets, or other inappropriate benefits from government officers, government sectors, private sectors, or responsible person either in direct or indirect action so that such person could proceed or disregard his/her function in order to acquire, retain the business, recommend a specific company to the entity, or achieve any improper benefits in business transactions. Exceptions shall be applied in the case of laws, regulations, statements, standards, customs, or business traditions that are enabled to do so.

Roles and Responsibilities

1. The Board of Directors is responsible for determining the policy, monitoring, and forming of an effective system supporting the anti-corruption act in order to affirm that the Management Team is intensively concerned with, emphasizes, and cultivates an anti-corruption mindset as the company's culture.
2. Presidents and the Management are responsible for determining the anti-corruption system, promoting, and encouraging that anti-corruption manners are conveyed to all staff and related parties. This also includes reconsideration of systems or regulations in order to best adjust to business changes, regulations, standards, and laws.
3. The Audit Committee is responsible for the revision of financial and accounting reports, internal controls, internal audit functions, and risk management so that such operations are concise, appropriate, effective, and conform to global standards.
4. The Internal Audit Director is responsible for auditing, assessing, and evaluating whether business transactions are accurate and comply with guidelines, approval authorities, standards, laws, and policies in such monitored departments in order to assure that the internal controls are sufficient and suitable for probable risk in corruption. This shall be directly reported to the Audit Committee.

Anti-Corruption Guidelines

1. Staff members shall not be negligent in any corruption conditions involved directly with the Company. All staff members must notify such acts to supervisors or the responsible person provided in particular channels, including cooperating with any fact-finding investigation.
2. A person who commits corruption is considered for disciplinary offenses. This means such person is to be considered for discipline according to the Company's standards. Legal prosecution may be applied in case such acts violate laws.
3. The Company shall be fair and provide safeguards for staff members who report corruption cases relating to anti-corruption.
4. The Company understands the importance of dissemination, knowledge sharing, and constant communications with employees.
5. The Internal Audit Department of the Company will be responsible for reviewing and evaluating internal control systems, disclosure of Company information, and to review implementation of the provisions and risk management systems that can mitigate risks against corruption and report directly to the Audit Committee.

Provision in Implementation of Anti-Corruption Policy (to interact properly with business partners and the related parties who have conflicts of interest)

All employees will be responsible for adhering to the Company's Anti-Corruption Policy in their business connections with customers, suppliers and all parties concerned. (Thereinafter called "related parties who have conflicts of interest" who have a direct impact on business operations)

1. The employees must comply with the Anti-Corruption Policy and measures, the Company's corporate governance principles and code of business conduct and hospitality activities from other persons in business dealing with the Company.
2. The employees must not accept gifts, entertainment and hospitality offerings or entertainment and hospitality activities from other persons in business dealing with the Company, whether directly or indirectly.
3. Employees must not be corrupt or accept corruption in any form under any circumstances, related to the business without getting prior approval from the direct supervisors. Any acceptance thereof as above from other persons must comply with the Anti-Corruption Policy and measures, the Company's corporate governance principles and code of business conduct and must not have any impact on the business decision of said employee.
4. Employees must not perform any act to acquire or keep benefits from their positions in the Company to accept gifts, entertainment and hospitality offering or entertainment and hospitality activities from other persons in business dealing with the Company.
5. Whenever the employees advise the HR department of the Company, those actions must not go against the benefits and/or recruitments of the Company and employees must refrain from doing any act to acquire or keep benefits that go against relevant laws and regulations.
6. There are to be no close relationships between supervisors and those under their supervision within the same departments such as married couples, or parents or offspring, that may impose conflicts of interest.
7. The Business Relations and Procurement Process with the Public Sector or all types of bribery or illegal payments are prohibited in all business transactions, operations, and connections to the government.

8. Corrupt persons who violate or fail to comply with the anti-corruption measures must face punishment under the Company's rules and may also face prosecution if the action violates the law.
9. Employees must be granted an approval from their supervisors before offering all types of gifts (such as the Company's products) or entertainment and hospitality activities to other persons for business purposes, to be in compliance with the Anti-Corruption Policy and measures, the Company's corporate governance principles, and its code of business conduct. In case of emergency that in any circumstances, supervisor approval has not been granted in advance, such employees are deemed to get an approval from their supervisors immediately after offering all types of gifts (such as the Company's products) or all forms in any circumstances to other persons for business purposes.
10. Employees must not acquire or take benefits from their positions in the Company to perform inappropriate relationships, sexual harassment and other verbal or physical harassment of a sexual nature, any kinds of treatment or consideration of, or making a distinction in favor of or against (discrimination based on race, sex, disabilities or religion). This also includes burglary, threats, force or any other kind of action that violates the law.
11. Employees should ask or request opinions from their supervisors or responsible persons when the employees face or have doubt about any act that is considered corruption in order to avoid any arguments.

File complaints or reports of fraud

1. Complaints or recommendations

- 1.1 A complaint if encountering any acts that are considered corruption, either directly or indirectly.
- 1.2 Any act that is considered corruption and/or has a direct effect on the internal controls of the Company, to cooperate in the fact-finding investigation stipulated by the Company's regulations.
- 1.3 Any act that has a direct impact on the Company's reputation and benefits.
- 1.4 Any misconduct that goes against the law, morals or business ethics.

Identities and confidentiality protected

1. Identities protected

As the whistleblower or the person filing the grievance in good faith is greatly beneficial to the Company and all employees, said whistleblower or the person subject to such grievance and parties involving in the fact-finding and reporting process, regardless of the difficulties they might have, the Company will ensure that no employees shall be demoted, penalized or be otherwise affected because they honestly decline to participate in corruption.

The Company has a policy to investigate such reports with equality, transparency, care, and fairness and subject them to a proper investigation. All information will be kept confidential and only be revealed when necessary while we will take into consideration the safety of and damage to the whistleblower or the person filing the grievance, which will be carried out in a confidential manner to ensure staff that make the reports will have their identities protected.

2. Names and Confidentiality Protected

The whistleblower or the person filing the grievance (various groups of stakeholders or employees) may choose not to reveal his or her name, address or contact number unless he or she feels that such a disclosure will enable the Company to inform him or her of the progress. Information will be kept confidential and only be revealed when necessary while we will take into consideration the safety of and damage to the whistleblower or the person filing the grievance. The Company will hear all such reports with equality, transparency, care, and fairness and subject them to a proper investigation, which will be carried out in a confidential manner to ensure the staff members who make the reports will have their identities protected.

Fact-Finding Process and Penalties

1. Having received the grievance, the Management Representatives, whose members consist of the Compliance Unit and the Audit Committee, will be responsible for conducting an investigation.
2. During the fact-finding process, the Management Representatives and the Audit Committee might ask the Management Representatives to keep them informed of the progress of further investigation.
3. In case that tips or grievances are found to contain material evidence, the person committing corruption or violating or failing to comply with the anti-corruption measures will be granted an opportunity to acknowledge the charges and will have the right to defend themselves by providing additional information or evidence that they weren't involved in any corruption or that they violated or failed to comply with the anti-corruption measures as accused.
4. In case that the person, who committed corruption or violated or failed to comply with the anti-corruption measures, is proven guilty, the Company will take actions in accordance with the established procedures to investigate and levy disciplinary punishment on employees at fault relating to corruption matters. Such person will be considered for discipline according to Company standards. Legal prosecution may

apply in case such acts violate the laws. The Management's decision is considered the final judgment for punishment on employees at fault relating to corruption matters.

Disclosure of the Anti-Corruption Policy

1. The Company announces the written publication of the Anti-Corruption Policy and measures as a principal guideline for employees to follow.
2. The Company discloses the written publication of the Anti-Corruption Policy and measures through the Company's channels, such as letters, the Company's website and Annual Report., etc.
3. The Anti-Corruption Policy needs to be reviewed regularly, including with a possible revision of such policy and implementation provisions in order to be in accordance with business changes, regulations, standards, and laws.

TPIPL and its Corporate Social Responsibility

TPIPL and its subsidiaries, as a Thai corporation, realize the importance of the clear role of operating the business in order to foster good corporate governance, while creating public well-being and being environmentally friendly by putting corporate social responsibility into practice. The Company has focused on development to further enhance the sustainable implementation in all respects, which can be partly reported below:



Environmental Activities

TPIPL and its subsidiaries are committed to pursuing business operations with highly efficient fuel management at an international level and to consistently improve machinery and production processes using modern technology and innovations to be implemented in business operations. The Company realizes the importance of “Corporate Social Responsibility” to consistently preserve social and community improvement. This resulted in the company receiving an award CSR-DIW Continuous Award (Standard for Corporate Social Responsibility Department of Industrial Work) for the 3rd consecutive year from the Department of Industrial Works, Ministry of Industry. This award reflects the Company’s commitment to contribute to preserving the environment and sustainable living with the community.

- Received Efficient Energy Saving Label Award from the Department of Renewable Energy and Energy Conservation, Ministry of Energy, with the surpassing of standards to be in compliance under “the Project to promote highly efficient machinery and the use of materials for Energy Conservation with the Label Award” in full accordance with energy saving codes.
- Awarded Carbon Label Certificate to reduce emissions of gases or avoidance of greenhouse gas emissions. The Company’s 4 types in the cement and mortar products passed the evaluation criteria and were awarded the Carbon Label and were permitted to use the Carbon Label from Thailand Greenhouse Gas Management Organization Public Company Limited (“GTO as follows:- 1.TPI Mortar M209 2.TPI Mortar M200 3.TPI mixed cement 4.TPI Mortar M197. The carbon label is certified to the products with standard control and efficiency in reducing CO₂ emissions, the eco-friendly production process which reducing global warming. TPIPL has joined the Carbon label registration program for the consecutive 13th year.

• Planting trees project to promote nature conservation and the environment.

- TPIPL executives and TPIPL employees together planted trees at the Cement Plant, Amphur Kangkhoi, Saraburi province, to increase the green area. In addition to helping the ecology surrounding the plant, it also results in the absorption of carbon dioxide accumulated in the atmosphere that is increasing every day. The project also creates relationships, unity and good attitudes toward environmental preservation, and lets everyone turn their attention and join together to plant trees to reduce the global warming problem.

TPIPL participated in an environmental exhibition by processing wastes or RDF into fuel to replace usage of coal such as biomass and garbage, and promotes the community’s economy in “Forest in town, Wild Pukae garden” fair, Saraburi province, located within the area of the Forest Resource Manager 5 (Saraburi), which is part of the public Forest Garden project to comply with government policies to use the green area or the conservation area, located near the city center, under the cooperation with private organization to protect the intrusion and for conservation of forest areas, the ecosystem, to be a fitness facility as well as to be ecosystem and recreation center for local people and helps reduce pollution and create a better environment in the urban area.



- TPIPL joins the “Day of the National Forest resource” - For the year 2019, with the purpose of helping the public realize the consequences of the cutting of wild assault and to commemorate the Government’s own provisions that have ordered the closure of forests in the forest, the concession is considered an important milestone in the history of conservation of the country’s forest resources. It is important to realize the importance of conservation, and to keep the environment in compliance with the appropriate and ongoing standards and to provide efficient and cost-effective resources. We encourage and support the full environmental activities by cooperation with the public sector and the nearby communities. This includes the sustainable conservation of nature by planting renewable forests annually.
- TPIPL donated bio-organic products to improve soil and plant care at the Dharma Roi Kam Son Park Wat Pa Nanthaburi Yanasangwararam, Nan province.
- TPIPL donated Microme Know and Synbiotics products to prevent foot-and-mouth disease (FMD) to farmers in Muak Lek district, and to farmers in the area of Nong Yang Suea Subdistrict, Muak Lek District, Saraburi Province. Each house received the products in order to solve the problem and prevent foot-and-mouth disease of cows and buffaloes according to the announcement of the temporary foot-and-mouth disease epidemic area of Livestock, Muak Lek District that is a pandemic; The Company also provided Microme Knox and TPI Synbiotic products to farmers in Muak Lek District to pass on to farmers in the area of Nong Yang Suea Subdistrict, Muak Lek District, Saraburi province to prevent, control and decrease the risk of potential pathogen outbreaks of foot-and-mouth disease (FMD) in cloven-hoofed animals according to the announcement of the temporary area of the livestock foot-print of Muak Lek District that infected other areas.
- Supported the learning programs for groups that require special care. Under “vegetable-safe cultivation”, Baan Khao Wooden Wagon School to become an strengthen supplement to cultivate the skills in planting vegetables, promoting organic vegetables, planting the food safe by using organic fertilizer products, it can strengthen the profession and make money. It can be sustainable self-reliance for the co- project.
- Donated organic fertilizer to Kaeng Khoi Hospital to improve the landscape by using the fertilizer of TPI, planting grass, to offer the view of the beautiful Kaeng Khoi hospital to the patients and staff of the hospital.
- Donated 40 tons of cement to various agencies to construct dams to hold back water in cooperation with various agencies, such as:
 - Safeguard Center, the Troop Army II in the Northeastern area, Nakhon Ratchasima province under the “Army Asapluk Forest” project, to sustain the Valerian Highness Annual Commitment 2019 in the construction of a concrete reservoir in the mountain areas of Amphoe Sung Nakhon Ratchasima province, in order to rehabilitate the ecosystem of forests, rivers, water and downstream systems, and to manage the region’s potential for a natural self-restoration.
 - Police Division Patrol Division 3 under the upstream conservation project and the construction of the Irrigation Dept. in the lab area of 6 villages, Chiang Mai province, Mae Hong Sorn province and Tak province.
 - Trooper’s Army at 24 Bureau of Trooper 5 heal Phraong - Construct 170 reservoirs at the three-level National Park area, Saraburi province, to sustain the Highness determination under the project Army Asapluk Forest of the annual budget for the year 2019.



Academic and Youth Activities

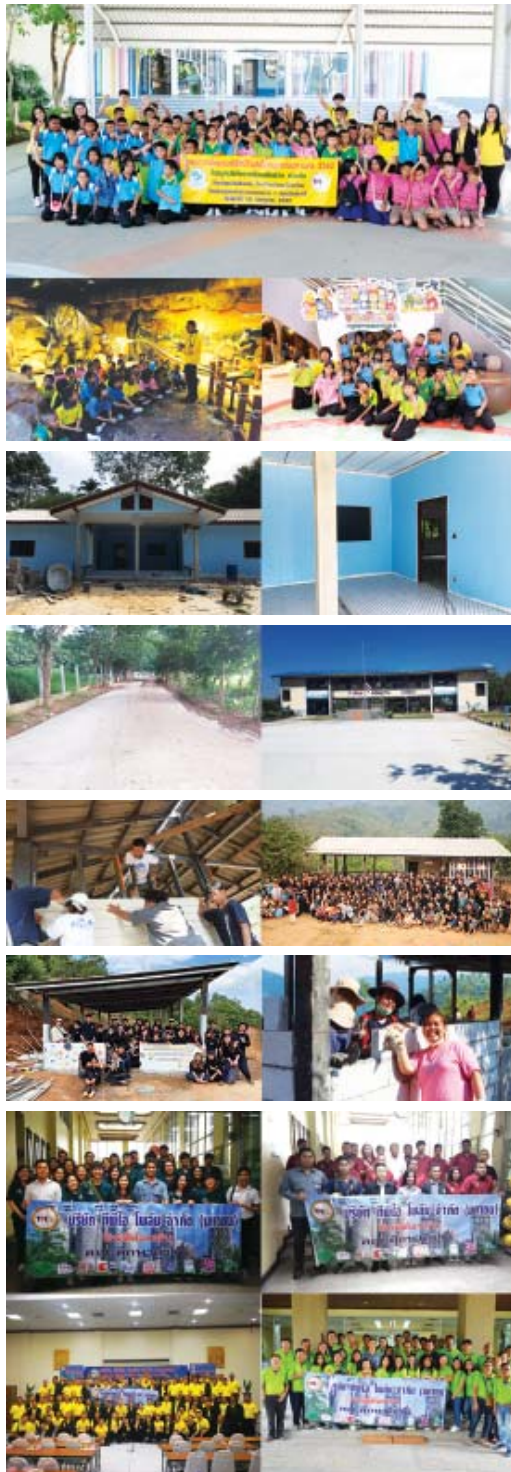
TPIPL realizes the importance of academic development and educational support for creating good opportunities for young people to learn hands-on by broadening their skills as well as consistently developing the quality of academic institutions. TPIPL fully understands that our youth are fundamental to the future of the nation. For events, the Company held many activities and supported many organizations that performed useful activities for young people and granted scholarships to those with special qualifications, such as academic talent, but who might have lacked monetary resources. They are as follows:

Scholarships Awarded

- Consistently supported educational funds in the form of scholarships to 450 students in schools located in the area around the TPIPL cement plant, Saraburi province for a total of 6 schools. They are: Ban Sap Bon School, Nikhom Thap Kwang Songkhro Community School 1, Thap Kwang Kindergarten School, Thap Kwang Subdistrict, Kaeng Khoi District / Ban Sap Phrik School Muak Lek School in Mittraphap Subdistrict / Ban Khao Mai Kwian School, Muak Lek Subdistrict, Muak Lek District, Saraburi province.
- Consistently supported educational funds in the form of scholarships and fellowships to a total of 6 students in the community of Kaset Samphan, TPI Polene cement plant, Saraburi province. Scholarships are reserved for students with special qualifications, such as academic talent and good behavioral performance until graduation.
- Awarded 20 scholarships to support needy students with outstanding academic qualifications and supported educational funds for 1 scholarship to schools, as well as learning and sports materials to students in Wat Nong Bua School, Phetchaburi Province.
- Participated in activities and supported "2019 Children Day Fair" in 34 places in schools and government authorities in the surrounding communities: TPI Cement Plant, Kaeng Khoi District, Muak Lek District, Wang Muang District, Chaloe Phra Kiat District, Saraburi province.

To Enhance Academic Quality

- A "Science Museum Project" (Khlom Ha), in Pathum Thani province, by having brought students from Bansubborn School, Ban Kao Maikwian School, Ban Sub Pik School Muak Lek Nai School and Dairy Farming Self-help Settlement School, Saraburi province; to join the activity and had the children get responses to queries regarding exhibitions in the museum by contacting, testing, thinking, deciding and searching for the answers by themselves. The students had a good time joining the above activity, which helped them increase their experience in science and technology.
- The Bangkok Children's Museum Project by having brought students from Bansubborn School, Kao Maikwian School, Dairy Farming Self-Help Settlement School, and Nikhom Thap Kwang Songkhro 1 School, Saraburi province; to join activities to find answers in science by researching and experimenting inside buildings such as dinosaur detective, amazed inventor Miracle building and entered the city of Rainbow: Rainbow Town with a role in various careers. All the children were very happy to join the field trip and to bring back the knowledge they received to share with the children that did not join this project.
- Supported personal development program for Ban Sap Bon School, Ban Sap Pik School and Khao Mai Kwian School, Kaeng Khoi District, Muak Lek District, Saraburi province, to focus and to promote education for students; and expression of gratitude to teachers from various schools in the Saraburi province who have worked with sacrifice and cooperated to the TPIPL cement plant for the development of education for youth in the surrounding community area at the factory.



- Made a contribution of 22 cubic meters of ready-mixed concrete, 967.37 tons of TPIPL cement products as well as TPIPL Nano Super Armour and concrete roof tiles, totaling Baht 1,047,299.93 for the school, including bicycle racks, and renovation of the school building of Wat Tha Maprang school, Saraburi province and built a new house for students at Wimon Witthayanukul Sao Hai School “, Saraburi province.
- Supported the construction of the Ninpat building (new cafeteria) of Anuban Kwang, Saraburi province, including the renovation of the roof, hall and bathroom of the school. At Wat Mongkol Saraburi province, we supported the building of a school library for Ban Na Khae School Suratthani, the roof and student toilet repair at Wat Huay Bong School Ban Chang, Saraburi province, made roof and ceiling repairs at Khok Kalim School, Lopburi province and built a resource development center to practice professional skills and life skills Ban Kanarn School, Sisaket province, etc.
- Supported car painting through a vegetable planting project at Ban Nong Phak Bueng School, Saraburi province, painted the school building at Wat Satrueangrueangsri (Kaeng Khoi) School, Saraburi province, and painted 3 educational buildings for Wat Bamrunghtham Community School, Kaeng Khoi District, Saraburi province.
- Jointly built concrete roads, such as at Ban Punwittaya School, Ban Rung Arun School (Royal Patronage Thai Army), Ban Pornthip School in Sisaket, Wat Khok Krun School (Wararat Upatham), Wat Cham Phak Phaw School, School Wat Muang Witthayakhom, Saraburi Province and Wat Pho Riang School, Krabi Province, Ban Wang Sonuan School, Nakhon Ratchasima Province etc.
- Supported the project “Rural Development Voluntary Camps”.
The Company made a contribution of TPIPL cement products of 10 tons as well as super armour nano paint, TPIPL concrete roof tiles and other products, totaling Baht 216,819.97, to students in order to develop a volunteer camp for schools which lack funds such as:
- Improved agricultural areas for Ban Phusan School, Phetchaburi Province, of the Student Assembly, Department of Accounting; Faculty of Business Administration Kasetsart University; built a multipurpose building for Ban Sap Phasuk School, Lop Buri Province, by the Industrial Education Volunteer Group King Mongkut’s University of Technology North Bangkok; built a library for Ban Khok Sa-nga School, Udon Thani, Rural Development Volunteer Club King Mongkut’s University of Technology Thonburi; built a multi-purpose building for Ban Bai Na School, Omkoi District, Chiang Mai, to be a classroom and cafeteria of the Faculty of Commerce and Accountancy Thammasat University; built a path around the building at Ban Nong Mod School, Uttaradit of the Rural Development Volunteer Club, Faculty of Laws, Chulalongkorn University.
- TPIPL, Saraburi plant, hosted, welcomed and fully supported activities regarding academic programs in cooperation with a group of professors and students at the level of Bachelor’s degree, Master’s degree and Ph.D. degrees from various institutions, such as: Chulalongkorn University, Ban Chom Bueng Rajabhat University, Prince of Songkla University, King Mongkut’s Institute of Technology Ladkrabang, Police College, Nong Khae Industrial and Community Education College, Mary Business Administration Technology, Ubon Ratchathani Rajabhat University, Kasetsart University, Chaloe Phrakiat Campus, Sakonnakhorn Province, etc.



Social Activities

• Contribution of blankets in 2019

The Management team and the staff of the Company, together with the Environment for Better Life Foundation, distributed 21,000 blankets to local people, who suffer in the cold in remote areas and do not have enough clothing. TPI Polene wanted to share and help alleviate the cold for those in need in the remote areas for the areas in the North and Northeast.

In the northern part of the country, TPI Polene distributed 11,000 blankets to Border Patrol Police Bureau 3 (Chinghai Center), 4,000 blankets to patients, relatives, patients and the issuance of mobile medical units of Mae Chaem Hospital, Chiang Mai Province, 500 blankets to Mae Fah Luang Hospital, Chiang Rai Province, 500 blankets to hill tribe villagers of Huai Yuak Baso, Mae Chan District, Chiang Rai Province, 400 blankets to villagers in the area Ban Yang Luang Subdistrict, Mae Chaem District, Chiang Mai Province, 600 blankets and 1,130 blankets to students and teachers from 11 schools in Mae Chan District, Amphur Mueang, Chiang Rai provincet, Chiang Saen District, Chiang Khong District and Mae Sai District, Chiang Rai Province; 1,500 blankets were also distributed through the Office of the Arts "Dharma" to further distribute to the students and teachers of Ban Huai Ngu, Amphur Chiang Dao and Samoeng District, which is awarded through Wat Sri Don, 500 blankets given to the villagers in the Mae Rim, Chiang Mai, through Wat Pa-Ratchada, 1,000 blankets to the elderly and disabled clubs. Students in Amphur Pa sang, Lamphun province and the Thai Environment Foundation Fund and 870 blankets to give to villagers and people in Tambol Ban Chan, Chiangmai province.

For the northeast part of Thailand, TPI Polene distributed 10,000 blankets to students, teachers and people in the affiliation of the Division of Police Charter of the region 2, Khon Kaen province, and 5,000 blankets to the local people in Amphur Dan, Nakhon Ratchasima province, 1,500 blankets delivered through social work agencies in Srinakarin Hospital In Khon Kaen province to deliver to people who suffer from the cold and 3,500 blankets to the mobile medical unit of the Srinakarin hospital. Khon Kaen province.

The Company plays an integral part in providing warm steam to cold victims and helps relieve the heat from cold weather conditions.

• Supported a budget of Baht 10,312,000 to the foundation, associations and organizations to help community-wide activities.

- Distributed 15 wheelchairs to the Thai Disability Foundation under "the project for disabled people" so that the young disabled can use them for their daily routine and travel to be self-sufficient for their family; supported facilities for disabled children for the Developmental Disability Association.
- Made a contribution of medical instruments for the operating room in the 150-year Si Sawarin building, Ratchathewi Hospital, Sriracha, Thailand Red Cross.
- Helped patients at the Health Promotion Hospital, Saraburi province in the diabetic clinic and high blood pressure patients and supported the clinic for immune boosting diseases and child health check-ups.
- Joined the Project "Pun Pai Mai Ting Gun and the 2019 No One Left-Behind Project" in Muang District, Saraburi province; Anti-Drug Governmental Supporting Project and support Navy Football Club.
- Strengthened the health of the community by providing the medical unit under "A Healthy Project with TPI Polene" to raise awareness of disease, health check-up services, encourage the benefits of lung examinations, increase medicinal plant knowledge and growing organic vegetables by using TPIPL organic fertilizers that are safe for humans and the surrounding community in the district of Kaeng Khoi, Amphoe Muak Lek, Chalerm Phra Kiat, Saraburi province.



- Visited patients in Tambon Khao Din Phatthana district through the sub-district administrative organization in Thailand. Hospital officials promoted health at Khao Din Pattana, Kamnan-Adults House, Old City and contributed drinking water, blankets, TPIPL healthy products, and household products to the patients, the disabled and the elderly in Tambol Muaklek, Tambol Mittaparb, and Thap Kwang, Saraburi province.
- Promoted and improved the quality of life of Thai people. The Company, under the cooperation of the Welfare and Labor Protection Bureau of Saraburi province, organized blood donation activities to celebrate the majesty of the King Wachirathan, on the auspicious occasion of the sacred ceremony. The 2019 initiative was integrated with the authorities, with the Ministry of Labor, Saraburi and the National Blood Sector Service in Thailand and the general public donated more than 290,400 CC of blood to aid patients and resolve the blood shortage in Saraburi province and nearby provinces.
- Supported “handmade bags from the housewives group” in Moo 4, T. Kaeng Kwang, Kaeng Khoi to generate income for the community, and to give souvenirs to the elderly in the communities; this initiative was also carried out during the annual Songkran Festival 2019 in the district of Amphur Thap Kwang, T. Khlo, Kaeng khoi/ T. Friendship, Tambol Muak Muaklek/ Wang Muong to create gifts and for surveillance of the elderly.
- Donated 11,768.26 tons of cement products, 201 cubic meters of ready-mixed concrete, concrete roof tiles products, TPI Super Nano paint and other products, with a value of Baht 2,014,143.66, for the renovation of the buildings, workplaces, landscaping and sports facilities for the governmental authorities as follows:
 - 18 soldier camps: building the learning center for an agricultural project in the area of Ban Huay, Amphur Muang, Saraburi province to provide students the garage and bathroom facilities for their daily life.
 - Repaired houses and helped citizens of the district of Kaeng Khoi Saraburi; supported a Landscape Improvement Program, painting and drawing the landmarks of Thap Kwang, on the wall of the seamless dams of the city municipality of Ban Thap Kwang.
 - Renovated bathrooms at the Health Promotion Hospital, Nong Phak, Kaeng Khoi Saraburi.
 - Supported the Road Security development project to promote good quality of life (Thasisaphan on all roads in the area of Wang Muang district, Saraburi province).
 - Co-construction of homes for the elderly, Nakhon Ratchasima province, and supported a government project to repair/build houses in Amphoe Kaeng Khoi, Wang Muang, Saraburi province, to provide assistance to the disadvantaged people, and disabled who experience difficulties in finding housing, to further support the government policy.
 - Supported an improvement program for the landscape to be neat, tidy, and secure to be a recreation place for family units of the military, including the public and other government officials in Area 1, Communication Division, Bangkok.
- Distributed 391,588 drinking water 350-ml bottles to various organizations, including 6,760 bottles of Pro Vita for activities that are helpful to society such as;
 - Participated the activity “we do well with the heart” to honor the royalvolunteers who joined the activities the two sides of the roads in Amphoe Chalerm Phra Kiat and Amphoe Kaeng Khoi, Saraburi province as well as the parent fund project of the land, with a ceremony to give the household fund to the Town Hall, Saraburi province.

- Supported the National Wildlife Protection Day to honor the Krunathikhun of the Srinakarin Royal Palace about the conservation of forest resources and wild forests, Administrative Office 1, Saraburi province.
- Supported Walk-to-Run projects such as "Running and Eating Shrimp 2020" in Suratthani province, so that Thais know about and promote local consumption; "Running for Adisorn Camp Hospital Military Camp 18", Saraburi province, to help with the construction of the building for property, purchase of medical instruments, and to establish the fund to help the poor patients to get to Raksa; "Buddha's hero runs the 5th half marathon" to develop a health service system and purchase medical equipment for Phrabudhathabart Hospital and the project "Running to celebrate the Queen Sirikit Royal Princess Royal Highness for the 87th anniversary", "Cavalry XC-Half Marathon 2019 ", Military Center, Saraburi province.
- The project to prevent drug problems on the day of the world drug for the fiscal year, BE. 2562, the sub-district of Kaeng Khoi.
- Supported the Vegetarian Festival, Phuket province and walking activities, as well as a charity run at Wat Nong Wa Muang Saraburi province.
- Supported activities to reduce accidents during Songkran Festival, New Year festival 2019, 7 days of danger, including at the Road Safety Center Saraburi, Thap Kwang Municipal Office Saraburi province, Muang Police station, the Sub-district administrative organization, Tambon Mittraparb, Tambon Khao San, Khaosan and Tambon Muak Lek, a highway of Kaeng Khoi Saraburi Highway, Muang District police station, Nakhon Ratchasima, Khonkaen police station, Rural Highway 2 (Saraburi), Amphoe Kaeng Khoi, district office of Kaeng Khoi, Saphot. Saraburi, Metropolitan Police headquarters, Kaeng Khoi, highways, etc.,
- Supported Asankabucha Day, Khao Phansa Day and Orkphansa Day for Khao Din Phatthana Subdistrict, Ban Kaeng Subdistrict, Chaloe Phrakiat District, Saraburi province and 26 temples in Kaeng Khoi District and Muak Lek District, Saraburi province and participated in a ceremony to present merit making for the purchase of a dialysis medical unit and installed solar power system and grand opening of the Thawi-Praphis Phuphaphat Building, Health Promotion Hospital, Tha Maprang Subdistrict, Saraburi province, etc.



Religious Activities

• Katin Ceremony

TPI Polene and its subsidiaries acknowledged the significance of promoting and preserving Buddhism and have consistently taken part in Katin ceremonies every year until the present. To this end, the management team, the company's staff, clients and mystic people together made donations for the construction and renovation of religious monasteries and buildings in the temples including the monk and novice ordination project, year 2019 worth Baht 1,487,000. TPI Polene, hosted Katin ceremonies at Phadarapirom Temple, Chiangmai province, hosted Katin ceremonies at Sridonmoon Temple and Ban Hin Lab Temple, hosted Katin ceremonies at Tham Salika Temple, Nakhon Nayok Province and, jointly with Siam Centaco Co., Ltd., hosted Katin ceremony for Wat Nork Pracha Sawan, Ayutthaya Province.

- Supported the propagation of Buddhism through "The World Buddhist Television of Thailand (WBTV)" at Wat Yannawara, introduced and propagated the teachings of Lord Buddha in the country and to the international community in order to bring about peace and harmony to the lives of the people in the country with various nationalities and religions.

- Supported the propagation of the teachings of Lord Buddha through "Dhamma and an Inspiration" channel at Wat Weiruan, Kanjanaburi province, with the objective to dissimilate the teachings of Lord Buddha, with an emphasis on donations to charity, observing the precepts and making mediation. The Company also supported the project "Meditation Practice Project for the Youth". The aim is to cultivate and create consciousness among Thai people, to further apply Dhamma in daily lives.

- Donated 5,387.50 tons of TPIPL cement product, 150 cubic meters of ready-mixed concrete, Super Armour Nano paint and roof tiles as well as other products, with a total value of Baht 4,347,255.31, to more than 27 temples in the country for the purchase of construction materials to build and renovate religious places such as: Siriban Temple, Phuket province; one 5x45 meter accommodation hall for Dhamma practitioners (for Forest Darapirom Temple), Tambol Chom Phra, Tha Wang, Nan province; supported the co-construction of a charity hall, Khon Kaen Charity Foundation (Kuai Masiantueng), Khon Kaen province; and supported the co-construction of Dhamma Sala for Wat Pa Buddhist Visutthra Temple, Amphur Mae Taman, Lamphun province; and supported the permanent crematorium at Napon (Semeru) Wat Pa Sri Rattana Ubon Ratchathani, etc.



Preservation of Traditional Thai Culture

• Sustaining Artwork by TPIPL Cement Mortar and Preserving Thailand's Unique Identity

TPI Polene Public Company Limited has organized a stucco art contest project in Thailand for the 19th consecutive year in 2019. The project was organized in collaboration with the Fine Arts Department and the College of Nursery Rajamangala University of Technology Rattanakosin in order to preserve and protect stucco art to be part of Thai culture forever. The competition comprised two levels as follows:

I. General Public Level with three categories:

1. Molding stucco under the title "Himmapan"
2. Molding cement mortar under the title "Volunteers"
3. Sculpturing of cement mortar under the title, "Nang Songkran and Animal Vehicles"

II. Youth level molding premixed cement under the title, "Tracing the stucco teacher in Sukhothai".

The competition was held on 1-5 May 2019, at Pho Chang Technician College, Phra Nakhon District, Bangkok, and there was an exhibition between 22 November 2019 - 26 December 2019 at the Pho Chang Chang Museum. The Company was honored to take part in helping maintain the conservation of cultural art and development of the Art of Stucco as a unique Thai identity.

• To Sustain Thailand's Traditional Cultures

In local areas, TPIPL realizes the importance of the surrounding community by participating in activities and providing support for the offerings dedicated to Buddhist monks, and supplying the big candles used in the temples on the occasion of the beginning of Buddhist Lent to more than 26 temples in Saraburi province. TPIPL also preserved the "Thai Traditional Songkran Festival", a traditional way of paying respects to elders and receiving blessings from elders in Amphur Thap Kwang District, Amphur Muaklek, Amphur Wungmuang, Saraburi province; the Company supported the fair, "Historical 2nd World War" (for the 11th year), in the sub-district of Amphur Kangkhoei, Saraburi province to encourage Thai people to take part in maintaining the conservation of Thai historical culture with an aim to stimulate the harmony of Thai people and to protect Royal institutions. TPIPL participated in the rice porridge festival, at Phra Buddha Chai Temple, Saraburi province.

TPI Polene is committed to be a company with management efficiency at an international level and conducting research and development of new innovations for continuous business operations, including giving importance and recognizing the roles and responsibilities as an organization that is ready to support society, education, youth, religion and the environment. The Company is committed to creating a supportive society, a good environment, and a sustainable Thai economy. "TPI Polene: we create the future"

TPI Polene, its Quality, Safety, Hygiene and Environment

TPI Polene is well aware that our success and the sustainable growth of the organization at a level of excellence is primarily the result of growth from operational outcomes together with the acceptance and trust of the community and society. Consequently, the Company's management has implemented Quality Standard Systems ISO 9001:2008, API Spec.Q1, Environment Standard System ISO14001:2015, Health and Safety Management Standard TIS 18001:2011, OHSAS 18001:2007 as well as ISO/IEC 17025:2005 Standard and Energy Management System ISO 50001:2011, certifying the performance evaluation test and calibration laboratories under the certified laboratory system of Thai Industrial Standards Institute. TPI Polene has applied the standardization in all respects to be implemented suitably and properly to enable TPI Polene to operate the business effectively and efficiently.

Quality Management

TPI Polene Group focuses on producing, distributing and delivering quality products to satisfy customers' needs. The Company consistently improves the effectiveness of quality control and reduces greenhouse gases. All products of TPI Polene Group were developed under the Quality Control System ISO 9001:2015, API Specification Q1, SPI Specification Q10 and ISO/IEC 17025:2005. In addition, the Company reviews objectives and targets regarding quality at least once a year.

Health and Safety Management

TPI Polene Group continuously emphasizes health and safety as a part of business operations to prevent all employees and all people involved from overall hazards including work-related injury and illness.

TPI Polene, together with the Department of Welfare and Labor Protection, the Ministry of Labor, arranged the project "Safety and Health in the Workplace" to provide knowledge to employees, educational institutions and people in general, under the auspices of Her Royal Highness Princess Maha Chakri Sirindhorn, with an emphasis on reducing to zero any accidents associated from risk in the workplace. Throughout the year 2019, the Company has understood the significance of occupational health and safety in workplace and has consistently taken part in developing safety systems in the workplace, aiming to reduce accidents to zero. The Company also participates in projects as a corporation to conduct its business according to all the rules and regulations of Thailand regarding health and safety in order to reduce and control moderate to severe risks, and was recognized for its achievement in Safety and Health in the Workplace under the auspicious of Her Royal Highness Princess Maha Chakri Sirindhorn, from the Department of Welfare and Labor Protection on September 28, 2015.

The Company has implemented a Health and Safety Management System (OHSAS 18001:2007 /TIS 18001:2011) and has conducted its business according to all the rules and regulations of Thailand regarding health and safety in order to reduce and control moderate to severe risks. The Company believes that health and safety are a responsibility of executives and employees at all levels; therefore, the Company provides sufficient and proper resources such as personnel, time, budget, and training. Additionally, the Company reviews objectives and targets to control the risk of the activities of the company at least once a year and uses work performance in terms of safety as a factor in performance evaluation of employees.

The Company also prepares health check-up precautions for all employees such as the lung function test and autography.

Public Well Being and Employee Healthcare

The Company shows its serious concern for public health in the surrounding community by continuously sending mobile medical units to offer health services to the public. The Company also extends medical welfare (OPD) for employees and covers the families of employees such as parents, spouses and their children. In addition, annual medical check-ups are provided for all employees. The Company also prepared for the prevention of seasonal epidemics by supplying tetanus for clostridium vaccines, flu type B and Swine Flu vaccines to employees and their families.

Environmental Management

TPI Polene Group is committed to environmental conservation. Hence, the Company properly improves and preserves the environment to conform to environmental standards and regulations and continuously prevents pollution in every aspect of work. The Company implemented the international Environmental Standard System ISO 14001:2015 to reduce waste and environmental impact. The Company reduces the amount of dust as well as controls the quality of wastewater from the production process. In addition, the Company has a policy to economize energy usage and to handle waste properly as well as to utilize resources effectively. The Company fully supports activities regarding the environment in cooperation with the government, private sector and local communities. The Company promotes sustainable nature conservation with the rehabilitation of used mine areas to be the same as much as possible with the adoption of biodiversity process to determine design, plan and technique to be used for reforestation. TPI Polene is also committed to reducing environmental impact in surrounding communities, such as dust, noise and vibrations. The Company promotes sustain-

able nature conservation by supporting reforestation and the rehabilitation of used mine areas. The Company also reviews objectives and targets regarding the environment and provides suitable knowledge and training about the environment for all levels of employees in order to raise environmental awareness.

TPI Polene Group has operated the Waste Heat Recovery Power Plant business for bringing total cement production capacity to generate electricity. This enables the Company to reduce electricity energy usage and electricity generating from the PEA, thereby reducing our environmental impact at the source, as fuel is not required to be utilized for power generation in the above-mentioned project.

Laboratory Standards

In addition, the laboratories of our cement plants passed the performance evaluation test under the certified laboratory system of Thai Industrial Standards Institute, according to ISO/IEC 17025:2005 and TIS 17025:2548, the performance evaluation test and calibration laboratories. The Company has also been bestowed the registration for private organization of “the analytical lab” in respect of environmental preservation by the Department of Industry, registration no. Ror-097.

Carbon Label: “the Symbol of Environmental-Friendly Production Process”

The Company was the first Thai manufacturer in the country and in the Asian region to be awarded the Carbon Label in Thailand and in Asia by the Thailand Greenhouse Gas Management Organization (TGO) in the cement production category in 2008. The Company’s 11 types of products passed the evaluation criteria and were awarded the Carbon Label. To this end, the Company has a strong commitment to consistently develop production processes at environmentally-friendly plants.

Energy Management

The Company has participated in a preparation project for energy management standards together with the Department of Renewable Energy and Energy Conservation, Ministry of Energy, to be in compliance with Energy Conservation Act B.E 2538 (Amended B.E 2550) for Control Building and Control Factory.

Productive Management

The Company has applied the Total Productive Management (TPM) system, creating awareness so that everyone shares in the organizational development movement and the opportunities are given for all levels of employees to take part in the activities through the Small Group Activity (SGA) project and by preparing One Point Lessons (OPL) for staff coaching in the departments. An arrangement of machinery and equipment inspection has been made regularly with Visual Control to promote cooperation and group activities amongst all employees and to motivate them by offering award “improvement sheets” for the purpose of problem solving. Project teamwork has been set up to analyze causes of the problems to alleviate losses throughout the entire production process. TPM could be applied in the entire production process development starting from repair and maintenance as scheduled as well as quality control, customer services, new product design, office improvement, job improvement of supporting units, and the potential development of personnel through Work Flow Analysis methods, leading to excellence in operations and management.

Social Responsibility Standards

The Company has implemented social responsibility standards ISO 26000 to be implemented throughout the organization covering all major issues. The Company acts according to 237 standard regulations and 321 provisions. In addition, the Company operates sustainable community development projects in education, economics, public health, and the environment in order to enhance quality of life in the community in line with the Sufficiency Economy concept and ongoing organizational improvement.

Integrated Management Systems

The Company’s LDPE plant has moved forward to be the top leading plastic resin manufacturer in Thailand and in the Asian region. TPI Polene is the first plastic resin manufacturer to be awarded Integrated Management Systems (IMS) from ISO Standard Institutions and it is among the top six manufacturers in the country, which all have been awarded the above certificate of Integrated Management Systems.

“TPI Polene: we create the future alongside reliable wisdom, ethics and consciousness towards society.”

Overview of Business Operations

TPI Polene group has the policy to create the balanced consideration of its business growth in parallel with environmental preservation and to strengthen society to be an integral part in moving the Thai economy forward together with Thai society. The Company is principally engaged in the manufacture and supply of the products mainly classified as follows:

1. Construction sector: manufacture & sale of cement, mortar, clinker, ready-mixed concrete, CRT/FCB, lightweight concrete and cement paint, etc.
2. Petrochemical sector: manufacture & sale of EVA/LDPE plastic resins, ammonium nitrate and nitric acid, Solar Film, EVA Emulsion and EVA Powder., etc.
3. Energy sector: Manufacture and sale of RDF alternative fuel, a waste heat recovery power plant, a coal-fired power plant, an RDF-fired power plant, oil and NGV service stations and petroleum exploration., etc.
4. Others: industrial waste disposal, manufacture and sale of organic fertilizers and pesticide, probiotics for livestock, liquid soap and stain remover, drinking water, energy drink Pro-150 and Pro Vita as well as life insurance business, packaging bags, import-export business, retailed products of the group and real estate development, etc.

Policy of Business Segregation within TPI Polene Group

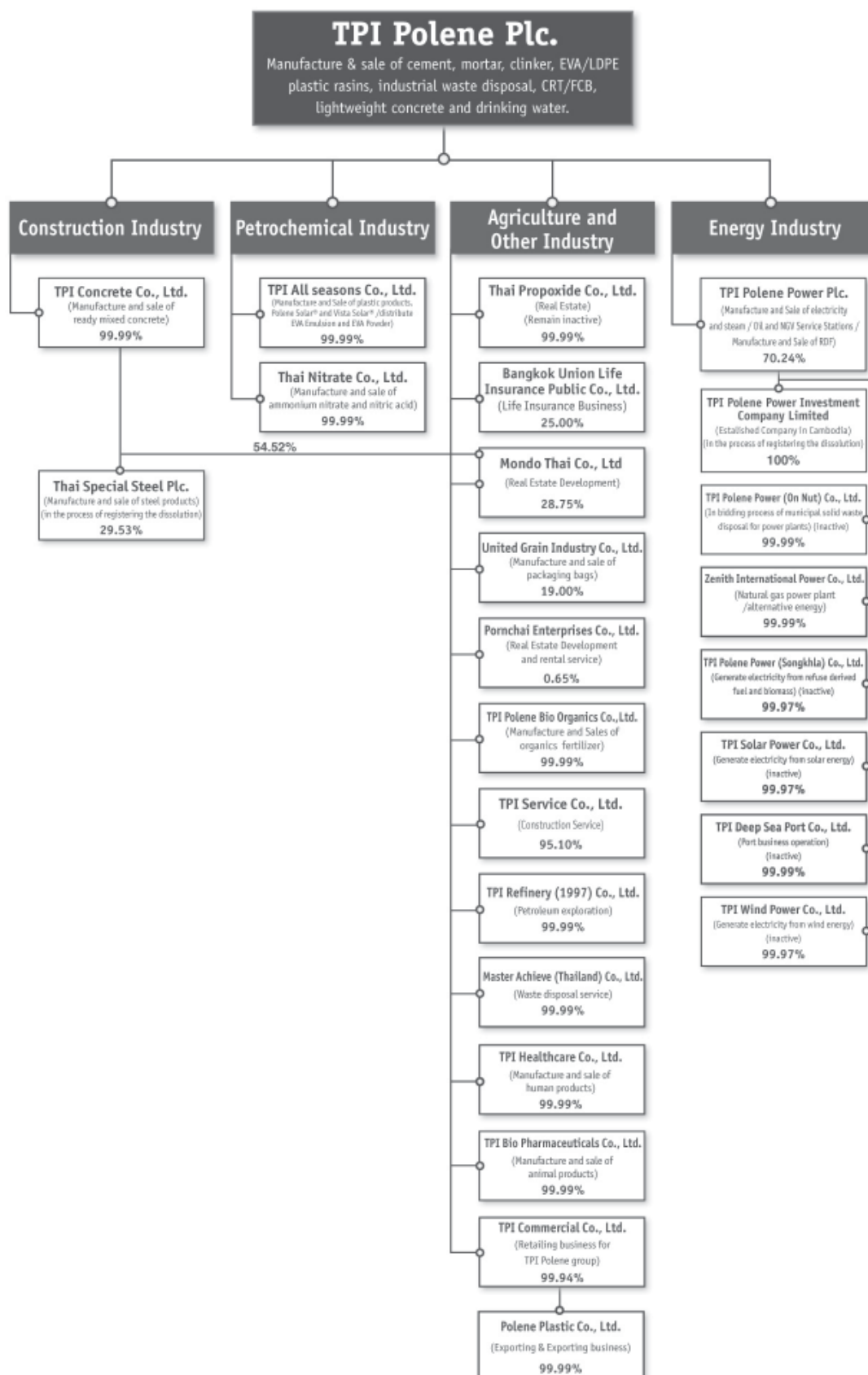
TPI Polene has established subsidiary companies and/or affiliate companies to support the core business and to be convenient, easy to manage, efficient to operate and increase its competitive advantages by considering any other factors, such as relevant governing laws, financial structure, taxes and risk management, etc.

TPI Polene has maintained a policy of managing its subsidiary companies to operate their business to be in compliance with the policies of its mother company to ensure that the business administration and good corporate governance system is controlled in the same way. As for the administration of subsidiary and affiliate companies, the Company has appointed a representative to a position in the executive management team to jointly manage and make decisions on policy and plan implementation by placing great importance on fostering a good governance corporate culture throughout the organization, with an emphasis on transparency to achieve set objectives.

TPI Polene and its subsidiaries have maintained our position as one of the top leading cement manufacturers by creating stability and balance in business operations, public well-being, social and community improvement, while protecting our environmental surroundings to strengthen society, further enhancing the sustainable growth of the Company, and to always be in compliance with the policy of TPI Polene's responsibility towards society.

Structure of the Group

as at 31 December 2019



Nature of Business

1. Cement, Clinker and Mortar Cement Business

TPI Polene is one of the major manufacturers and distributors of cement products and mortar cement under the brand name “TPIPL”. The plants are located in Saraburi Province. All the Company’s cement products meet the ISO/TIS certifications of industrial standards, ASTM Industrial Standards and the EU Industrial Standards. TPI Polene was the first cement manufacturer in Thailand to be awarded ISO 9002 Certification from the International Standard Institute, for surpassing industrial and environmental protection standards. This has enabled the Company to export cement to the state of California, where surrounding communities are highly aware of environmental conservation.

TPI Polene was also the first cement manufacturer to be awarded the Carbon Label for both Portland cement and the mortar cement products. The Carbon Label demonstrates that the producer has submitted data to show that TPI Polene puts an emphasis on producing products to be environmentally-friendly and helps to even out temperatures in the atmosphere.

The Company currently operates four cement production plants with a total production capacity of 13.5 MTPA, using technologically-advanced machinery, and is strategically-located, adjacent to both a limestone quarry and an efficient transportation distribution network, which reaches throughout the country. This gives the Company its low-cost competitive advantage. TPI Polene Group also operates Waste Heat Recovery Power Plants, which generate electricity from waste heat emitted from TPI Polene’s 4 cement production plants and/or uses Refuse Derived Fuel (RDF) as fuel to generate electricity in its RDF-fired power plants. As a result, TPI Polene Group has become a power plant operator in Thailand, with the largest waste-to-energy power plant operations in the country, a renewable energy to enhance the environment.

Cement Industry

In 2019, cement demand in the country increased to 35 million tons over the previous year, supported by a consistent construction of mass transit railway systems and massive governmental infrastructure projects in the country. In 2019, the Company consistently developed new cement products for the market, such as: cement mortar TPI (M601), a mixed material of cement with fast setting property that is well-suited for concrete surface repairing; a high-quality cement base non-shrink grout TPI M670, with special components that is specially-designed, allowing for good workability for very high compressive strength with non-shrinkage property; general purpose non-shrink grout TPI M671; cement mortar M900; and special armour nano paint: NP 104.

In 2020, the Company anticipated that cement demand consumption in the domestic market will increase, supported by investment in utilities development systems, mass transit systems and central and regional transportation network systems in the country according to the government’s policy. These included the construction of the various new lines for the BTS Skytrain; a national rail network of rapid trains; and opening links to three airport routes; the construction of a motorway from Bangkok to Nakhonratchasima and a motorway from Bangyai to Nakhon Phanom province, etc. Those entire construction projects will have a direct impact on the increase of cement demand consumption in both the public and private sectors.

In 2019, competition in cement, clinker and other cement products sales in export markets will tend to be intensified by the China - United States trade war, an ongoing economic conflict between the world’s two largest national economies, which resulted in the slowdown of the expansion of the construction sector in many countries in the Asian arena, which are the major cement importers in the international market. Therefore, in 2019, demand consumption for cement, clinker and other cement products in import markets expanded at the diminishing rate compared with the year 2018. In addition, there were several cement manufacturers in the Asian market that increased their quantity of clinker being exported to international markets and used a price competition strategy in the market, which directly had an impact on the clinker export in Thailand.

2. LDPE/EVA plastic resins

TPI Polene is the manufacturer and distributor of LDPE Homopolymer (LDPE) and LDPE Copolymer (EVA) plastic resin. TPI Polene operates this business in Rayong province, with total production of 158,000 TPA. The LDPE is the output to be used as a main raw material for many types of plastic products, while EVA plastic resin will be used to produce athletic shoes. Low-density polyethylene (LDPE) and Ethyl Vinyl Acetate (EVA) account for TPI Polene’s market share of 20% and 90% of total domestic sales volume in the country respectively. We are the sole producer of EVA in Thailand and one of the few producers of high quality EVA in the world that can develop proprietary EVA production technology.

LDPE/EVA Industry

In 2019, LDPE/EVA price competition in the market was increasingly intense whereas the import tariff for LDPE/EVA was at the rate of 0.5%, which promotes free trade through an ease of import system. In addition, the China-United States trade war and economic conflict between the world's two largest national economies, had a direct impact on losses from the operations of the petrochemical manufacturers in the country and in the region as LDPE/EVA prices fell sharply during 2019.

However, TPI Polene could still generate profits from the operations of its LDPE/EVA plastic resins business as the Company has focused on the importance of customer service quality to provide reliability in the quality of our products and services which are continually evolving. The company has also improved its production efficiency by reducing the amount of waste during the change in production flow, which reduces production costs, as well as aims to develop products to market as a more technological market to support future technology markets.

In 2020, the Company anticipates that competition for LDPE/EVA plastic resins in the market will be intense. The Company has developed differentiated products to consistently create added-value to LDPE/EVA plastic resins products, as well as develop hot glue with EVA plastic resin as raw material. In addition, the Company has developed EVA plastic resin for the color inks industry on plastic bags and it is now well responsive in the market. The Company still has a policy to develop products that can generate more added-value and penetrate niche market groups that yield higher contributions.

3. Ready-mixed Concrete

TPI Concrete Co., Ltd. Manufacture (a 99.9% owned subsidiary company) is the third largest manufacturer and distributor of ready-mixed concrete with a market share of 11% of ready-mixed concrete demand in the country. Product quality and consistent improvement of service is our prominent feature.

The major competitors of TPI Concrete are Concrete Product and Aggregate Co., Ltd. (CPAC), Siam City Concrete Co., Ltd. and Asia Concrete Products Co., Ltd. There are also several other minor concrete manufacturers in the country.

Ready-mixed Concrete Industry

In 2019, the ready-mixed concrete business grew continuously, a result of the Thai government's policy to expand its infrastructure development projects, especially in Bangkok and its vicinity. This includes the development of the country's mass transit projects and various infrastructure projects in the country, such as the construction of the Pink, Orange, Green, Pale Red, and Yellow Lines of the BTS Skytrain in Bangkok, as well as the construction of double track sky train routes. The Thai government's policy also includes infrastructure development in the Eastern Seaboard Economic Corridor Development Program, such as Passenger Terminals 2, Utapao International Airport, Bangsue Central Station development project and Makkasan railway station, etc. Increased spending on infrastructure projects by the government should help drive real estate enterprises to invest in construction of residential housing, for both condominium and detached houses alongside rapid sky train line routes throughout the city. This construction will include office buildings, serviced apartments, and the renovation and repairing of residential housing, industrial estates, hotels, and condominiums, which will lead to higher concrete production output and rising demand consumption for concrete in the country accordingly.

In 2020, it was anticipated that demand consumption for ready-mixed concrete in the country continues to grow, driven by the Thai government's Mega Projects investment plan worth two trillion Baht. Those projects include: the construction of Bang Yai motorway project-Kanchanaburi, Bangkhuntien-Ban Phaeo; Don Muang Tollway-Bang Pa-in extension; extension of double line BTS Skytrain - Phase 2; and the rapid train national rail network; opening links to 3 airports line routes etc. All of the construction as above results in the trend of the real estate sector to gradually improve. High-end condominiums are more affected than the horizontal residential housing. Real estate developers have adopted strategic plans by adjusting investment plans to be in line with the demand in the market, by distributing project investment in all areas in the country to accommodate tourists, leading to the increase in overall demand consumption of ready-mixed concrete.

4. Concrete Roof Tile/Fiber Cement Businesses and Lightweight Concrete

The Company currently operates four existing plants of concrete roof tiles as follows:-

FCB 1: Board sheets production line; substitute for wood product category, using the production process of autoclave; production capacity of 128,000 TPA.

FCB 2: Board sheets production line; using the production process of autoclave; production capacity of 128,000 TPA.

FCB 3: Production line for a substitute for wood product category and digital board production line (autoclave system) as well as corrugated production line and its cover set (Air cure system); production capacity of 5,000 TPA.

FCB 4: Digital board production line and a substitute for wood product category; using the production process of autoclave; production capacity of 166,000 TPA.

Concrete Roof Tile products are comprised of concrete roof tile products and its cover sets. Total production of concrete roof tiles are 1,600,000 square meters or 16 million pieces per annum.

TPI Polene is the manufacturer and seller of concrete roof tiles and fiber cement products under the logo, “TPIPL”, designed through a production process that uses modern machinery and high technology. Concrete roof tiles and fiber cement products are made from high quality cement and are manufactured to meticulous strength specifications, ensuring endurance and ultimate press and quality of the products surpassing the production standards from Thai Industrial Standards Institute and the International Standard Organization (ISO 9001:2015) from British Standards Institution (BSI). In addition, we have a skilled quality control team, assuring qualified products by the professional team under the standardization of roofing material, which can be tested before launching to the market. Concrete roof tiles and fiber cement products are made from high quality cement and are manufactured to meticulous strength specifications, ensuring endurance and ultimate press. They have captured all the characteristics of creative curb appeal, creating a matte appearance and they make a roof stand out. TPI Polene puts an emphasis on producing products to be environmentally-friendly and help to even out temperatures. The Company also developed varieties of products from fiber cement by employing modern “digital technology”. TPI Polene is the very first manufacturer in the country to use digital technology.

The Company’s fiber cement and concrete roof tile products meet the ISO/TIS certifications of industrial standards from Thai Industrial Standards Institute and the International Standard Organization surpassing the production standards, ensuring high quality of the products surpassing the production standards which can be summarized as follows:-

Products	Standard Certification	Standards Institute
Fiber cement and concrete roof tile products	certifications of industrial standards	Thai Industrial Standards Institute
Fiber cement products	International Industrial Standards Institute ISO 9001:2015	British Standards Institution (BSI)
Fiber cement products	Conformite Europeene (CE) Health, Safety Management and international Environmental Standard System to comply with rules and regulation of the EU Standards	All the Company’s cement products meet the ISO/TIS certifications of industrial standards

The dominant characteristic of the lightweight concrete project is that the Company can produce lightweight concrete using a variety of raw materials produced at its own plant, which is greater than 90%, and includes electricity and surplus of steam which will be reusable in the production process, thereby resulting in lower costs of production and creating competitive advantages.

Concrete Roof Tile/ Fiber Cement and Lightweight Concrete Industry

Concrete Roof Tile and Fiber Cement: There are 6 major manufacturers in the Concrete Roof Tile and Fiber Cement Industry, which are: Siam Cement Plc., (CPAC brand), Diamond Roofing Tiles Plc., (Diamond brand), TPI Polene Plc., (TPI Polene brand), Siam City Cement Plc., (Conwood brand), Mahaphant Fiber Cement Plc., (Mahaphant brand) and Oranit Roofing Tiles Co., Ltd., (Oranit brand). Big roofing manufacturers, which operate their own cement plants, have competitive advantages in terms of controlled costs of production. In 2019, overall concrete roof tile and fiber cement businesses had a slowdown, as there were some manufacturers of concrete roof tile and fiber cement which developed new products and new innovations to replace decorative products. Export sales to developing countries has also been affected by the global economic crisis as demand consumption in the international market showed signs of a slowdown, a result of a trade war between USA and China, protests in Hong Kong, and the instability of crude oil prices; all of these factors have resulted in the slowdown of the global economy.

In 2020, it is anticipated that the construction materials industry will be affected by external factors, resulting in a global economic slowdown. As for some negative constraints in the country, such as, number of unsold houses and condominiums, Land and Construction rules and regulations coming into force in early 2020, the delay of the issuance of EIA certificate (Environmental Impact Assessment), high level of the household debt issues as well as drought trouble and basic minimum wage standards. All of these factors will also delay the purchasing power of the buyers of residential housing in the market and the decisions of real estate enterprises to postpone the construction projects. All of these factors will have a direct impact on demand consumption in the construction sector. In addition, the import of cheap construction materials from China has taken part of the market share. In effect, price competition (as well as service) will tend to be intensifying in 2020 and further drive manufacturers to put their best efforts to sell products in the tougher market in order to keep their existing market shares. However, a result of the Thai government’s policy to accelerate construction of mass transit railway systems and the subway in Bangkok and its vicinity to expand the transportation network system in the country. The government has a measurement policy to help support low income buyers to purchase their first residential housings with the launch of “LTV” measurement, providing an opportunity to low income buyers to own their residential housings. Increased

spending on infrastructure projects by the government will help drive real estate enterprises to invest in construction of residential housing, for both condominium and detached houses alongside rapid sky train line routes throughout the city, leading to higher concrete production output and rising demand consumption for construction material in the country accordingly.

In 2019, TPI Polene used a strategy to capture its existing market shares and increase additional sales volume in the domestic market. TPI Polene maintains the policy to produce new products through research and development for product innovations to respond to the needs of consumers, producing and launching new products to comply with the rules and regulations of TIS standards, the EU Standards, Conformance Europeene (CE) System. This policy focuses on product differentiation suitable for a wide range of purposes, genuine applications in order to expand the market and capture its existing market shares, and elegant design such as industrial furniture group, products for the elderly and hi-end products for high purchasing power groups of customers., etc. The Company has the policy to produce products focusing on design, and that are of attractive appearance and have a beautiful style to create long term competitive advantages and reduce carbon dioxide gas that causes global warming and are environmentally-friendly. To this end, TPI Polene uses a strategy for sales and product offerings to customers through social media and online marketing to customers based on advertisements via television, print media, and product displays at more than 600 construction material sales agents and modern traders throughout the country. The Company also utilizes online media advertising to create awareness and deliver product details through marketing to consumers with real product presentations.

The Company has a policy to consistently export fiber cement products and concrete roof tiles to CLMV member countries, as well as to India, Indonesia, the Philippines, South Korea, South Africa and South Asia and has a plan to expand the market to other countries and other continents. This will allow the Company to maintain a consistent expansion in project construction and create opportunities to expand the market to countries in the Middle East and in Europe.

Lightweight Concrete: There are 6 major manufacturers in the Lightweight Concrete Industry, which are: Siam Cement Plc., (Q-Con brand), TPI Polene Plc., (TPI Block brand), Thai Light Block and Panel Co., Ltd., (Thai Con brand), Diamond Roofing Tiles Plc., (Diamond brand), Siam City Cement Plc., Siam City Cement Plc., (Insee Super Block brand) and Smart Concrete Co., Ltd. (Smart Block brand). In 2019, demand growth for Lightweight Concrete in domestic market slowed down. In 2020, the Company anticipates that the lightweight concrete business will grow to be in line with higher demand consumption for cement in the country.

5. Refuse Derived Fuel (“RDF”) Plant

TPI Polene Power Public Co., Ltd. (a 70.24% owned-subsiary of the Company) operates a renewable energy business with an Alternative Fuel Power Plant or Refuse Derived Fuel (RDF). It commenced commercial operations in 2001. The plant is located within the area of our cement plant in Saraburi province. The RDF project enables the Company to use RDF fuel to generate energy in the form of electricity in the Plant. The RDF Plant as above has been granted promotion certificates from the Board of Investment (“BOI”).

To support its RDF-fired power generation capacity, TPI Polene Power currently operates RDF production facilities with a daily installed capacity to process up to 6,000 tons of municipal wastes and produce up to 3,000 tons of RDF. Presently, TPI Polene Power has constructed a warehouse for RDF storage of up to 100,000 tons, to ensure sufficient waste supply to support its RDF requirement as fuel to generate power for a period of one month.

TPI Polene Power also made an investment to install the machinery and equipment and semi-mobile waste-sorting machines at two landfill sites to produce RDF fuel in Nakhonratchasima province, managed by TPI Polene Power itself and has entered into waste supply agreements with nine waste management companies. Through these agreements, TPI Polene Power will install its semi-mobile waste-sorting machines at landfill sites to produce RDF fuel to be transported to TPIPP’s Power Plants in lieu of municipal waste to its power plants in Saraburi province. This ensures sufficient supply of RDF fuel to be transported to TPIPP’s Power Plants. In total, TPI Polene Power currently has an increased daily capacity to process up to 1,000 tons/day of municipal waste or produce up to 300,000 tons per annum. The Company believes that the semi-mobile waste-sorting machines allow it to diversify waste sourcing channels and increase the quality of waste sourced.

6. Power Plants

TPI Polene Power Plc (“TPIPP”) is a power plant operator, (a 70.24% owned-subsiary of the Company) operates a renewable energy business with an Alternative Fuel Power Plant with the largest waste-to-energy power operations in the country and has become one of the top leading waste-to-energy power plant explorers in Thailand, with an established track record and expertise in waste management and proprietary technology well adapted to waste-to-energy operations in Thailand.

As of 31 December 2019, TPIPP had eight power plants in operation, with total installed power generation capacity of 440 MW. TPI Polene Power will sell a contracted power generation capacity of 180 MW to The Electricity Generation Authority of Thailand (EGAT) and to TPI Polene under contracted power generation capacity of 260 MW (With a permitted power generation capacity of 230 MW) under Power Purchase Agreements (“PPA”) as follows:-

- TPIPP sells contracted RDF-fired power generation capacity of 180 MW, consisting of Power Plants with power generation capacity of 20 MW, 60 MW and 100 (70+30) MW and which specifies 3 contracted power generation capacity of 18 MW, 55 MW and 90 MW respectively to The Electricity Generation Authority of Thailand (EGAT). The RDF-fired Power Plants receive an adder of Baht 3.50 per kWh, which is payable in addition to the standard price of EGAT, on alternative-fuel-generated electricity for a 7-year period, from EGAT.
- TPIPP sells power generation from power plants with power generation capacity of 260 MW, comprising 1) waste-heat-recovery power plant, which generates electricity from waste heat emitted from TPIPL's cement production plants and has an installed power generation capacity of 40 MW, consisting of two 20 MW power generation units. 2) Power Plants with power generation capacity of 70 MW (with approved power generation of 40 MW), which became commercially operational on 18 August 2018 3) A coal-fired power plant with power generation capacity of 150 MW became commercially operational on 25 January 2018. TPIPP began to sell contracted power generation to the Company at the same rate that the Company purchases directly from the Provincial Electricity Authority.

TPIPP had eight power plants in operation, with total installed power generation capacity of 440 MW as follows:-

1. A waste heat recovery power plant (the **"WHRPP-40 MW"**), which generates electricity from waste heat emitted from TPIPL's cement production plants and has an installed power generation capacity of 40 MW (TG1& TG2 = Turbine Generator), consisting of two 20 MW power generation units. TPIPP began to sell a contracted power generation capacity of 40 MW to TPI Polene in June 2009, at the same rate that TPI Polene purchases directly from the Provincial Electricity Authority. Presently, privilege under the BOI to exempt corporate income tax has been terminated.
2. An RDF-fired Power Plant (TG 3) with an installed power generation capacity of 20 MW. TPI Polene Power Co., Ltd. began to sell contracted power generation capacity of 18 MW in January 2015 to The Electricity Generation Authority of Thailand (EGAT). The RDF-fired Power Plants receive an adder of Baht 3.50 per kWh, which is payable in addition to the standard price of EGAT, on alternative-fuel-generated electricity for 7-year period, from EGAT. These RDF-fired Power Plants have been granted promotion certificates from the BOI. Presently, privilege under the BOI to exempt corporate income tax has been terminated.
3. An RDF-fired Power Plant (TG 5) with an installed power generation capacity of 60 MW. In August 2015, TPI Polene Power Co., Ltd. began to sell contracted power generation capacity of 55 MW from RDF-fired Power Plant with an installed power generation capacity of 60 MW to The Electricity Generation Authority of Thailand (EGAT). The RDF-fired Power Plants receive an adder of Baht 3.50 per kWh, which is payable in addition to the standard price of EGAT, on alternative-fuel-generated electricity for 7-year period, from The Power Electricity Authority of Thailand. These RDF-fired Power Plants have been granted promotion certificates from the BOI.
4. A power plant with an installed power generation capacity of 100 MW, (TG4) consisting of a 30 MW waste heat recovery power generation unit and a 70 MW RDF-fired power generation unit. The 30 MW Waste Heat Recovery Power Plant commenced commercial operations in February 2016 and initially sold electricity generated from the waste heat recovery power generation unit to TPIPL and consequently sold electricity generated from combined 100 MW Power Plant to EGAT under the power purchase agreement of 90 MW, which commenced commercially operation on 5 April 2018 and received an adder of Baht 3.50 per kWh, which is payable in addition to the standard price of EGAT for 7-year period. Both of these have been granted promotion certificates from the BOI, which entitles it to a number of benefits including tax exemptions.
5. A mixed fuel-fired Power Plant (TG 7) (Approved power generation capacity of 40 MW) became commercially operational on 18 August 2018. TPIPP began to sell contracted power generation at the same rate that the Company purchases directly from the Provincial Electricity Authority.
6. A coal and RDF-fired power plant (TG 8) with an installed power generation capacity of 150 MW became commercially operational on 25 January 2018. TPIPP began to sell contracted power generation at the same rate that the Company purchases directly from the Provincial Electricity Authority. These coal and RDF-fired power plant have been granted promotion certificates from the BOI.

RDF-fired Power Plant Industry

Presently, competition in the RDF-fired power plant business is quite intense as is the competitive bidding with other RDF-fired power plant operators in the country under a long-term Power Plant Agreement (PPA) for selling power to EGAT. As such, most competition in the waste-to-energy industry occurs during the contract bidding phase.

TPI Polene Power is a power plant operator in Thailand, with the largest waste-to-energy power plant operations and is the sole renewable energy technologies Small Power Producer ("SPP") in Thailand with an installed waste-to-energy power generation capacity of 163 MW (with a market share of 55%). This compares with the second largest power plant operator with an installed waste-to-energy power generation capacity of only 14 MW with a sales capacity through the Power Plant Agreement of up to 13 MW to EGAT (with only 4% market share). TPI Polene Power is also the largest RDF-fired power plant operator in the country and receives an adder of Baht 3.50 per kWh, which is payable in addition to the standard price of EGAT, the same as Very Small Power Producers ("VSPP").

The Company is a pioneer in power plant operation in Thailand, with the largest waste-to-energy power plant operations in the country with an expertise in the long-lasting plant business operations and a concrete successful performance. It has a competitive advantage in both capital and reliable technology and experience, with the ability to successfully complete project investment.

7. Industrial Waste Disposal Business

TPI Polene also operates an industrial waste disposal business to dispose of industrial waste from various industries in the country, under a license to operate a central waste treatment plant granted by the Department of Industrial Works. This project helps eliminate industrial waste from industries, enhance recycling opportunities, lower raw material and fossil fuel usage, and develop a recycling economy with the preservation of environmental surroundings.

8. Oil Service Stations and NGV gas stations

TPI Polene Power Public Company Limited also operates oil service stations and NGV gas stations in Bangkok and provincial areas, under the logo "TPIPL". NGV gas stations have been granted promotion certificates from the Board of Investment. Currently, TPI Polene Power operates a total of eight oil service stations, one NGV gas stations and three oil service stations and NGV in Bangkok and provincial areas.

9. Fertilizer Plant

TPI Polene Bio Organics Co., Ltd. (99.99% owned subsidiary of the Company). The project became operational in 2011 and is operated in the location within the area of our cement plant in Saraburi province. The organic fertilizer plant has been granted promotion certificates from the Board of Investment ("BOI"). TPI Polene Bio Organics Co., Ltd. obtained quality products in compliance with the standards of IFOAM for liquid fertilizer on 5 September 2011. Most importantly, TPIPL organic fertilizers are toxic-free and safe for human beings and the environment. TPI Polene Bio Organics Co., Ltd. has consistently produced research and product development to obtain varieties of agricultural products specially manufactured for plants and livestock (synbiotic products), such as organic fertilizers, soil enhancers, biocide and wood vinegar (protection from aphids, termites, and other harmful insects). Presently, the products are sold and distributed through TPIPL's agents, TPI Expo, a sales booth at Saraburi plant, distribution terminals, TPI oil and NGV service stations and through online marketing.

TPI Bio Pharmaceuticals Co., Ltd (99.99%-owned subsidiary of the Company) is the manufacturer and distributor of livestock (Probiotic products and Microme know), (which is used to protect against Foot and Mouth Disease) and Synbiotic, the product to help provide quality care for dogs, to strengthen dog's health, increase their physical health and to keep dog's hair healthy and shiny. The products are sold and distributed through TPIPL's agents, TPI Expo, a sales booth at Saraburi plant, distribution terminals, TPI oil and NGV service stations and through online marketing.

TPI Healthcare Co., Ltd. (99.99%-owned subsidiary of the Company) is the manufacturer and distributor of top organically hygienic products, such as hygienic soap, stain/grease removers, TPI Biosan and Pro Vita., etc. The products are sold and distributed through TPIPL's agents, TPI Expo, a sales booth at Saraburi plant, distribution terminals, TPI oil and NGV service stations and through online marketing.

Organic Fertilizer Industry and TPI Probiotic for animal farming and healthcare products

Prolonged drought conditions in particular areas in the country and flooding in other areas occurred during the 2019 monsoon season in the Northeast and led to a drastic slump in the agricultural sector in early 2019. However, the government has planned a strategic project for sustainable agricultural development as well as other supporting projects, aiming to alleviate farmers' problems. In effect, in 2019, the agricultural sector in the country grew by 0.5% over the previous year. The government has launched a "Policy of Marketing Release Production Program" with the cooperation of the Ministry of Commerce and the Ministry of Agriculture and Cooperatives, aiming to expand the market and create added value to agricultural products, which are in high demand in both the domestic and international market. As a result, farmers turned to do more organic farming and the policy as above has consequently driven the organic fertilizers industry to grow consistently.

As for the market for antibiotics products, it can be clearly seen that there is still a problem of epidemic diseases in the livestock business and fishery business, particularly in the use of antibiotic drugs, which have affected the drug-resistant diseases occurring among the consumers. Thus, the consumers started to realize the hazards of antibiotic usage in livestock farming. Demand consumption for organic consumer products used in household families has expanded consistently, thereby leading to higher demand consumption for hygienic products, which has consequently driven organic products to grow consistently.

In 2020, TPI Polene anticipates that demand consumption for organic fertilizers will grow consistently, due to higher demand consumption for hygienic products in the market and expects that organic fertilizer market will be driven by the agricultural sector in the country under the government's strategic projects. These projects aim to seek out the market for agricultural crop yield by encouraging farmers to do organic farming to enhance the added value of agricultural products, as well as the governmental sector promotion of the reduction in the use of chemicals. Simultaneously, the trend for agricultural growth in the agricultural sector in 2020 is forecast to be approximately 2%-3%, which will cause farmers to do more organic farming.

As for the probiotics market for livestock, it is clearly seen by the government's policy to encourage farmers to do livestock farming, such as "A Million Cows Exporting to China Project", aiming to promote the sub-farms to follow GAP (Good Agricultural Practice or good Agricultural Guidelines), which will result in the expansion of the probiotics market. As for the healthcare products market, such as healthy beverage and energy drink, it will tend to grow increasingly.

In 2019, the demand consumption for organic fertilizers, used in the agricultural sector, grew continuously, which had a good benefit for the organic bio-fertilizer business of TPI Polene. Concurrently, consumers have been aware of the dangers of using antibiotics in animals, which had a good direct impact on the probiotics markets and livestock products of TPI Polene Group, products which are not harmful to the environment or consumers. The Company's probiotics products were introduced and gradually became known among livestock farming and the fishery businesses because TPI Polene's products allows the farms to manage well-developed systems of Early Mortality Syndrome (EMS), the infections which could induce pathological changes in shrimp farms/ bird flu (avian influenza) which come in contact with poultry farm/foot and mouth disease that affects cloven-hoofed animals and African Ahiwa diseases in pigs (ASF). Farmers are currently being encouraged to use alternatives instead of antibiotics, leading to the growth of TPIPL's probiotic/ organic products (which are chemical free and safe for farmers and consumers). Demand consumption for organic consumer products used in household families has expanded consistently, thereby leading to higher demand consumption for hygienic products of the Company.

10. Ammonium Nitrate and Nitric Acid

Thai Nitrate Co., Ltd. (a 99.99% owned-subsidary Company) is the largest producer of ammonium nitrate and nitric acid in the country and Thai Nitrate is the sole producer of nitric acid in Thailand.

11. TPIPL Drinking Water Business

TPIPL has operated a drinking water business under the brand name "TPIPL" since 2011. It has good quality products and it is safe for consumers as it uses high quality reverse osmosis technology filtration systems (RO). This process requires that high pressure be exerted on the high concentration side of the membrane and by applying ultraviolet treatment to eliminate biological contamination and the ozone treatment process in the water-bottling stage of the production of drinking water. These major benefits have made TPIPL drinking water possess quality characteristics of water; thus, we obtained a certificate approved from the Food and Drug Administration (FDA) in compliance with the standards from natural resources. TPIPL drinking water is consumed at the plants and at head office and is also distributed to consumers.

12. Polene Solar® Products and EVA Emulsion and EVA Powder

TPI All Seasons Co., Ltd. (99.99%-owned subsidiary of the Company) is the manufacturer and distributor of EVA film that is used for encapsulant for photovoltaic (PV) modules, which are ideal for crystalline, amorphous thin film solar panels under the brand names, Polene Solar® and Vistasolar®. In addition, EVA can be used in laminated safety glass and tempered glass screen protectors under the brand name, VistaSafe™. Wrap film, top sheet, masking film, multi-purpose plastic sheet, anti-slip mat applications are certified by the International Standard Organization, ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018. TPI All Seasons presently operates 10 production lines with an annual capacity of 20,100 TPA.

TPIPL is also the manufacturer and distributor of water-based adhesive and re-dispersible powder, which are widely used as adhesives for distribution. The main raw material of these products is the byproduct of ethylene and vinyl acetate, which are used to produce LDPE Homopolymer and EVA Copolymer. It is classified as a recyclable material, aiming to reduce greenhouse effects and carbon dioxide emitted in the atmosphere. We have developed proprietary EVA Emulsion and EVA Powder production technology and we are one of the few producers in Thailand that has developed and launched EVA Emulsion and EVA Powder into the market under the logo Polene®. They are distributed by TPI All Seasons Co., Ltd. In 2019, the Company had production capacity of EVA Emulsion and EVA Powder of 30,000 tons per annum and 6,000 tons per annum respectively.

Polene Solar® Products can be classified according to their components and application as follows:

1. EVA encapsulant for Photovoltaic (PV) modules: The encapsulant is very important for the solar module because it is used to fix all components of the modules together. Moreover, the EVA sheet must be robust and protect the solar cells against UV light and moisture for at least 25 years. The above products are classified into two brand names as follows:
 - Polene® Solar Film: In 2007, TPI All Seasons created the first EVA products by using high technology in collaboration with Thailand's top-tier PV manufacturers and our R&D team, which has over 10 years of experience in polymeric materials. The product exhibits very outstanding properties such as high light transmission, UV protection, and excellent adhesion to glass which is suitable for various solar panels (crystalline and amorphous thin film) in order to meet the demands of domestic customers and the Indian market.

- Vistasolar ®: The most prestigious and oldest brand of EVA film in Europe, founded in 1982, it was purchased by TPI All Seasons Co., Ltd. in 2014. All machinery, equipment and its technology have been transferred to be installed in Thailand. For this reason, the Company has gained more market share and has become more well-known in the world market. The above takeover also included the Company's technology processes, all machinery, equipment, intellectual property as well as market share. The products are designed to satisfy the needs of customers in the global market, while the market is mainly in European countries.
2. VistaSafe™: The Company has also developed the EVA film for laminated glass, tempered glass screen protector and decorative glass for building and vehicles.
 3. Blown film products
Blown film extrusion is a well-known technology that is the most common method to make plastic films, especially for the packaging industry (wrap film, top sheet and masking film).
 4. Anti-slip mats
Polene EVA film can be used as a household multi-purpose plastic sheet such as anti-slip mats or surface protective film in the kitchen, living room and bathroom.
In 2019, TPI All Seasons Co., Ltd had the following total revenues: 82% from EVA encapsulant film, 7% from Blown film products and 11% from anti-slip mat and other products respectively.

Competition in Solar Film Industry

There are several competitors in the solar film industry both in the country and in the international market. Major solar film competitors are Chinese manufacturers, who have established a production base in Thailand and commenced commercial operations in mid-2018. They are considered the major competitors of the Company because the raw materials of production in China are cheaper with a higher quality. In the international market, several manufacturers from Japan and Spain went out of business while several manufacturers in the solar film industry in China and South Korea are still in the business. However, there is a solar film manufacturer from Saudi Arabia entered into Indian Market, driving solar film competition to be more intense.

In 2019, production output and sales revenues for EVA film Encapsulate in the domestic market increased as the government had as policy to support the production of solar panels. In addition, there are several manufacturers of solar cells from offshore, such as China, that have established their production bases in Thailand. They are considered the major competitors of the Company in the domestic market. For the international market, sales revenues and profits tend to increase as several manufacturers from Japan and Spain have gone out of business; so manufacturers of solar cells in Europe, East Asia and Southeast Asia have turned to purchase additional products from the Company.

Therefore, the agreement also provides opportunities for higher demand consumption for solar cells in the global market. However, there are solar film manufacturers from Saudi Arabia, with relatively lower costs of production that entered the Indian market and offered lower prices of solar film to manufacturers in India, causing the intense competition for the solar cell business in the international market.

Competition in EVA emulsion and EVA powder

In 2019, sales volume of EVA emulsion and EVA powder, (which are widely used as adhesives) in the domestic market grew constantly and are expected to grow consistently in 2020.

TPI All Seasons can continuously increase sales volume as customers mostly accept the products' quality standards and the pricing. TPIPL can also increase its competitive advantages to be able to compete in both the domestic and international markets so the Company can grasp the majority of the market share for VAE business in the country in replacement of the formerly foreign manufacturers.

As for the export market, TPI All Seasons can expand its export sales to countries in the Middle East group, such as Egypt, Saudi Arabia, United Arab Emirates, and countries in Southeast Asia such as Vietnam, Indonesia and Malaysia. TPI All Seasons can capture market share in China and India and is starting to consistently gain more market share in the international market.

13. Petroleum Exploration and Production Technology

TPI Refinery (1997) Co., Ltd. entered into the Petroleum Concession No. 2/2554/110 (addition) covering an area of petroleum exploration concession block No. L29/50 with the Ministry of Energy on 20 June 2019, as the concessionaire for extension of Petroleum Exploration and Production Technology for another third stage of exploration, commencing from the due date of Petroleum Exploration and Production Technology, i.e. 8 February 2020 to 7 February 2020.

TPI Refinery (1997) Co., Ltd. is a concessionaire for Petroleum Exploration and Production Technology, which is considered as an essential business for energy industrialization, the production industry, and logistic systems of the country. Presently, TPI Refinery (1997) Co., Ltd. is in the process of petroleum exploration in the third stage of exploration, which involves geophysical, and technological seismic surveys, using the 3D seismic in the third year and drilling exploration well.

In addition, the Company has invested in other businesses through its subsidiaries and affiliated companies, and is involved in real estate development, the provision of life insurance services, and the manufacture and sale of packaging bags.

Affiliated Companies as of December 31, 2019

Company's name	Head Office Address	Business	Registered Capital (Baht)	Paid-up Capital (Baht)	Shareholding (%)
Subsidiaries					
1. TPI Concrete Co., Ltd.	26/56, 5 th Floor, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 678-5350-74 Fax: (02) 678-5375-6	Manufacture and sale of ready-mixed concrete	2,000,000,000	2,000,000,000	99.99
2. TPI Polene Power Co., Ltd.	26/56, 8 th Floor, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 285-5090-9 Fax: (02) 213-1035	Manufacture and sale of electricity and steam, RDF, exploration and manufacture petroleum including oil and NGV service stations	8,400,000,000	8,400,000,000	70.24
3. Thai Nitrate Co., Ltd.	26/56, 21 st Floor TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 2678-5450-2 Fax: (02) 678-5484	Manufacture and sale of ammonium nitrate and nitric acid	468,750,000	468,750,000	99.99
4. TPI All Seasons Co., Ltd.	26/56, 8 th Floor, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 285-5090-9 Fax: (02) 213-1035	Manufacture and sale of plastic product, Polene Solar®, Vista Solar®, distribute EVA Emulsion and EVA Powder	450,000,000	450,000,000	99.99
5. Thai Propoxide Co., Ltd.	26/56, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 678-5000, 678-5050 Fax: (02) 678-5001-5	Real Estate (Remain inactive)	1,000,000	250,000	99.99
6. Mondo Thai Co., Ltd.	26/56, 19 th Floor, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 678-5470 Fax: (02) 678-6511	Property Developing	36,000,000	36,000,000	83.27*
7. TPI Commercial Co., Ltd.	26/56, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 678-5470 Fax: (02) 678-6511	Retailing business for TPI Polene Group	100,000	100,000	99.94
8. TPI Refinery (1997) Co., Ltd.	26/56, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 678-5470 Fax: (02) 678-6511	Petroleum exploration	1,300,000,000	1,300,000,000	99.99
9. Polene Plastic Co., Ltd.	26/56, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 285-5090-9 Fax: (02) 213-1035	Exporting and Importing business	10,000,000	10,000,000	99.99**
10. TPI Polene Bio Organics Co., Ltd.	26/56, G Floor, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 285-5090-9 Fax: (02) 213-1035	Manufacture and sale of organic fertilizer	3,300,000,000	3,300,000,000	99.99
11. TPI Service Co., Ltd.	26/56, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 285-5090-9 Fax: (02) 213-1035	Construction service	10,000,000	4,600,000	95.10
12. TPI Healthcare Co., Ltd. (Former name "TPI Intertrade Co., Ltd.)	26/56, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 285-5090-9 Fax: (02) 213-1035	Manufacture and sale of human products	10,000,000	5,050,000	99.99
13. TPI Bio Pharmaceuticals Co., Ltd. (Former name "TPI Tank Terminal Co., Ltd.)	26/56, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 285-5090-9 Fax: (02) 213-1035	Manufacture and sale of animal products	10,000,000	5,500,000	99.99
15. Master Achieve (Thailand) Co., Ltd.	26/56, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 285-5090-9 Fax: (02) 213-1035	Waste disposal service	100,000,000	100,000,000	99.99

Remarks: * Held by TPI Polene Plc. and TPI Concrete Co., Ltd., which accounted for 28.75% and 54.52% respectively, totaling 83.27% .

** Held by TPI Commercial Co., Ltd. 99.99%.

*** Held by TPI Polene Power Plc. 99.99%.

Company's name	Head Office Address	Business	Registered Capital (Baht)	Paid-up Capital (Baht)	Shareholding (%)
Associated Companies					
1. Thai Special Steel Industry Plc.	26/56, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 678-5350-74 Fax: (02) 678-5375-6	Manufacture and sale of Steel (in the process or registering the dissolution)	11,200,000,000	4,220,000,000	29.53
2. Bangkok Union Life Insurance Plc.	175-177, 8 th Floor, Bangkok Insurance Tower, Surawongse, Bangrak, Bangkok 10500 Tel: (02) 634-7323-30 Fax: (02) 634-7331	Life Insurance	500,000,000	500,000,000	25.00
3. United Grain Industry Co.,Ltd.	26/56, 27 th Floor, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 678-6988-97 Fax: (02) 678-6988-99	Manufacture and sale of Packaging bags	550,000,000	550,000,000	19.00
Other					
1. Pornchai Enterprise Co.,Ltd.	26/56, 22 th Floor, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120 Tel: (02) 678-5490-3 Fax: (02) 678-5494	Real estate business and rental service	4,599,919,600	4,599,919,600	0.65

Sales Revenue Structure

TPI Polene's investment in core and reciprocal businesses will generate significant sales revenues and create steady growth for the Group. The sales revenues structure is as follows:

Unit: Million Baht

Product/Service	Operated by	% Of TPIPL's Shareholding	Sales revenues from external customers		Inter-company's revenues		Total Sales revenues			
			2019	2018	2019	2018	2019	%	2018	%
Construction material	TPI Polene Plc. TPI Concrete Co.,Ltd.	- 99.99	20,670	19,994	10,668	13,089	31,338	54.91	33,082	58.47
Petrochemical and Chemical Products	TPI Polene Plc. Thai Nitrate Co., Ltd.	- 99.99	7,901	8,177	7,021	7,561	14,922	26.15	15,737	27.82
Electricity and Utility	TPI Polene Power Plc.	70.24	8,364	6,698	2,207	922	10,571	18.52	7,620	13.47
Organic Products	TPI Polene Bio Organics Co.,Ltd.	99.99	105	125	135	14	240	0.42	139	0.25
Total			37,041	34,993	20,031	21,585	57,072	100.00	56,578	100.00

Corporate Developments in 2019

In 2019, TPIPL has expanded projects to build up business operations and consistently reduce energy. TPI Polene has moved forward to continue to create high-growth potential for the business by making further investments in projects as follows:

Installation of Automatic Belt Conveyor System to streamline cement production costs

TPI Polene has installed an automatic belt conveyor system, aggregate crusher, and aggregate washer to be used to transport shale-in pit crushing system to be completed in late 2019. It is considered a labor-saving system that allows the Company to achieve competitive advantage particularly saving limestone/aggregate transportation expenses.

To reduce energy cost from coal

TPI Polene made an additional investment to purchase machinery and equipment for cement plant to obtain RDF alternative fuel to be used in lieu of coal that allows the Company to achieve competitive advantage by saving energy costs.

New Product Development in 2019

The Company and the group of companies have developed and launched new products as follows:

TPI Polene and its subsidiaries have developed new products as follows:

• Fiber Cement Products

Solid Hardwood Intaglio Floor planks

TPI Polene Solid Hardwood Intaglio floor plank is well developed to enable the creation of wood printed patterns through consistent printing patterns, which resolve the long-standing defects of wood flooring such as arching, deforming and gaps between floorings and are of attractive appearance and have a beautiful style. It can be applied for both internal and external decoration works. Intaglio floor plank is an extremely solid and durable product that can stand up to the worst of conditions, is water-proof and is anti-termite and anti-insect, ensuring that the work is easily installed and cleaned.

Fiber Cement Stiles

TPIPL fiber cement stiles are made from high quality cement, cellulose fiber and PVC. The ingredients consist of special substances that enable it to have waterproof properties, help dampen noise while making ingress into or egress from and it is a durable product that can stand up to the worst of conditions and is anti-fungus.

• Cement Mortar Products

Cement mortar - TPI LOFT: M 103 Powder formula used immediately by mixing well with water

Properties of the product: A powder formula mortar making a polished-surface appearance by plastering on the surface, which is especially well-suited for plastering for loft styles, to create specially distinguished printing and give a smooth surface by using a steel trowel, as it contains special substances which is exposed to abrasion-resistant surfaces with waterproof properties. It has added anti-fungal and mildew resistance additives, which will lower the water absorption, reduce absorbency, and diminish the problem of erosion. M103 is especially well-suited for general plastering on brick wall masonry, concrete block and fiber cement board. The package is 3 kg and 10 kg per bag. (Apparatus included only in 10 kg per bag packaging)





Non-Shrink Grout TPI M670: New packaging in 25 kg bags.

Properties of the product: A hydraulic cement mortar is a high-quality cement base tile grout with special components that is specially-designed, allowing for good workability for both early strength and very high compressive strength with non-shrinkage property. The cubic compressive strength can develop up to 700 ksc. TPI M670 is suitable for industrial work, civil work and general engineering work, such as foundation work and to completely fill the space/holes to strengthen the floor or foundation work that require highly compressive strength as well as repairmen work., etc. The product is sold in 50 kilogram bags.

General Purpose Non-shrink Grout: M 671

Properties of the product: A hydraulic cement mortar is a high-quality cement base tile grout with special components that allows for good workability for both early strength and very high compressive strength with non-shrinkage property. TPI M671 is suitable for industrial work, civil work and general engineering work, such as foundation super structures work for motor machinery, especially foundation work that has to sustain heavy loads from the entire structure. It can be poured easily in spite of the complexity of reinforcing bars in structural members, installation of Precast Concrete, including general repairing work. The cubic compressive strength can develop up to 480 ksc within 28 days. The product is sold in 25 kilogram bags.

NP 103: Polished-surfaced cement mortar - TPI LOFT: ready-mixed formula

Properties of the product: A ready-mixed mortar making a polished-surfaced appearance by plastering on the surface that is ready to be used with no mixture of water, and is well-suited for plastering for loft styles, to create specially distinguished printing and giving a smooth surface by using a steel trowel as it contains special substances which are exposed to abrasion-resistant surfaces with waterproof properties. It has added anti-fungal and mildew resistance additives and diminishes the problem of erosion. NP103 is especially well-suited for general plastering on brick wall masonry, concrete block and fiber cement board. The package is 3 kg and 10 kg per bag. (Apparatus included only in 10 kg per bag).

TPI (M601) : A quick drying and adhesive textures ready-mixed mortar, suitable for repairing concrete surfaces. (in bigger package sizes).

Properties of the product: a ready-mixed mortar, specially designed for good workability for both early strength and very high compressive strength with non-shrinkage property, well-suited for repairing the concrete surfaces and fixing swelling from the corrosion of the steel structure, the defects or cavity caused by the concrete flow into mold, which is not fully pored. TPI (M601) can be used for both repairing concrete surfaces and adjustability for molding decoration to reinforce the main concrete bar, allowing longer open times up to 3 hours. The package is 2 kg and 50 kg per bag.

Nano Products Group

TPI Super Special Armour Nano Paint "NP101M" Premium Shield: Concentrated water based Film Colors (breathable nano paint)

Properties of the product: A concentrated water-based film colors is a ready-mixed formula, with the specialty grade of matte film color that enables it to protect against radiation, humidity/water and it can cover all imperfections of the original for building surface applications, breathable nano paint and waterproof film color bases. It is specially designed for painting on building surfaces, such as ceilings and walls, and specially designed for decoration on interior and external building surfaces and is ready to be used with no mixture of water. It can be applied on the required areas after painting with TPI Super Special Armour Nano Paint (NP100S) or 100SW. With fine cement-based mixtures, it gives the colors as needed on building surfaces that increase paint durability, and enables it to protect against humidity/water, is abrasion resistant and scratch resistant. The product is sold in 1/4, 1, 2.5 and 5 gallon containers.



TPI Ceiling Paint “NP102” Premium Shield: Concentrated water Based Matte Film Colors

Properties of the product: A ready-mixed formula, with the specialty Nano color that enables it to protect against radiation, humidity/water and it can cover all imperfections of the original for building surface applications and has waterproof properties. It is specially designed for painting on ceilings and is ready to be used with no mixture of water. It gives the colors as needed on surfaces that increase paint durability, and enables it to protect against humidity/water, resist peeling and cracking. The product is sold in 1 and 5 gallon containers.



TPI Anti-rust Primer: NP110: Matte Film Top-Coat (New formula)

TPI Anti-rust Primer: NP110 is well developed with a special mixture of high-quality acrylic resin anti-rust pigment. Its anti-corrosive properties make it ideal for preventing rust, ensuring that there will be a better adhesion for the top-coat when applied to the required areas, such as steel and metal substrates, concrete and mortar surfaces or woods and is suitable for application with a brush or roller onto a variety of substrates. TPI Anti-rust Primer is available in 1 and 5 gallon containers.



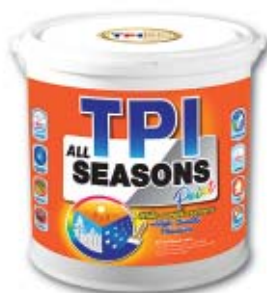
TPI Primer for Heavy Duty Flooring: NP301P - Super Special high quality top-coat

Properties of the product: Well-developed with high adhesion properties of 2-component polyurethane for following-on coats of paint. With the high technological development of nano top-coat, ensuring that there will be a better adhesion for topcoat when applied to the required areas. NP301P provides a highly adhesive undercoat in preparation for the application of a decorative topcoat. It also increases the durability of the paint and anti-moisture on the required areas. The TPI Primer for Heavy Duty Flooring is available in 1 and 5 gallons containers.



TPI Super Armour Nano Paint “NP303”: Specialty Top-Coat Heavy-duty Flooring

Properties of the product: A 2-component polyurethane high-quality top-coat that has no solution, which is used to paint on the required areas for oil and chemical prevention. The paint has high resistance against UV radiation, scratches, and heavy impacts, which is suitable for factory, warehouse, and heavy duty floors where increased durability and abrasion resistance are desired. It resists penetration of scratches and oil. It is easily painted on any surface with a laying-on trowel, brush or roller. The TPI Primer for Heavy Duty Flooring is available in 1/4 and 1 gallon containers.



TPI All Seasons Super Special Armour Nano Paint “NP104”: with-standing extreme weather conditions both interior and exterior

Properties of the product: Water-based with Nano substance, thus providing an excellent adhesive property and 100% acrylic resins added to make them more hard-wearing. Emulsion paint consists of tiny polymer Nano particles within which the pigments are trapped, rendering a perfect smoothness over the surface and expertly covers small imperfections on the wall or ceiling. With a special mixture of high-quality titanium, they are specially designed to withstand extreme weather conditions with superior anti-fungal & anti-algae properties. Film Colors have high resistance against UV radiation and infrared, which helps even out temperatures in the houses and is cost-saving. They are also lightly washed to remove unsightly marks. Also, Nano Paint NP104, with acrylic resins added makes them more hard-wearing and easier to clean. Most importantly, they are mercury/lead and solvent-free and safe for human beings, pets and the environment. NP104 is especially well-suited for general plastering on brick wall masonry, concrete block and fiber cement board and is suitable for application with a brush or roller onto a variety of substrates. In order to enhance the durability, the required areas should be repainted with TPI Super Special Armour Nano Top-Coat Paint (NP101S). Available in 1/4, 1, 2.5 and 5 gallons containers.



TPI Super Armour Nano Paint “NP101” (Top-Coat: For Fine Art)

Properties of the product: A ready-mixed formula, with the combination of golden fine pearl and specialty grade of fine silver, that enables it to provide an outstanding sparkling surface look and glittering brass color. Additionally, the cement colors can be plastered with a laying-on trowel to make pigments or printing appearance on concrete surfaces, gypsum, fiber cement board. With TPIPL's unique specialty nano technological formula with fine cement-based mixtures, the colors give a smooth and adhesive texture, which adhere firmly on concrete, cement and fiber cement panels (for interiors and exteriors application), which can be applied to surfaces with brushes, roller and paint spraying machines. It is recommended for use along with TPI Super Special Armour Nano Paint NP100SW or TPI Super Special Armour Paint “NP900” on brick wall masonry, concrete block and fiber cement board, to be coated on the first layer. Available in 1/2 and 1gallon containers.



TPI Super Special Armour Paint “NP900” (Top-Coat for Fine Arts Work)

Properties of the product: Super special formula coat paint in concentrated water-based formula, ready to be used to cover the existing surface of cement surfaces. It can cover all imperfections of the original surfaces with only 1 layer of painting with brushes or rollers. It is specially designed for coating on cement surfaces or fiber cement board. It is designed to provide a long-lasting durable finish, ready to be used with no mixture of water. It can be applied on the required areas before painting with golden color, NP901 TPIPL Nano paint for fine arts or NP101, golden sparkling colored paint, to enhance both exteriors and interiors. Available in 1/4 and 1gallon containers.



TPI Super Special Armour Paint “NP901” (TPI Paint for Fine Arts Work)

Properties of the product: Super special formula coat paint in dense liquid form for fine arts work, ready to be used on cement or concrete surfaces with brushes or rollers with no mixture of water. It can be applied on the required areas after painting on top of dried TPI Super Armour Nano Paint NP900 (Top-Coat for Fine Arts Work) to enhance beautiful pigments of fine arts. Available in 250 ml, 500 ml and 1 liter containers.



TPI Super Special “NP101S” for interiors and exteriors application (Semi- gloss)

Properties of the product: Super special formula coat paint in concentrated water-based formula, ready to be used to cover the existing surface of cement surfaces. It can cover all imperfections of the original surfaces with only 1 layer of painting with brushes or rollers. It is designed to provide a long-lasting durable finish, ready to be used with no mixture of water. It can be applied on the required areas after painting with NP100S or NP 100SW. It can be painted with a trowel to make pigments on concrete surfaces and can be easily cleaned.



TPI Anti-rust Primer NP110: Matte Film Top-Coat

Properties of the product: well-suited to apply on the required areas, such as wood or steel and metal substrates. Its anti-corrosive properties make it ideal for preventing rust, ensuring that there will be a better adhesion for top-coat. It is well developed with a special mixture of high-quality anti-rust pigment. It is designed to provide a long-lasting durable finish with quick drying property for interiors and exteriors application. Most importantly, it is mercury/lead and solvent-free and safe for human beings and the environment and is suitable for application which can be applied to surfaces with brushes, roller and paint spraying machines.

Consistently Develop Potential in our Human Resources

The Company strongly believes that highly competent employees are the key driver for corporate success. To this end, the Company has focused on continuous development of our human resources in addition to aiming for our employees to perform their duties ethically, responsibly, and with integrity and to embrace corporate social responsibilities. Furthermore, the Company strongly believes that offering training and progression to our employees will further reinforce the sustainable growth of our organization.

In addition to the aforementioned activities, the Company has taken the following initiatives in order to further enhance our employees' competency:

Human Resource Development and Essential Knowledge: The Company acknowledges the importance of human resources; therefore, we encourage our employees to continuously develop and strive to achieve their fullest potential by providing all our employees with the opportunities to learn and acquire the knowledge equally among employees. The Company offers the following programs to our employees:

- **Development courses and training programs:** The Company fosters staff development at all levels. Each year, the Company schedules training programs specifically designed for each business unit to educate and to provide employees at different levels with an understanding of their tasks and responsibilities with safety. Scheduled training programs for this year were organized through survey needs from employees in each respective department to respond to the necessity for employees to join development courses and training programs.



- **External Training:** The Company encourages employees to acquire external education by subsidizing independent courses and seminars to be in line with job descriptions. The Company also regularly provides our employees with training courses and seminars both internally and externally in order to update our employees with outside prospective and keep up with new modern managerial styles. Employees are also supported to attend course seminars through the Skill Development Center and Safety Committee, for further preparation to be professional lecturers and auditors for technician classification at the factory.

This includes the training courses providing to employees to test the personal performance in accordance with the “the purchasers standard”, as defined by the Promulgated Qualification Institute and to enhance skills and operational efficiency to work as well as cost reduction and enhance the company's procurement work up to national standard levels. Other training courses include: Advanced Retail Management (ARM), Audit Program Workshop, Environmental Compliance and Water Treatment Systems, Fundamental Business Auditing, Management of Ongoing Business Operations to comply with assessments under the international standard ISO 22301:2012, the publicized seminar for a successful energy conservation project (Energy Points), the Digital Strategy, the profound penetration of the legal issues and fire protection standards in TFRS building and financial instruments, etc.

- **In-house Training:** To develop our employees' ways of thinking, potential and knowledge to perform their duties to be in line with the corporate objectives and competitive circumstances, the Company provides several in-house training programs in the following topics:

New Employee Orientation: To enroll the employees in the new employee welcome orientation and to foster an understanding of integrity and ethics. We also encourage our employees to meditate and study the ways of Dharma from notable and well-respected monks, and engage in Dharma practice, mediation practice and meditation walking during a 1-day course at Wat Rama IX Golden. The course session is held for employees to educate them in view of the cement production process, types, and quality of our products such as cement, concrete roof tiles, Nano paints and organic fertilizers to ensure their confidence and pride in the Company, to encourage ethics and integrity, as well as to build positive working attitudes and relations with colleagues.



Dhamma Practice Course in Workplace and Dhamma Teachings: TPI Polene consistently arranges and supports employees to attend the annual programs, “Think Good, Behave Good, Happy Life and Cheerful Work”. The aim is to cultivate and create self-consciousness and apply Buddha teachings as a guideline to live and work in a truthful way. These programs include the Dharma course arranged for children to cultivate the knowledge of Dharma through the practice of “self-consciousness, concentration and wisdom/study” with an aim to motivate the young students to concentrate on studying. This enables the young students to solve the problems thoroughly, to be kind, honest and gratitude to parents, etc.

Management Training Program for Employees and Management: The training course includes a workshop for employees and executives of all levels. The training program includes “Management of new era leaders”, “Troubleshooting and decision-making”, Work Order and Efficient Techniques of Work Delegation, and Work Order, Task Controlling & Work Follow up, Advice to Improve under

Supervision’s Behavior, Systematic Thinking and Decisions, The Labor Law Issues that the Chief should know, Cost reductions, and waste in the corporation., etc. These provide much-needed opportunities to focus on strategic skills, and to lead and manage to be in line with management systems and the ongoing business operations of the organization.

Soft Skill Coursework: This includes creating a cheerful atmosphere, teamwork as well as development and work improvement and stimulate awareness to love the corporation, success in work, and to encourage motivation for work among employees. These also lead and manage to be in line with the ongoing business operations of the organization.

Course Seminars for Sales and Marketing Training Program: To develop and strengthen sales techniques and marketing skills to employees in the relevant departments such as Sales and Marketing Strategy Trend 2019, creating attitudes and techniques that create success in professional sales representatives. The training program includes sales techniques and aggressive sales techniques, proactive negotiation techniques for sales, etc.

Products and their Specifications Training Program: techniques to use products, such as TPIPL products, overview of products specification of TPIPL products such as new formula cement mortar, techniques to use products for PC in the country and online sale and marketing for PC in the country, etc.

Hygiene and Safety Management Standard: Course training arranged for heads of safety guards, safety in the workplace for heads of departments.

Training Course Program for Management: To provide knowledge and management skills for employees at management level to develop their professional work to be efficient as well as to gain new knowledge and new revolution to be able to catch up with dynamic circumstances. The course training programs include: Economic expertise, Economic analysis, To overcome the business startup, drive your success business with HDE Gen 10, Alert signal, Megaproject and construction material problems, True Business Forum 2018: The Digital Future to Sustainability, Digital Future to Sustainability, Asia Lot Business, CFO Certification Program #21, Development Administrator in Digital Era-DAD #2, CEBIT ASEAN Thailand 2018, Transforming IA for the Digital Age, New Innovation, Opportunity of Thai Industry, Logistic Summit 2018, and Robotic Summit 2018, etc.

Management Training Course Program: To strengthen the knowledge, ability to develop the job effectively, as well as modern knowledge and evolution of current events in major and useful courses such as: Advanced Retail Management (ARM) management Science for Senior Management, (Advanced Master of Management Program, AMM). Management of business continuity according to international standard ISO 22301:2012 Refreshment of the Role and Expectation of A CFO, Eastern Economic Forum 2019 Enterprise System Architecture, Architecture Workshop etc.

Training Courses Program: Quality Standard System:9001:2015, standard requirements ISO/IEC 17025:2017 and documentation quality system and other related documents according to ISO/IEC 17025 quality control and quality risk assessment.

Training Courses Program: environmental standards: ISO14001:2015 Exploration/Indication and assessment of environmental issues under the training course of social responsibility for the management and General Waste Management, to possess chemicals and hazardous waste, etc.

Training Courses Program for a Health, Safety Management System and Environment (OHSAS 18001:2007, as required by rules and legal regulation imposed, such as a forklift operation training course, safely lift machine, using the crane safely, safety of electrical operation and preventing from radiation risk of the technicians, First Aid & CPR), Risk Assessment of the Security Committee Occupational Health and Working Environment (KhoPorOr), Head of Safety Officer, Safety Officer- Management level. The work safety for employees and new employees. Work safety for employees to change jobs and change the workplace or change the machine or equipment, which has different risk factors, etc.

Technical Training Courses Program such as changing the Telescopic Chute, timing belt, bonding TIG-6G, technical work for installations of heavy duty machines such as Ball Mill, Polysom, Roller Mill, Kiln Shell, adjusting Fine and valve aeration metal (heat Treatment).

On-the-Job Training: To encourage coaching sessions and on-the-job training programs among employees to consistently develop the employees to perform their duties efficiently to be in line with the “Training Road Map” in each respective department. To enroll the employees in the new employee welcome and orientation class through the Employee Development & Training Unit to foster an understanding of their roles and functions to perform their duties. The course session is held for employees to educate them in view of all the functions of their duties at least 1-2 months ahead of their employment in their own departments. The course session is held for all employees to educate them in view of the cement production process.

Energy Saving Course: The course session for energy management standards system: ISO50001, TSV Energy Chart & Energy Equation and Awareness of Energy Preservation.

In addition, the Company is focused on a policy to improve standards of living for employees, to be safe in both their lives and possessions as follows:

- The Company strictly prohibits drug activities; therefore, we have been certified as a “White Factory,” which signifies a sustainable “Drug-Free” zone. Random alcohol breath tests are regularly set up during long holiday period to regularly protect and accidents precaution.
- The Company is committed to supporting disabled people to join the workplace by encouraging and promoting equal opportunities and equal treatment of people with disabilities. The Company has clear rules and regulations on employment to be strictly applied, regardless of sex, age, generic information, races, religious, education background which also includes equal opportunities for employees to progress in their careers as well as compensation. The employment policies and conditions of work are based on job requirements.

Quality and Productivity Enhancement: In addition to our emphasis on HSE, OSHA and CSR as delineated above, we made a full commitment to improve our productivity and to ensure product quality control and assurance. The Company provides various training to our employees on Quality Management System pursuant to ISO 9000, Environmental Management System pursuant to ISO 14001 and OHSAS, and Occupational Health and Safety Management System pursuant to Mor.Or.Kor. 18001 and CSR implementation for the employees and management. Training programs have been performed to encourage Office Improvement (“OI”) to be in line with Total Productive Management (“TPM”), in those departments that support (rather than being directly involved in) production. These “OI” programs focus on improving working processes, reducing waste, and increasing work efficiency, in order to effectively increase productivity.

Other than the employee performance evaluation of the annual review conducted by the supervisors of each respective department, the Company has implemented the new system of annual performance evaluation, with the objective that employees actively acknowledge and are involved in understanding the requirements of their jobs and are together responsible for the performance of the plants, particularly total production costs, expenses, safety of operations of each respective department and activity involvement in TPM.

Efficient Time Management: The Company also encourages employees to participate in social activities during their free time. Available activities include a Buddhism club and athletic clubs, such as a petanque club, a football club, a golf club and Voluntary club, etc.

Encourage saving program: TPI Polene and TPI Concrete have established a co-operative saving program for employees to encourage saving money. This also includes financial assistance in the form of loan offerings to employees at a lower interest rate as compared with financial institutions.

Employee welfare: The Company also strives to support equal opportunities for employees to progress and to be secured in their career by providing assessment standards of job appraisal, regardless of sex, age, generic information, race, religion, or educational background. The employment policies and conditions of work are based on job requirements. In addition, the Company offers special care for employees who perform their work in particular areas by providing remuneration in the form of salary and bonuses; the Company also provides subsidized healthcare benefits in the form of OPD medical expenses (outpatient department) to employees and their family members, including father, mother, spouses and legal offspring. The Company also provides free annual health check-ups; life and healthcare benefits are offered in the form of health insurance packages and accident insurance coverage. Financial assistance is also offered for funeral rites of the employees, as well as the family members of employees who pass away. The establishment of a “Funeral Assistance Association” among the Company’s employees was allowed to assist the members of the Association foundation to offer financial assistance for funeral rites of the employees. In addition, the Company offers special care for employees who perform their work in particular areas by providing free health check-ups at medical centers and free vaccination against tetanus and hepatitis B (HBV) to all employees and to ensure that all levels of the Company’s staff have received annual healthcare check-ups. Any employees found ill or with other physical impairments will be sent for repeated healthcare check-ups and put on other job rotations. Also, the Company provides mobile medical units for check-up services for the people in the surrounding community and encourages employees to jointly donate blood to Saraburi Center Hospital and Saraburi Red Cross every three months. TPI Polene also supported

athletic activities such as the race of “Association Football” between each department, held at our cement plant, to encourage coordination and harmonization between the management team and staff of the Company. The Company also entered the agreement with Government Housing Bank and Government Savings Bank to grant sources of funds for home loans for employees at a relatively low interest rate.

Employee welfare: The Company also provides educational support for children of employees by granting scholarships and provides additionally subsidized welfare to them.

Provide opportunities to the disabled to work in the Company

The Company strives to support equal opportunities in society, and it has clear rules and regulations on employment that are strictly applied. These also include equal opportunities for employment regardless of sex, age, generic information, races, religion, educational background as well as compensation and career paths. The employment policies and conditions of work are based on job requirements and the qualifications of that particular person.

Personnel Management System: The personnel management system at our cement plant is an online system. The program provides several services online; for instance, employee online attendance system and compensation leave system. This includes online personnel management system linkage through all units of operation, such as online attendance system and leave system, by applying finger scan for recording work attendance, This also includes an employee performance appraisal system and payroll. CCTV has been installed in particular spots in the workplace. Throughout 2019, the personnel management system has been improved by connecting the HR management system through online system with the employee’s mobile phone, which can be reviewed the employee’s basic data, such as work time attendance, leave of absence data, medical expenses, as well as checking the correspondences and parcels. To this end, employees can check their personal data through online network at any location and time and directly connect between their human staff and the employees. This makes it possible to access information regarding the Company’s announcements or news to employees in a timely manner. the establishment of small group activities according to Office Improvement in Total Production Management system, which could save annual costs and expenses in the amount of 214,276 Baht. The system involves reduction of work procedures with the implementation of IT and reduced usage of paper. It also means the Company doesn’t have to hire more employees to replace those who resign from their positions.

The Company has set up a group on the “LINE Application” as a secure group of all departments of the Company, with the CEO in conjunction with all employees in the department to optimize communication between the CEO, management and all employees.

Operating Results and Financial Status for 2019

Revenues

Total consolidated revenues from sales in 2017, 2018 and 2019 were Baht 29,088 million, Baht 34,993 million and Baht 37,041 million respectively. Sales revenues in the construction business sector accounted for 62.1%, 57.1% and 55.8% of total revenues from sales, and sales revenues generated from the energy and utilities businesses sector accounted for 14.4%, 19.1% and 22.6% of total revenues from sales respectively.

Sales revenues in the petrochemical business accounted for 23.0%, 23.4% and 21.3% of total revenue from sales in 2017, 2018 and 2019 respectively.

In 2019, sales revenues generated from the energy and utilities businesses sector increased, primarily due to an increase in units of the electricity sales from the energy and utilities businesses, which increased by 24.9%, as RDF-70MW (TG 6) incorporated with waste heat recovery power plant (TG4) to generate additional electricity under RDF-100MW with an installation of 2 boilers (B11 and B122) to generate full year operation output. Thus, TPIPP could sell more electricity to EGAT, leading to an increase in electricity sale revenue in units to EGAT whereas Coal-Fired Power Plant 150 MW (TG8) became operational and started to sell electricity to TPI Polene on January 25, 2019.

In 2019, total sales revenues generated from the construction business sector increased by 3.4% as the average price of cement and concrete increased by 2.0% and 6.6% respectively. Sales revenues generated from the petrochemical business decreased by 3.4% to be in line with decrease in the selling price of 6.8%, whereas sales volume increased by 7.0%.

Other revenues, which were comprised of revenues from transportation, net foreign exchange gain, investment income and gain on bargain purchase and other revenues in 2017, 2018 and 2019 were Baht 1,907 million, Baht 2,321 million and Baht 2,228 million respectively. Other revenues in 2019 decrease compared with the same in the previous year because in 2018, the Company recorded a decrease in revenue from transportation.

Total consolidated revenues in 2017, 2018 and 2019 were Baht 30,996 million, Baht 37,315 million and Baht 39,268 million respectively.

Cost of Goods Sold

Consolidated cost of goods sold in 2017, 2018 and 2019 were Baht 24,495 million, Baht 28,018 million and Baht 28,404 million respectively, which accounted for 84.2%, 80.1% and 76.7% of total revenues from sales. As a result, gross profit margins in 2017, 2018 and 2019 represented 15.8%, 19.9% and 23.3% of total revenues from sales respectively. Gross profit margin in 2019 increased as compared with the same in 2018, primarily due to an increased proportion in revenues from energy and utilities businesses, the gross profit margin of which was relatively high, from 19.1% in 2018 to 22.6% in 2019, with an increased average selling price of cement and concrete, leading to an improvement of gross profit margins in both construction and petrochemical business sector.

Selling and Administrative Expenses

Consolidated selling and administrative expenses in 2017, 2018 and 2019 were Baht 5,810 million, Baht 5,965 million and Baht 6,144 million, which accounted for 20.0%, 17.0% and 16.6% of total revenues from sales respectively. Selling and administrative expenses as a percentage of revenues in 2019 decreased due to an increase of 5.9% in revenue from the sale of goods from various projects.

Interest Expenses (Cost of financial debt)

In 2017, 2018 and 2019, the Company and its subsidiaries recorded interest expenses of Baht 1,647 million, Baht 1,719 million and Baht 1,959 million respectively. The interest expenses in 2019 was higher than that of 2018 as the Company utilized loans as well as the issuance and offering for sales of debentures for various investment projects as well as an investment for development of production efficiency to reduce production costs in power plants and cement projects.

Net Profit

In 2017, 2018 and 2019, the Company and its subsidiaries registered net profits (loss) of Baht (696) million, Baht 1,425 million and Baht 2,765 million, or basic earnings (loss) per share of Baht (0.063), Baht 0.016 and Baht 0.073 respectively. An increase of net profit in 2019 was mainly due to an increase in sales revenue in the energy and utilities businesses sector, the profit margin of which is relatively high as well as a higher profit margin in both the construction business sector and petrochemical business sector.

The Company and its subsidiaries recorded normal operating profit (loss), excluding gain (loss) from foreign exchange and income tax (expense) of Baht (1,100) million, Baht 1,261 million and Baht 2,338 million in 2017, 2018 and 2019 respectively.

Financial Status and Financial Ratio

Assets

At year-end 2017, 2018 and 2019, total consolidated assets were Baht 103,178 million, Baht 110,488 million and Baht 114,368 million respectively. The increase in assets value was mainly due to additional investments in various projects in the energy and utilities businesses sector and for development of production efficiency to reduce production costs in cement projects.

At year-end 2017, 2018 and 2019, total consolidated current assets were Baht 24,195 million, Baht 28,391 million and Baht 25,378 million respectively. The decrease in total current assets was in line with the decrease in cash and current investments as it was utilized to pay for the property, plant and equipment from additional investments in various projects. Inventory accounted for 54.3%, 50.5% and 55.9% of total current assets in 2017, 2018 and 2019, equating to average inventory turnover periods of 183 days, 176 days and 181 days respectively. Trade accounts receivable (after the provision of doubtful debts) represented 12.7%, 15.2% and 17.6% of total current assets, which equated to an average collection period of 39 days, 39 days and 43 days.

As of 31 December 2017, 31 December 2018 and 31 December 2019, the property, plant and equipment of the Company and its subsidiaries were Baht 76,551 million, Baht 79,456 million and Baht 62,875 million respectively. The increase in the property, plant and equipment was mainly due to additional investments in various projects in energy and utilities businesses sector.

Liabilities

Total consolidated liabilities were Baht 51,092 million, Baht 59,551 million and Baht 62,875 million at the end of 2017, 2018 and 2019 respectively. The debt liabilities increased because the Company and its subsidiaries issued and offered additional debentures to refinance the matured debentures and for prepayment of long term loans from financial institutions. The remaining portion has been utilized for various plant investment projects and for working capital of the group of the Company and its subsidiaries. The Company and its subsidiaries also realized additional non-current provisions for employees' benefits. On 5 April 2019, the Labor Protection Act as amended to include a requirement that an employee who is terminated after having been employed by the same employer for an interrupted period of twenty years or more, receives severance payment of 400 days of wages at the most recent rate. The Group has therefore amended its retirement plan in accordance with the changes in the labor Protection Act in the second quarter of 2019.

Trade account payables at year-end 2017, 2018 and 2019 were Baht 2,818 million, Baht 3,002 million and Baht 2,536 million, equating to an average payment period of 37 days, 37 days and 35 days respectively.

As of 31 December 2017, 31 December 2018 and 31 December 2019, the Company and its subsidiaries had short-term loans from financial institutions of Baht 2,718 million, Baht 2,644 million, and Baht 2,940 million respectively; long-term loans from financial institutions of Baht 5,790 million, Baht 7,812 million, and Baht 4,589 million respectively; and the issuance and sale offering of debentures of Baht 33,000 million, Baht 40,000 million, and Baht 45,700 million respectively. In 2019, the Company and its subsidiaries issued and offered for sales of addition debentures to refinance the matured debentures and for prepayment of long term loans from financial institutions; investments in various projects in energy and utilities businesses sector; for development of production efficiency to reduce production costs in power plants project and cement projects and for working capital of the Company and its subsidiaries.

Shareholders' Equity

As of 31 December 2017, 31 December 2018 and 31 December 2019, shareholders' equity was Baht 52,086 million, Baht 50,937 million and Baht 51,493 million respectively. Value of shareholders' equity increased as the Company and its subsidiaries' net profit from operation increased during the period. (Shareholders' equity as of 31 December 2019 decreased by Baht 1,150 million primarily due to TPIPL Shares Repurchase Scheme with total cost Baht 1,683 million.)

Capital Structure

As of 31 December 2017, 2018 and 2019, the debts to equity ratios were at 0.98 times, 1.17 times and 1.22 times respectively whereas Net Interest Bearing Debt to Equity ratio equated 0.66, 0.82, and 0.93 times respectively. In 2019, debt to equity ratio was higher compared with the same in 2018 as the Company and its subsidiaries additionally issued and sold debentures for investment in various projects.

As of 31 December 2019, consolidated cash and cash equivalent were Baht 2,744 million, with current investment of Baht 2,651 million, making total financial liquidity of Baht 5,395 million. Therefore, to better evaluate the Company's capital structure, a net interest bearing debt to equity ratio approach should be a better approach than a debt to equity ratio approach.

Financial Liquidity

In 2017, 2018 and 2019, consolidated net cash flow from operating activities of the Company and its subsidiaries were Baht 1,955 million, Baht 3,762 million and 7,770 million respectively. The increase in consolidated net cash flow from operating activities in 2018 and 2019 was primarily a result of an increase in sales revenues generated from investments in various projects in energy and utilities businesses sector.

In 2017, 2018 and 2019, net cash flow from investing activities of the Company and its subsidiaries were Baht (11,055) million, Baht (7,369) million and Baht (8,150) million respectively as the Company invested in plants including machinery and equipment of Power Plants, RDF- Fuel Plant and Fiber Cement Project, for development of production efficiency to reduce production costs in power plants project, various projects in energy and utilities businesses sector and for development of production efficiency to reduce production costs in cement projects.

In 2017, 2018 and 2019, net cash flow from financing activities of the Company and its subsidiaries were Baht 8,533 million, Baht 5,047 million, and Baht (1,248) million respectively. The Company received the proceeds from the issuance and sale offering of debentures to refinance the matured debentures and for prepayment of long term loans from financial institutions and investments in various projects as mentioned above. As a result, by year-end 2017, 2018 and 2019, consolidated cash and cash equivalent were Baht (567) million, Baht 1,448 million and Baht (1,628) million respectively.

In 2017, 2018 and 2019, Interest Coverage Ratio equated 1.94, 3.39 and 4.13 times respectively, which increased accordingly because of the improved operating results primarily in energy and utilities businesses sector and construction sector. In addition, Debt Service Coverage Ratio was 1.31, 2.37 and 2.07 times respectively whereas the Company and its subsidiaries' Interest Bearing Debt to Equity ratio was 0.97, 0.99, and 1.03 times while Net Interest Bearing Debt to Equity Ratio was 0.66, 0.82, and 0.93 times respectively.

Source and Use of Funds

The Company and its subsidiaries had sufficient funds for various project investments while the source of funds were from the issuance and sale offering of debentures, loans from financial institutions from both domestic and international institutions, as well as cash flow from business operations of the Company and its subsidiaries and the loans from financial institutions to be used as working capital of the Company.

Financial Debts of the Company and its subsidiaries are summarized as follows:

1. As at 31 January 2020, outstanding debt of debentures was Baht of the Company and its subsidiaries were Baht 47,280 million. The terms and conditions for debentures agreement are as follows:
 - 1.1 The debentures of Baht 4,400 million, issued under medium term note program B.E 2562 of TPIPL under the condition that it has to maintain Debts to Equity Ratio (an obligation or liability to pay interest) at the end of each quarter or at year end not greater than 2:1 (for the Company and its subsidiaries) throughout the term of the debentures.
 - 1.2 Other kinds of TPIPL's debentures of Baht 34,880 million, issued under the condition that it has to maintain Debts to Equity Ratio (an obligation or liability to pay interest) at the end of each quarter or at year end not greater than 1.5:1 (for TPIPL and its subsidiaries) throughout the term of the debentures.
 - 1.3 TPI Polene Power' debentures of Baht 8,000 million, issued under the condition that it has to maintain Debts to Equity Ratio (a debts obligation means interest bearing debts) at the end of each quarter or at year end not greater than 1.75:1 (for TPI Polene Power and its subsidiaries) throughout the term of the debentures.

As of 31 December 2019, the Company and its subsidiaries' Net Interest Bearing Debts to Equity Ratio equated 1.03:1, which was not higher than 1.5:1 and 2:1 times as stated in items 1.1 and 1.2 respectively, as per the terms and conditions stipulated in the debentures agreements. The Company and its subsidiaries' Net Interest Bearing Debts to Equity Ratio (after the Company's cash, cash investment and current investments) equated to 0.93:1.

TPI Polene Power' Net Interest Bearing Debts to Equity Ratio equated 0.30:1, which was not higher than 1.75:1 times, as per the terms and conditions stipulated in the debentures agreements of TPI Polene Power. Net Interest Bearing Debts to Equity Ratio (after TPI Polene Power's cash, cash investment and current investments) equated to 0.17:1.

2. TPIPL's long-term Loan Agreement with a local financial institution.

As of 31 January 2020, TPIPL' outstanding long- term loans (without collateral) with a local financial institution were Baht 3,857 million for a period of 3.50 years. (Comprising outstanding debt repayment of Baht 2,143 million to be due on 28 May 2022 and outstanding debt repayment of Baht 1,714 million to be due on 28 May 2022 and 29 December 2022 respectively.) The conditions were to maintain Interest Bearing Debt to Equity Ratio to be not greater than 1.5:1.

As of 31 December 2019, the Company's Interest Bearing Debts to Equity Ratio equated 1.03: 1, which was not higher than 1.5:1 times as per the terms and conditions stipulated in the loan agreements.

3. TPIPL's Loan Agreement with a local financial institution to purchase machinery and equipment.

As of 31 January 2020, TPIPL's outstanding loans with a local financial institution to purchase machinery and equipment were Baht 655 million for a period of 5 years. (To be due on 27 August 2024). The conditions were to maintain Interest Bearing Debt to Equity Ratio to be not greater than 1.5:1, Debts to Equity Ratio to be not greater than 2:1 and Adjusted Debt Service Coverage Ratio to be not greater than 1.2:1, based on the Consolidated Financial Statements for the year ended 2019 onwards.

As of 31 December 2019, TPIPL's Interest Bearing Debts to Equity Ratio equated 1.03: 1, which was not higher than 1.5:1 times, Debts to Equity Ratio equated 1.22: 1 and Adjusted Debt Service Coverage Ratio equated 2.07:1, which was not less than 1.2:1 times as per the terms and conditions stipulated in the loan agreements.

Ratio of borrowings from financial institutions to total liabilities decreased from 0.18: 1 as of 31 December 2018 to 0.12: 1 and as of 31 December 2019 as the Company and its subsidiaries have a policy to use an option to choose channel of borrowings through the issuance and sale offering of debentures (no collateral with lower cost of funds) to refinance the matured debentures and for prepayment of Euro currency long term loans from offshore financial institutions (secured debts liabilities with an aim to mitigate risk associated with foreign exchange) and using remaining cash for development of production efficiency to reduce production costs cement projects, including machinery and equipment of Fiber Cement Project, Plastic Resin Plants and Power Plants.

Interest Bearing Debt Ratio to profit (before interest expense, income tax expense, depreciation and amortization) reduced from 7.40 times as of 31 December 2018 to 6.47 times as of 31 December 2019, primarily due to an increase in profit (before interest expense, income tax expense, depreciation and amortization) as above, which was primarily due to the cash utilized for development of production efficiency to reduce production costs cement projects, including machinery and equipment of Fiber Cement Project, plastic resin Plants and Power Plants as mentioned above. The Company strongly believes that once the machinery and equipment as above become operational, production efficiency will be enhanced, with reduction of production costs, leading to higher profit and revenues to the group of the Company as a whole.

As of 31 December 2019, quick ratio slightly reduced to 0.53 times from 0.67 times as of 31 December 2018.

Commitments with non-related parties

As at 31 December 2019, the Company and its subsidiaries' Commitments with non-related parties can be summarized as follows:

1. Commitments binding to supply contracts in the amount of Baht 1,362 million, the source of funds of which was generated from net cash flow from business operations and/or the issuance of debentures.
2. Commitments binding to car rental contracts and lease agreements, the legal obligation of which can be divided into a 1-year period in the amount of Baht 88 million and more than a 1-year period but not over a 5-year period in the amount of Baht 110 million, the source of funds of which was generated from net cash flow from business operations.
3. Commitments binding to a Letter of Credit (import of raw material and spare parts) in the amount of Baht 1,117 million, purchase contracts in the amount of Baht 288 million, and a bank guarantee in the amount of Baht 228 million, the source of funds of which was generated from net cash flow from business operations and/or a working capital credit line from financial institutions in the amount of Baht 4,000 million.

Operational Results classified by Business Sector

Construction Business

In 2019, cement sales volume increased whereas ready-mixed concrete sales volume decreased and the average cement price (both in the domestic and international market) and ready-mixed concrete price increased as compared with the same in 2018, leading to improved operational results in the construction business sector.

In 2018, cement sales volume and ready-mixed concrete sales volume increased due to the emergence of infrastructure construction projects from both the government and private sector. In 2018, average cement price and ready-mixed concrete price in the domestic market increased over 2017.

In 2020, it is anticipated that demand consumption in the construction sector will tend to improve because of additional investment in infrastructure construction projects from the government sector, resulting in an increase in sales revenues and operation performance of the manufacturers in the construction sector.

Petrochemical and Chemical Business

In 2019, sales volumes of plastic products increased over 2018 whereas average selling price and production cost dropped accordingly to be in line with ethylene price decrease, resulting in a better operating performance of the overall petrochemical and chemical business and a gross profit margin increased from 13.0% in 2018 to 17.7% in 2019.

In 2018, sales volumes of plastic products increased whereas average selling price dropped accordingly to be in line with ethylene price decrease, resulting in a better operating performance of the overall petrochemical and chemical business and a gross profit margin increased from 11.6% in 2018 to 13.0% in 2019.

In 2020, the Company anticipates that the petrochemical and chemical business will tend to improve, which will result in a better operating performance of the overall petrochemical and chemical business.

Energy and Utility Business

In 2019, total sales revenue increased by 24.9% compared with the same in 2018, which was due to an increase in units of power sales by 56.9% due to the fact that on 5 April 2019, waste heat recovery power plants and a RDF-fired power plant (TG4 & TG6) became commercially operational and realized less profit than the same period of the previous year (profit realization in early 2019). In addition, in early 2019, TPIPP installed two additional boilers to generate electricity from RDF-fired power plants, resulting in higher production efficiency of the RDF-fired power plants as compared to 2018. By the same token, 150 MW Coal-Fired Power generation plant (TG8) became commercially operational. As of 25 January 2019, TPIPP had eight power plants in operation, with total installed power generation capacity of 440 MW (with permitted power generation capacity of 410 MW). This will result in the better operating performance of the overall energy and utility business in 2019. Out of the sales revenues in 2019, revenue generated from power plants, oil and gas stations services represented 93.2% and 6.8% respectively.

In 2018, total sales revenues increased by 59.4% compared with the same in 2017, which was due to an increase in sales revenue generated from 100 MW RDF-fired power plant (TG6 and TG4) and 70 MW power generation (TG 7 - with a permitted power generation capacity of 40 MW), commenced commercial operations on 5 April 2018 and 18 August 2018 respectively. Out of the sales revenues in 2018, revenue generated from power plants represented 90.7% while sales revenue from oil and NGV station represented 9.3%.

Agriculture Business

In 2019, total sales revenue decreased by 16.0% compared with the same in 2017 due to a reduction of fertilizer sales volume, resulting from climate conditions in particular areas in the country and weakening prices of agriculture products have lowered, leading to a decrease in operational performance of agriculture business sector.

In 2018, total sales revenue slightly decreased by 0.3% mainly due to the fact that weakening prices of agriculture products have lowered (rice crop not included) and the lower consumption of organic fertilizer by farmers to lower cost of production.

In 2020, the Company will introduce and launch a variety of new products into the market. As the Company's products become well-known among users in the market, the Company anticipates that operating performance of the overall agriculture business will improve accordingly.

Summary of Consolidated Financial Statements of TPI Polene Plc. in 2017, 2018 and 2019

Statements of Financial Position (Consolidated)

	Accounting Period ended December 31					
	2017		2018		2019	
	"000" Baht	Ratio	"000" Baht	Ratio	"000" Baht	Ratio
Total current assets	24,194,558	23.45	28,391,149	25.70	25,377,527	22.19
Property, plant and equipment	76,551,024	74.19	79,455,918	71.91	86,252,301	75.42
Other non-current assets*	2,432,053	2.36	2,640,857	2.39	2,738,317	2.39
Total Assets	103,177,635	100.00	110,487,924	100.00	114,368,145	100.00
Total current liabilities	16,216,936	15.72	19,220,280	17.40	18,660,584	16.32
Long-term loans from financial institutions	5,039,377	4.88	6,235,392	5.64	2,984,304	2.61
Other non-current liabilities**	29,835,188	28.92	34,095,663	30.86	41,229,811	36.05
Total Liabilities	51,091,501	49.52	59,551,335	53.90	62,874,699	54.98
Equity						
Authorized share capital	24,815,000	24.05	24,815,000	22.46	23,805,500	20.81
Issued and paid-up share capital	20,190,000	19.57	20,190,000	18.27	19,180,500	16.77
Treasury shares held by subsidiaries	(359,235)	(0.35)	-	-	-	-
Treasury shares	-	-	(1,682,625)	(1.52)	-	-
Shares premium on ordinary shares	60,600	0.06	60,600	0.05	60,600	0.05
Shares premium on treasury shares	-	-	35,218	0.03	35,218	0.03
Other surpluses (deficits)	9,840,436	9.54	9,840,436	8.91	9,840,436	8.60
Retained earnings	15,036,655	14.57	14,928,646	13.51	14,192,194	12.41
Other components of equity	14,160	0.11	109,437	0.10	108,164	0.09
Non-controlling interests	7,203,518	6.98	7,454,877	6.75	8,076,334	7.06
Total Equity	52,086,134	50.48	50,936,589	46.10	51,493,446	45.02
Total Liabilities and Equity	103,177,635	100.00	110,487,924	100.00	114,368,145	100.00

Remarks : * Other non-current assets comprise investments in associates, long-term investments in related parties, other long-term investments, investment properties, land leasehold rights, intangible assets, deferred tax assets, advances payment for plant and equipment and other non-current assets.

** Other non-current liabilities comprise debentures, financial lease liabilities, deferred tax liabilities, non-current provisions for employee benefit and other non-current liabilities.

Statements of comprehensive income (Consolidated)

Statement of Comprehensive Income	Accounting Period ended December 31					
	2017		2018		2019	
	"000" Baht	Ratio	"000" Baht	Ratio	"000" Baht	Ratio
Income						
- Revenue from sales of goods	29,088,352	100.00	34,993,161	100.00	37,040,563	100.00
- Transportation income	1,254,582	4.31	1,284,354	3.67	1,166,524	3.15
- Net foreign exchange rate	162,604	0.56	382,189	1.09	404,780	1.09
- Other income	490,186	1.69	654,936	1.87	656,607	1.77
Total income	30,995,724	106.56	37,314,640	106.63	39,268,474	106.01
Expenses						
- Cost of sales of goods	24,495,256	84.21	28,018,397	80.07	28,404,067	76.68
- Cost of distribution and transportations	4,032,725	13.86	4,167,612	11.91	4,032,386	10.89
- Administrative expenses	1,777,383	6.11	1,797,180	5.14	2,111,251	5.70
- Finance costs	1,647,192	5.66	1,719,358	4.91	1,959,023	5.29
- Net foreign exchange loss	0	0.00	0	0.00	0	0.00
Total expenses	31,952,556	109.85	35,702,547	102.03	36,506,727	98.56
Share of profit of investment in associates and joint venture	19,742	0.07	31,090	0.09	(18,704)	(0.05)
Profit (Loss) before income tax expense	(937,090)	(3.22)	1,643,183	4.70	2,743,043	7.41
Income tax (expense) benefit	240,723	0.83	(218,509)	(0.62)	21,528	0.06
Profit (Loss) for the year	(696,367)	(2.39)	1,424,674	4.07	2,764,571	7.46
Total Comprehensive gain (loss) for the year	(690,671)	(2.37)	1,387,519	3.97	2,566,743	6.93
Profit (Loss) from operation*	(1,099,694)	(3.78)	1,260,994	3.60	2,338,263	6.31

Remark: *Profit from operation not including net foreign exchange gain/loss, income tax and tax expenses

Revenues from sales-outside customers

	2017	%	2018	%	2019	%
	("000" Baht)		("000" Baht)		("000" Baht)	
Construction	18,077,561	62.15	19,993,749	57.14	20,670,418	55.80
Petrochemical and Chemical	6,684,190	22.98	8,176,511	23.37	7,901,438	21.33
Energy and Utilities	4,201,598	14.44	6,698,253	19.14	8,364,041	22.58
Agriculture	125,003	0.43	124,648	0.35	104,666	0.28
Total	29,088,352	100.00	34,993,161	100.00	37,040,563	100.00

Statement of cash flow (Consolidated)

	Accounting Period ended December 31		
	2017 ("000" Baht)	2018 ("000" Baht)	2019 ("000" Baht)
Net cash from operating activities	1,955,085	3,761,907	7,770,137
Net cash used in investing activities	(11,055,289)	(7,369,300)	(8,149,630)
Net cash from (used in) financing activities	8,532,808	5,046,791	(1,248,327)
Net increase (decrease) in cash and cash equivalents before effect of exchange rates	(567,396)	1,439,398	(1,627,820)
Effect of exchange rate	20,781	8,182	5,105
Net increase (decrease) in cash and cash equivalents	(546,615)	1,447,580	(1,622,715)
Cash and cash equivalents at 1 January	3,465,595	2,918,980	4,366,560
Cash and cash equivalents at December 31	2,918,980	4,366,560	2,743,845

Key Financial Ratio

Financial Ratio	Accounting Period ended December 31		
	2017	2018	2019
Liquidity Ratio			
1.Current Ratio (times)	1.49	1.48	1.36
2.Quick Ratio (times)	0.60	0.67	0.53
3.Cash Ratio (times)	0.12	0.21	0.41
4.Receivable Turnover (times)	9.17	9.21	8.28
5.Collection Period (days)	39.24	39.07	43.46
6.Inventory Turnover Period (times)	1.97	2.04	1.99
7.Inventory Turnover (days)	182.66	176.46	180.68
8.Account Payable Turnover (times)	9.73	9.63	10.26
9.Payment Period (days)	36.98	37.39	35.09
10.Cash Cycle (days)	184.92	178.14	189.05
Profitability Ratio			
11.Gross Profit Margin (%)	15.79	19.93	23.32
12.Operating Profit Margin (%)	1.45	8.20	11.37
13.Other Profit Margin (%)	(4.44)	(3.37)	(3.69)
14.Cash to Net Profit Ratio (times)	4.65	1.31	1.85
15.Net Margin (%)	(2.25)	3.82	7.04
16.Return on Equity (%)	(1.57)	2.77	5.40
Efficiency Ratio			
17.Return on Assets (%)	(0.71)	1.33	2.46
18.Return on Fixed Assets (%)	2.63	5.40	7.19
19.Assets Turnover (times)	0.32	0.35	0.35
Financial Policy Ratio			
20.Debt to Equity Ratio (times)	0.98	1.17	1.22
21.Net Debt to Equity Ratio (times) ²	0.85	1.00	1.12
22.Interest Bearing Debt to Equity Ratio (times)	0.79	0.99	1.03
23.Net Interest Bearing Debt to Equity Ratio (times) ²	0.66	0.82	0.93
24.Interest Coverage Ratio (times) ³	1.94	3.39	4.13
25.Debt Service Coverage Ratio (times) ³	1.31	2.37	2.07
26.Dividend Payout Ratio (%) ¹	N/A	153.85	400.00
27.Net interest bearing Debt to EBITDA Ratio (times)	11.27	7.40	6.47
28.Be Size to Interest Bearing Debt Ratio (times)	0.03	0.02	0.02
29.Current Interest Bearing Debt to Interest Bearing Debt Ratio (times)	0.19	0.24	0.22
30.Long Term Borrowing from Financial Institutions to Liabilities Ratio (times)	0.16	0.18	0.12
Share data			
31.Book Value per Share (Baht) ⁴	2.61	2.63	2.68
32.Earnings per Share (Baht)	(0.063)	0.016	0.073
33.Dividend per Share (Baht)	0.020	0.020	0.060
Growth Rate			
34.Total Assets (%)	11.40	7.09	3.51
35.Total Liabilities (%)	(8.54)	16.56	5.58
36.Sales (%)	(0.14)	20.30	5.85
37.Operating Expenses (%)	8.32	2.66	3.00
38.Net Profit (%)	(235.25)	304.59	94.05

Remarks:

1.Calculation based on Separate Financial Statements.

2.After Deducting Cash and Cash Equivalents and Current Investments.

3.Cash basis Interest coverage ratio = Cash from (used in) operating activities (before change in current assets and current liabilities) divided by finance cost paid from cash flow from financing activities. Debt service coverage ratio is calculated based on formula of Financial Covenants stipulated in Financial Agreements of the Company with commercial bank creditors, which is as follows:-

Debt service coverage ratio = Cash from (used in) operating activities (before change in current assets and current liabilities) divided by repayment of long-term loan + finance lease payments + finance cost paid from cash flow from financing activities

4.Number of 5,899,999,300 shares of TPIPP, held by TPI Polene not yet mark to market. The above share price was realized at the par value of Baht 1 per share.

Independent Auditor's Report for the consolidated and separate financial statements for the year ended 31 December 2019

KPMG Phoomchai Audit Ltd (the statutory auditor of the Company and its subsidiaries formed an unconditioned opinion that financial statements were presented fairly in all material respects in the Independent Auditor's Report for the consolidated and separate financial statements for the year ended 31 December 2019. The key matters on the continuous loss in operation of two subsidiaries; TPI Polene Bio Organics Co., Ltd. and TPI All Seasons Co., Ltd. indicated that property, plant and equipment and loan to and investment in subsidiaries may be impaired.

Since the consideration of impairment of assets depend on the management's judgments and assumptions in respect to the forecast of operating results, discount rate and key assumptions used to estimate the recoverable amount of the aforementioned business, this is one of the key judgmental areas that my audit is concentrated on.

The audit procedures in this area included, among others:

- Understanding the management's process of identifying impairment indicators and impairment testing and estimate recoverable amounts;
- Evaluating key assumptions used in discounted future cash flows such as growth rate, future outcomes and considering the reasonableness of forecasts by comparing historical estimation with the actual results as well as assessing the appropriateness of discount rate used; and
- Evaluating the adequacy of disclosure in accordance with the related Thai Financial Reporting Standards

Impairment assessment of property, plant and equipment in consolidated financial statements and loan to and investment in subsidiaries in separate financial statements

Recognition of investment in TPI Polene Bio Organics Co., Ltd. is as follows:-

TPI Polene Bio Organics Co., Ltd.	As of 31 December 2019 (Bht.mil.)	As of 31 December 2018 (Bht.mil.)	As of 31 December 2017 (Bht.mil.)
Paid-up capital of TPI Polene Bio Organics Co., Ltd.	3,300.00	3,300.00	3,300.00
Investment Cost in TPI Polene Bio Organics Co., Ltd.	2,654.40	2,654.40	2,654.40
Less : Allowance for impairment of assets	(770.00)	(770.00)	(562.00)
Cost (Net)	1,884.4	1,884.4	2,092.40

Recognition of investment in TPI All Seasons Co., Ltd. is as follows:

TPI All Seasons Co., Ltd.	As of 31 December 2019 (Bht.mil.)	As of 31 December 2018 (Bht.mil.)	As of 31 December 2017 (Bht.mil.)
Paid-up capital of TPI All Seasons Co., Ltd.	450.00	450.00	450.00
Investment Cost in TPI Polene Bio Organics Co., Ltd.	450.00	450.00	450.00
Less : Allowance for impairment of assets	(0)	(0)	(0)
Cost (Net)	450.00	450.00	450.00

TPI All Seasons Co., Ltd. has a strategic plan to increase sales volume by expanding marketing sales to support the multi-channel growth, supported by the agriculture development initiative under the National Organic Agriculture Development Strategic Project for the year 2017-2021 and has consequently driven the organic products of the Company to grow consistently.

There was no recognition of an allowance for impairment in property, plant and equipment in TPI All Seasons Co., Ltd. as it is appraised that the assessment of the recoverable amount of those assets was not lower than project investment cost in TPI All Seasons Co., Ltd.

INTER-COMPANY TRANSACTIONS

Disclosure of information about inter-company transactions, and other transactions that might have the potential to involve conflicts of interest, is in compliance with the rules and regulations imposed by the SET and the SEC.

The Audit Committee has performed its duties and responsibilities to review inter-company transactions. The procedures used in inter-company transactions have always been subject to the normal terms and conditions of business and reflect applicable market prices. The Company established procedures for the above transactions in the same manner as for transactions with general customers and all inter-company transactions reflect applicable market prices to ensure that there are no conflicts of interest.

As of 31 December 2019, the Company and its subsidiaries had inter-company transactions with related persons, which might have the potential to involve conflicts of interest. The Directors and/or Management have considered the reasonableness of the above inter-company transactions, and all were undertaken for the maximum benefit of the Company and were subject to the normal terms and conditions of business to reflect applicable market prices and in compliance with the rules and regulations imposed by the SET and the SEC. Details of the inter-company transactions are contained in Note 4 of the consolidated financial statements as at December 31, 2019, which can be summarized as follows:

Company (Description of relationship)	Description of transaction	Baht million	Necessity and reasonableness
1. Pornchai Enterprise Co., Ltd. (There are 6 common Directors. Mr. Prachai Leophairatana Mr. Prateep Leopairut Dr. Pramuan Leophairatana Mrs. Orapin Leophairatana Mr. Prayad Liewphairatana Miss Malinee Leophairatana)	The Company and its subsidiaries advanced funds for infrastructure expenses to obtain good terms and conditions to Pornchai Enterprise for a 90-year lease period. The Company pays rental advance to Pornchai Enterprise for 3-year lease period. The Company pays rental and service fee as the deposit to Pornchai Enterprise Co., Ltd. The Company and its subsidiaries pay rental fee to Pornchai Enterprise Co., Ltd.	169.698 0.353 16.766 43.958	Such agreements are regarded as special reciprocal agreements because the advance rent is considered to be a financial support to Pornchai Enterprise for the construction of the building and to ensure that the Company and its subsidiaries pay the total rental expense below that in the market and at the fixed rate for 90-year lease period, free from inflation rate reflection. In addition, the location is suitable for office building in Bangkok Metropolitan and the number of employees. Such agreements are regarded as special reciprocal agreement. Transactions are undertaken to accommodate the necessity to use office buildings of the Company. Therefore, the transaction is to support business operations under the same conditions as other tenants. The rental deposit and service fee are paid as the guarantee pursuant to Rental and Service Agreement.
2. United Grain Industry Co., Ltd. ("UGI") (There are 5 common Directors. Mr. Prachai Leophairatana Dr. Pramuan Leophairatana Mr. Prayad Liewphairatana Mrs. Orapin Leophairatana Miss Malinee Leophairatana)	The Company and its subsidiaries pay UGI for cement bags. Accounts Payable	4.956 1.745	Transactions are always undertaken at market rates to support normal business operations of the Company.
3. Thai Plastic Film Co., Ltd. (There are 7 common Directors. Mr. Prachai Leophairatana Mr. Prateep Leopairut Dr. Pramuan Leophairatana Dr. Chavin Iamsopana Mr. Prayad Liewphairatana Mrs. Orapin Leophairatana Miss Malinee Leophairatana)	The Company sells plastic resin to Thai Plastic Film Co., Ltd. The Company hires Thai Plastic Film Co., Ltd. to produce cement bags at the rate of Baht 2.00 to 2.60 per bag. (This rate includes labor cost, rental charges, electricity and other related expenses) The Company and its subsidiaries pay Thai Plastic Film Co., Ltd. for cement bags. Accounts Payable	0 96.058 85.824 84.896	Transactions are always undertaken at market rates to support normal business operations of the Company.

Company (Description of relationship)	Description of transaction	Baht million	Necessity and reasonableness
4. Thai Plastic Product Co., Ltd. (There are 7 common Directors. Mr. Prachai Leophairatana Mr. Prateep Leopairut Dr. Pramuan Leophairatana Dr. Chavin Iamsopana Mr. Prayad Liewphairatana Mrs. Orapin Leophairatana Miss Malinee Leophairatana)	The Company and its subsidiaries purchased cement bags for export from Thai Plastic Product. Accounts Payable The Company Sells plastic resin to Thai Plastic Product Co.,Ltd.	416.760 152.996 6.030	Transactions are always undertaken at market rates to support normal business operations of the Company.
5. Bangkok Union Insurance Plc. (BUI) (There are 4 common Directors. Mr. Prachai Leophairatana Miss Malinee Leophairatana Dr. Chavin Iamsopana Mr. Thavich Taychanavakul)	The Company and its subsidiaries pay insurance premium to BUI.	211.474	Transactions are always undertaken at market rates to support normal business operations of the Company.
6. Bangkok Union Life Insurance Plc. (There are 4 common Directors. Dr. Pramuan Leophairatana Mr. Prayad Liewphairatana Dr. Chavin Iamsopana Miss Malinee Leophairatana)	The Company and its subsidiaries paid life insurance premium to Bangkok Union Life Insurance Plc.	24.165	Transactions are always undertaken at market rates to support normal business operations of the Company.

The details of the connected transactions for the years 2017-2018 are disclosed in the annual report of the Company through the company's website (www.tpipolene.co.th)

Procedures to approve Related Transactions

Since the Company is a listed company, its practices regarding related transactions are conducted according to the rules and regulations of the SET and the SEC. The Company is highly aware of the sensitivity of this issue and closely monitors any situation in which a potential related transaction could occur. The above inter-company transactions were subject to the normal terms and conditions of business to reflect applicable market prices. Directors of the Company who are not deemed to be connected parties to such transactions are responsible for making decisions in regard to the said connected transactions.

The process for approval of connected transactions will be carried out under the standards of integrity and be reviewed by the Audit Committee to be in the best interests of the Company and its shareholders. This complies with SEC and SET regulations. The Company will disclose types and values of transactions that might present conflicts of interest accurately and completely. For any transactions that are considered to have potential conflicts of interest, market prices will be used as criteria to consider those transactions.

Potential Future Related Transactions

The Company expects to continue its business transactions with subsidiaries, the Joint Venture Company, affiliated companies, and related companies in the normal course of its business. Inter-company transactions are subject to normal terms and there is no conflict of interest. The Company adheres to practices for the above transactions that comply with the SET regulations, and regulations of other relevant governmental authorities, with regard to the reasonableness of the conditions and fair prices.

Risk Factors

TPI Group has constantly managed risks to be at controllable and acceptable levels. The Company has already implemented a management information system ("MIS"), which covers various areas of management to identify different aspects of risk, in order to ensure that each operation unit operates so as to achieve its targets. Risk management can be classified as follows:

Risks associated with potential foreign currency exchange rate fluctuations

As at 31 December 2019, the Company's major long-term loans are mainly denominated in Baht currencies, representing 99% while the remaining long-term borrowing is denominated in Euro and USD currency accounting for 1%. Therefore, the Company has impact from risks associated with the exchange rate fluctuation to some extent.

TPIPL Group of Company also has debt liability in the form of working capital, a significant amount of which is denominated in USD currency while part of it is denominated in Euro currency. However, most of the Company's income is generated in US dollars, which is higher than the payment of expenses in foreign currencies (in both US dollars and Euro based). The Company has a policy to mitigate foreign exchange risk through natural hedging by balancing its foreign currency revenues and expenses. These measures will partly protect the company against currency fluctuations, by balancing its cash flow in foreign currencies, revenue and expenses structure. The Company can use a number of financial mechanisms against risk caused by fluctuations in currency exchange rates by exporting products for payment in US dollars and maintaining a US dollar deposit account for repayment of principal and interest to creditors, to mitigate foreign exchange risk through natural hedging.

In addition, the Company has also applied a policy to mitigate risk associated with foreign exchange to use financial instruments, which is apt for hedging to enter into a forward exchange contract and /or cross currency swap, as considered appropriate; to hedge its foreign exchange exposure, and will closely monitors potential adverse currency movements, by balancing the income generated in US dollars and the payment of expenses in foreign currencies.

The Company has applied the policy to mitigate risk associated with foreign exchange to use financial instruments to some extent. However, as of 31 December 2019, the Company and its subsidiaries did not have balancing amount regarding to a forward exchange contract and /or cross currency swap as above.

Risk associated with potential coal price fluctuations

Coal is a principle source of kiln fuel in the manufacture of cement. Coal price fluctuation depends on a supply from major exporters in Australia and Indonesia. In case that demand for coal from major importers of coal in China increases, coal prices will be adjusted upward. Therefore, the Company's fundamental approach to managing coal price fluctuation risk is to identify extensive supply sources for coal, and establish import sales contracts throughout the entire year, with an appropriate allocation of short-term and long-term contracts, in order to efficiently manage cement production costs.

Risk associated with credit provision

To mitigate credit risk stemming from debtors' potential failure to comply with their contracts, the Company has the policy to conduct business transactions with reliable trade partners by selling cement products based on cash and credit terms. Usually customers are required to give collateral in the form of a letter guarantee or bank guarantee in return for customer credit lines. A Credit Committee has been appointed to consider proper criteria for offering credit lines to customers and to develop a monitoring process for cash collection from customers.

As at 31 December 2019 and 31 December 2018, Allowance for Doubtful Debt percentage to Total Account Receivable of the Company was 1.62% and 2.08%, respectively.

Risk associated with Product Price's fluctuation

The Company's plastic resins' price fluctuation has a direct impact on the business profitability of the group. However, the Company manufactures and sells a variety of products. Thus, cement products are regarded as a typically fundamental consumer item in that its price fluctuation depends on the health of the nation's economy. Revenue receipts from cement sales balances with the revenues from export sales of plastic resins while commodity's global price rise will drive coal prices to increase accordingly. All in all, cement production costs will be higher. Nonetheless, all these factors will also impact a plastic resin price hike, leading to an increase in plastic resins price and its higher revenues. These measures will partly protect the company against price fluctuations, by balancing revenue structure and net revenue earned by TPIPL Group.

Financial Structure

Ordinary Share

As of 31 December 2019, the registered capital of the company is Baht 23,805.50 million consisting of 23,805,500,000 ordinary shares, at the par value of Baht 1 each. Paid-up capital is Baht 19,180.50 million consisting of 19,180,000,000 ordinary shares, at the par value of Baht 1 each.

Debentures

As of 31 January 2020, the Company issued unsubordinated/unsecured onshore Debentures, in registered form with debenture holders' representatives. Details of Debenture are summarized as follows:

Debenture Series	Amount Baht)	Interest Rate (p.a.)	Term	Credit Rating	Outlook
TPIPL207A	2,000,000,000	3.50%	3 Years due A.D.2020	BBB+	Positive
TPIPL208A	2,205,000,000	4.65%	5 Years due A.D.2020	BBB+	Positive
TPIPL214A	1,600,000,000	4.35%	5 Years due A.D.2021	BBB+	Positive
TPIPL218A	3,600,000,000	4.90%	6 Years due A.D.2021	BBB+	Positive
TPIPL224A	1,200,000,000	4.60%	6 Years due A.D.2022	BBB+	Positive
TPIPL228A	4,000,000,000	5.20%	7 Years due A.D.2022	BBB+	Positive
TPIPL234A	2,645,000,000	4.80%	7 Years due A.D.2023	BBB+	Positive
TPIPL214B	8,000,000,000	3.30%	3 Years due A.D.2021	BBB+	Positive
TPIPL221A	3,530,000,000	4.10%	3 Years due A.D.2022	BBB+	Positive
TPIPL221B	100,000,000	3.80%	2 Years 10 Months 30 days due A.D.2022	-	-
TPIPL231A	3,000,000,000	3.90%	3 Years 6 Months due A.D.2023	BBB+	Positive
TPIPL251A	3,000,000,000	4.90%	5 Years 6 Months due A.D.2025	BBB+	Positive
TPIPL231B	4,400,000,000	3.50%	3 Years due A.D.2023	BBB+	Positive
Total	39,280,000,000				
TIIPP21NA	4,000,000,000	3.90%	3 Years due A.D.2021	BBB+	Positive
TIIPP22NA	4,000,000,000	3.50%	3 Years 3 Months due A.D.2022	BBB+	Positive
Total	8,000,000,000				
Grand Total	47,280,000,000				

Short term loan in form of bill of exchange

As 28 February 2020, the Company's outstanding debt in the form of bill of exchange was Baht 1,565 million.

Shareholding Structure

Top 10 major shareholders as at 27 December 2019 (latest closing date)

Shareholders	Number of Shares	Shareholding (%)
1. Leophairatana Enterprises Co., Ltd. 1/	4,547,609,790	23.71
2. Thai Petrochemical Industry Co., Ltd. 1/	2,807,342,160	14.64
3. Mr. Nares Ngamapichon	1,182,029,300	6.16
4. Mrs. Orapin Leophairatana	874,246,240	4.56
5. Mr. Prayad Liewphaitana	867,122,740	4.52
6. Mr. Pakorn Leophairatana	862,745,810	4.50
7. Dr. Pramuan Leophairatana	808,900,000	4.22
8. Bangkok Bank Public Company Limited	657,693,240	3.43
9. Miss Pattrapan Leophairut	629,077,220	3.28
10. Dr. Prateep Tangmatitham	347,804,100	1.81

Remark : 1/ Majority shares held by the Leophairatana family

Dividend Payment Policy

The dividend payout policy of the Company is subject to the operational results of single financial statements of the Company. Dividend payment will be paid to shareholders by taking into consideration other factors such as liquidity, cash flow and financial status of the Company. Such dividend payments shall be subject to the shareholders' approval or the Board of the Directors' approval. In addition, the Board of Directors of the Company may from time to time approve the payment of interim dividends to shareholders, where it is justified by the profits of the Company. After the payment of dividends, the transaction shall be reported to shareholders at the next meeting.

Separate Financial Statement	2017	2018	2019
Net Profit per share (Baht)	(0.005)	0.013	0.015
Dividend per share (Baht)	0.02	0.02	0.06*
Par Value per Share (Baht)	1.00	1.00	1.00
Dividend Payout Ratio (%)	N/A	153.85	400

Remarks: * At the Company's Board of Directors' meeting no. 2/2563, held on 27 February 2020, it passed a resolution to approve the dividend payment. However, the right of shareholders to receive the above dividend is still uncertain until it is approved at the 2020 Annual General Shareholders' Meeting, which will be held on 30 April 2020.

The Management

Management Structure

As at 31 December 2019, the management structure of the Company consists of three Executive Committees: the Board of Directors, the Executive Management Committee and the Audit Committee. The Board of Directors of the Company had a total of 14 directors, consisting of 5 independent directors, which exceeds one third of the total number of directors, details of which are as follows:

The Board of Directors as at 31 December 2019

Name	Position
1. Mr. Khantachai Vichakkhana	Chairman and Independent Director
2. Mr. Prachai Leophairatana	Director
3. Dr. Pramuan Leophairatana	Director
4. Dr. Chavin Iamsopana	Director
5. Mr. Prayad Liewphairatana	Director
6. Mrs. Orapin Leophairatana	Director
7. Mr. Tayuth Sriyusiri	Director
8. Miss Malinee Leophairatana	Director
9. Mr. Supoj Singsane	Chairman of the Audit Committee and Independent Director
10. Mr. Manas Sooksmarn	Audit Committee and Independent Director
11. Mr. Pises Iamsakulrat	Audit Committee and Independent Director
12. Mr. Thavich Taychanavakul	Audit Committee and Independent Director
13. Mr. Pakorn Leophairatana	Director
14. Mr. Pornpol Suwanamas	Director*

Remark: * At the Company's Board of Directors' meeting no. 12/2019, held on, has appointed Mr. Pornpol Suwanamas to be a director of the Company effective 26 December 2019 onwards; however, Mr. Nitisit Jongphitakratana is in the position of the Corporate Secretary of the Company.

Functions and Responsibilities of the Board of Directors

1. To carry out activities prudently and in compliance with related governing laws, the objectives of the Company, and the Articles of Association, in order to protect the Company's interests and for the benefit of shareholders.
2. To consider policy, vision, work plans and key strategies, as well as ethical standards for business operations, and to supervise and monitor Management, to ensure that they perform duties efficiently and are in compliance with the Company's policies.
3. To monitor the operational results of the Company and any other key progress criteria.
4. To determine interim dividends to shareholders.
5. To ensure that financial reports are complete, accurate, reliable and timely, and are prepared in compliance with generally accepted accounting principles.
6. To monitor the implementation of internal control and audit systems; to comply with all regulations and related governing laws; and to ensure appropriate risk management.
7. To ensure that the Company performs in compliance with good corporate governance policies, and focuses on fair treatment for all related parties, and discloses all relevant information that might affect the interests of related parties and the public.
8. To monitor and to prevent conflicts of interest and ensure that connected transactions and any other transactions that might affect the interests of related parties are in compliance with related rules and regulations.

The Executive Management Committee as at 31 December 2019

Name	Position
1. Mr. Prachai Leophairatana	Chairman of Executive Management Committee
2. Dr. Pramuan Leophairatana	Executive Director
3. Mr. Prayad Liewphairatana	Executive Director
4. Mrs. Orapin Leophairatana	Executive Director
5. Dr. Chavin Iamsopana	Executive Director
6. Mr. Tayuth Sriyusiri	Executive Director
7. Mr. Pakorn Leophairatana	Executive Director

Seven Directors are authorized to sign on behalf of the Company. Two of the seven directors must jointly sign, together with the affixation of the official company stamp.

Functions and Responsibilities of the Executive Management Committee

1. To govern and determine the operational strategy of the business, in compliance with the policy of the Board of Directors.
2. To monitor operational results of each department.
3. To select and nominate top management of the Company.
4. To nominate and remove officers of the Company, and to determine their rewards.
5. To perform their duties in relation to the general administration of the Company

The Audit Committee as at 31 December 2019

Name	Position
1. Mr. Supoj Singsanej *	Chairman of the Audit Committee
2. Mr. Manas Sooksmarn	Audit Committee
3. Mr. Pisej Iamsakulrat	Audit Committee
4. Mr. Thavich Taychanavakul	Audit Committee

Remark: * Possesses background and experience in auditing of financial statements.

Functions and Responsibilities of the Audit Committee

1. To control and monitor the Company's financial reports to ensure that they are complete, adequate and reliable.
2. To monitor the auditing process and internal control systems of the Company to ensure that they are appropriate and efficient.
3. To select and propose the appointment of the statutory auditor of the Company.
4. To supervise and ensure that the Company acts in compliance with the regulations imposed by the SET and the SEC and related governing laws.
5. To consider the disclosure of information regarding connected transactions or transactions that might have conflicts of interest, to ensure it is accurate and complete.
6. To prepare the Audit Committee Report as disclosed in the Company's Annual Report to be in compliance with the provisions imposed by the SET and the SEC.
7. To perform any other tasks that may be stipulated in the Articles of Association of the Company.
8. To perform any other tasks that may be delegated by the Board of Directors.

The Management as at 31 December 2019

Name	Position
1. Mr. Prachai Leophairatana	Chief Executive Officer
2. Dr. Pramuan Leophairatana	President
3. Mr. Prayad Liewphairatana	President
4. Mrs. Orapin Leophairatana	Senior Executive Vice President*
5. Mr. Prasert Ittimakin	Senior Vice President - Accounting and Finance Division
6. Mr. Karan Pipitsombat	Senior Vice President - Plant Manager
7. Mr. Somkeart Srisuwan	Senior Vice President - Information Technology Division
8. Miss Chularat Danwattanachai	Vice President - Accounting and Finance Division
9. Mr. Pongsak Yiengsakun	Vice President - Finance Department
10. Mrs. Bussara Ketmanee	Asst. Vice President - Accounting Department

Functions and Responsibilities of the Chief Executive Officer

1. To carry out activities prudently; to be in compliance with the objectives of the Articles of Association; and to be in line with establishing policy as approved by the Board of Directors of the Company, in order to protect the Company's interests and for the benefit of shareholders.
2. To monitor and manage daily operational results of each department to ensure these are carried out effectively and efficiently.
3. To assign, nominate, remove and punish employees and staff of the Company to comply with Company discipline.
4. To report work progress to be in line with work plans and budgets as approved by the Board of Directors.

Business relationships or professional service relationships between independent directors and the Company, or the parent company, or its affiliates, or subsidiary companies, or associated companies, or juristic persons within the Company, that may impose conflicts of interest in an amount exceeding the restricted amount under the notification of the SEC regarding permission and approval of new shares issuance (if any), as well as the resolution and opinion of the Board of Directors approval (if any).

-None-

Selection of the Directors and the Management

The Board of Directors of the Company is responsible for the selection of Directors and Management of the Company. Selection of Directors takes into consideration their background, knowledge, experience in related fields of business, ethical behavior, standards of integrity, independence, courage in giving opinions, responsible discharge of duties, precision and honesty, and consistent attendance at all Board meetings. Their resumes and their ethical behavior are taken into consideration as well as other appropriate qualifications deemed beneficial to the Company. We also consider other factors that may impose conflicts of interest.

Selection of the directors to replace those retiring by rotation is under the criteria of the Office of Securities and Exchange Commission and the Stock Exchange of Thailand.

Selection of Management takes into consideration their background, knowledge, abilities, professional skills, and experience deemed beneficial to the Company. Management selection is in compliance with recruitment procedures of the Company.

Criteria for selection of the Independent Directors are as follows:

1. Under the criteria of the Office of Securities and Exchange Commission and the Stock Exchange of Thailand, Independent Directors:
 - 1.1 Are restricted in the number of shares they may hold to not greater than 1% of the voting shares in the Company, its affiliates, its associated companies, or its juristic persons that may impose conflicts of interest (implicitly including related persons as stated in Section 258 of the SEC's Act B.E. 2535.)
 - 1.2 Have no management participation in the Company, its affiliates, or its associated companies; and are not employees or regularly paid consultants, or persons who have control over the Company, its affiliates, or its associated companies or its juristic persons that may impose conflicts of interest.

- 1.3 Have no business relationship with the Company, its affiliates, or its associated companies; and do not have any loss or gain, directly or indirectly, in the finance or management of the Company, its affiliates, or its associated companies; or its juristic persons that may impose conflicts of interest.
- 1.4 Have no close relatives, or persons related in a way that may lead to a lack of independence from the management or major shareholders of the Company, its affiliates, or its associated companies, or its juristic persons that may impose conflicts of interest; nor may they be appointed to protect the interest of any director or major shareholders.
- 1.5 Maintain consistent attendance at all board meetings and follow and monitor the business performance and operations of the Company.
2. Independent Directors must be capable, talented and knowledgeable, with backgrounds and experience deemed beneficial to the Company; such as backgrounds in engineering, accounting, finance etc.
3. Independent Directors must detail their qualifications and perform their duties with great care and loyalty in the best interest of the shareholders, without conflict of interest with/for their own businesses or former businesses, or related parties.

Authority to approve and to perform their actions in the Company's transaction

The Company determined that the Board Directors of the Company has the authority to approve and amend work plans, annual budgets, each investment expense and budget for selling and administration expense of the Company. In this regard, the Chief Executive Officer and/or President, Senior Executive Vice President have power and authority to approve the investment based on the budget as earlier approved, an allowance for budget expenses, the plan and alteration of marketing plan as well as the annual budget of the marketing department, as earlier approved, with no limited budget. In the event, the Chief Executive Officer and/or President, Senior Executive Vice President have power and authority to approve the advertising, advertising campaign, sales promotion including all other marketing activities stated or not stated in the plans within the limited budget, as earlier approved.

Remuneration of the Directors and the management

1. Remuneration in monetary terms

(1) Remuneration of the Directors

In 2019, remuneration awarded to the Company's 15 directors in the form of meeting allowances and bonuses was Baht 24,571,575 compared to Baht 26,858,238 in 2018 for 16 directors. Details of remuneration in 2019 are as follows:

Unit: Baht

No.	Name	Position	Meeting allowances	Bonus	Total
1.	Mr. Khantachai Vichakkhana	Chairman	1,684,908	140,409	1,825,317
2.	Mr. Prachai Leophairatana	Director	1,684,908	140,409	1,825,317
3.	Mr. Prateep Leopairut 1/	Director	561,636	140,409	702,045
4.	Dr. Pramuan Leophairatana	Director	1,684,908	140,409	1,825,317
5.	Mr. Supoj Singsanei	Director	1,684,908	140,409	1,825,317
6.	Miss Malinee Leophairatana	Director	1,684,908	140,409	1,825,317
7.	Dr. Chavin Iamsopana	Director	1,684,908	140,409	1,825,317
8.	Mr. Prayad Liewphairatana	Director	1,684,908	140,409	1,825,317
9.	Mrs. Orapin Leophairatana	Director	1,684,908	140,409	1,825,317
10.	Mr. Manas Sooksmarn	Director	1,684,908	140,409	1,825,317
11.	Mr. Pisej Iamsakulrat	Director	1,684,908	140,409	1,825,317
12.	Mr. Tayuth Sriyuksiri	Director	1,684,908	140,409	1,825,317
13.	Mr. Thavich Taychanakul	Director	1,684,908	140,409	1,825,317
14.	Mr. Chulasingh Vasantasingh 2/	Director	842,454	140,409	982,863
15.	Mr. Pakorn Leophairatana 3/	Director	982,863	-	982,863
16.	Mr. Pornpol Suwanamas 4/	Director	-	-	-
Total			22,605,849	1,965,726	24,571,575

Remarks :

1. Mr. Prateep Leopairut, Director of the Company, resigned from the position of Director of the Company on 27 May 2019.
2. Mr. Chulasingh Vasantasingh, Director of the Company passed away on 6 July 2019.
3. At the Company's Board of Directors' meeting on 30 May 2019, it passed a resolution to approve the appointment of Mr. Pakorn Leophairatana to the position of Director of the Board.
4. At the Company's Board of Directors' meeting on 26 December 2019, it passed a resolution to approve the appointment of Mr. Pornpol Suwanamas to the position of Director of the Board.

Remuneration of the Directors in subsidiaries (Thai Nitrate Co., Ltd.)

No.	Name	Position	Meeting allowances	Bonus	Total
1.	Mr. Prachai Leophairatana	Director	120,000	120,000	240,000
2.	Dr. Pramuan Leophairatana	Director	80,000	80,000	160,000
3.	Mr. Prayad Liewphairatana	Director	-	80,000	80,000
4.	Mrs. Orapin Leophairatana	Director	80,000	80,000	160,000
5.	Mr. Pakorn Leophairatana	Director	80,000	80,000	160,000
	Total		360,000	440,000	800,000

(2) Remuneration of Management

In 2019, remuneration awarded to the Company's 7 Executives including salaries and bonuses was Baht 238,320,190 compared to Baht 236,886,000 for total of 5 persons in 2018.

2. Other remuneration

Other remuneration to the Management includes company cars for each position.

Personnel Resource and Remuneration

As of 31 December 2019, number of employees and the management of TPIPL and its subsidiaries are 9,821 persons and 148 persons respectively. Total remuneration (not including the management) for the year 2019 was Baht 6,615.61 million. (This remuneration comprises salary, commission, bonus and other welfare)

Audit Fees

1. The Company and its subsidiaries paid audit fees for 2019 to:

- (1) The statutory auditor of the Company for the financial year ended 2019 in the amount of Baht -0-
- (2) The office of the statutory auditor of the Company, or other persons or related enterprises relating to the statutory auditor of the Company for year 2019 in the amount of Baht 11,500,000.

2. Non-Audit Fees

TPIPL and its subsidiaries paid a fee to KPMG Phoomchai Audit Limited to review the report of promotional privileges and benefits of exemption from payment of corporate income tax by virtue of the promotional certificates of the Board of Investment in 2019 for a total of Baht 240,000.

Embracing Corporate Governance Code 2017 (CG Code) for listed companies

The Company has reviewed the corporate governance policy by referring to the Corporate Governance Code for listed companies in 2012 of the Stock Exchange of Thailand and good Corporate Governance Code for listed companies 2017 (CG Code) of the Securities and Exchange Commission which the Company has embraced most practices by adding practices that are suitable for the business and can do without any other effects on the corporate governance policy of the Company. At present, the Company is considering additional review and making a plan to gradually improve the corporate governance policy to be in line with Corporate Governance Code for listed companies 2017 (CG Code).

Company shares held by the Directors and the Management (including couple marriage and their offspring) as at 27 December 2019

Name	Shareholding As at September 25, 2019 (shares)	Shareholding As at December 27, 2019 (shares)	Change Increase/ (decrease) During year 2019 (shares)
1. Mr. Prachai Leophairatana	867,446,240	874,346,240	6,900,000
2. Dr. Pramuan Leophairatana	809,000,000	809,000,000	-
3. Dr. Chavin Iamsopana	21,910,000	21,910,000	-
4. Mr. Prayad Liewphairatana	883,217,140	883,217,140	-
5. Mrs. Orapin Leophairatana*	*	*	*
6. Mr. Manas Sooksmarn	-	-	-
7. Mr. Pisej Iamsakulrat	8,128,400	8,128,400	-
8. Mr. Thavich Taychanavakul	1,091,180	1,091,180	-
9. Mr. Tayuth Sriyusiri	94,425,890	94,425,890	-
10. Mr. Khantachai Vichakkhana	27,760	27,760	-
11. Miss Malinee Leophairatana	8,143,080	8,143,080	-
12. Mr. Supoj Singsane	-	-	-
13. Mr. Pakorn Leophairatana	862,745,810	862,745,810	-
14. Mr. Pornpol Suwanamas**	-	-	-
15. Mr. Prasert Ittimakin	10,480	10,480	-
16. Miss Chularat Danwattanachai	-	-	-
17. Mr. Pongsak Yiengsakun	-	-	-
18. Mrs. Bussara Ketmanee	6,000	6,000	-

Remark: * Included in shareholding changes of Mr. Prachai Leophairatana to comply with the provisions contained in the SEC Act, article 258.

** At the Company's Board of Directors' meeting on 26 December 2019, it passed a resolution to approve the appointment of Mr. Pornpol Suwanamas to the position of Director of the Board.

Positions of the Management and Controlling Persons over the Company, its Subsidiaries, the Joint Venture Company, Associated Companies and other related Companies as at 31 December 2019.

Name	TPI	The Affiliated Company 2/																	
	Polene	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Mr.Prachai Leophairatana	//	//x	//x	//x	//x	//x	//x	//x	//	//x	-	//x	//x	//x	//x	//x	//x	//x	//x
2. Dr.Pramuan Leophairatana	//	//	//	//	//	//	//	//	//	//	//x	//	//	-	//	//	//	-	//
3. Dr.Chavin Iamsopana	//	-	-	-	-	-	-	-	-	-	//	//	-	-	-	-	-	-	-
4. Mr.Prayad Liewphairatana	//	//	//	//	//	//	//	//	//	//	//	//	//	-	//	//	//	-	//
5. Mrs.Orapin Leophairatana	//	//	-	//	//	//	//	//	-	//	-	//	//	//	//	//	//	//	//
6. Mr.Manas Sooksmarn	/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7. Mr.Pisej Iamsakulrat	/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8. Mr.Thavich Taychanavakul	/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9. Mr.Tayuth Sriyusiri	//	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10. Mr.Khantachai Vichakkhana	/x	-	-	/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11. Miss Malinee Leophairatana	/	-	-	/	-	-	-	-	/	-	//	//	//	-	-	-	-	-	-
12. Mr.Supoj Singsanei	/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13. Mr.Pakorn Leophairatana	//	//	//	//	//	//	//	//	-	-	-	//	//	//	//	//	//	//	//
14. Mr.Pornpol Suwanamas	/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: 1. / = Director X = Chairman // = Executive Director
2. / Names of the Companies

No.	The Affiliated Company	Status
1	TPI Concrete Co.,Ltd.	Subsidiary company
2	Thai Propoxide Co.,Ltd.	Subsidiary company
3	TPI Polene Power Plc.	Subsidiary company
4	TPI All Seasons Co.,Ltd.	Subsidiary company
5	Polene Plastic Co.,Ltd.	Subsidiary company
6	TPI Polene Bio Organics Co.,Ltd.	Subsidiary company
7	Thai Nitrate Co.,Ltd.	Subsidiary company
8	Thai Special Steel Plc.	Associated company
9	Mondo Thai Co.,Ltd.	Subsidiary company
10	Bangkok Union Life Insurance Public Co.,Ltd.	Associated company
11	United Grain Industry Co.,Ltd.	Associated company
12	Pornchai Enterprises Co.,Ltd.	Related company
13	TPI Commercial Co.,Ltd.	Subsidiary company
14	TPI Service Co.,Ltd.	Subsidiary company
15	TPI Healthcare Co.,Ltd.	Subsidiary company
16	TPI Refinery (1997) Co.,Ltd.	Subsidiary company
17	Master Achieve (Thailand) Co.,Ltd.	Subsidiary company
18	TPI Bio Pharmaceuticals Co.,Ltd.	Subsidiary company

The Board of Directors - TPI Concrete Co., Ltd. as at December 31, 2019

Name	Position
1. Mr. Prachai Leophairatana	Chairman
2. Dr. Pramuan Leophairatana	Director
3. Mr. Prayad Liewphairatana	Director
4. Mrs. Orapin Leophairatana	Director
5. Mr. Panya Tangsingtrong	Director
6. Mr. Pakorn Leophairatana	Director

The Board of Directors - TPI Polene Power Plc. as of December 31, 2019

Name	Position
1. Mr. Prachai Leophairatana	Chairman
2. Dr. Pramuan Leophairatana	Vice Chairman
3. Mrs. Orapin Leophairatana	Vice Chairman
4. Mr. Prayad Liewphairatana	Director
5. Mr. Pakorn Leopairut	Director
6. Miss Pattrapan Leopairut	Director
7. Mr. Pakkapol Leopairut	Director
8. Miss. Nitawan Leophairatana	Director
9. Mr. Manue Leohairoj	Director
10. Mr. Thiraphong Vikitset	Director
11. Mr. Apichai Chantarsaen	Director
12. Mr. Khantachai Vichakkhana	Director
13. Miss Malinee Leophairatana	Director
14. Mr. Wanchai Manosutthi	Director

The Board of Directors - TPI Polene Bio Organics Co., Ltd. as at December 31, 2019

Name	Position
1. Mr. Prachai Leophairatana	Chairman
2. Mr. Prateep Leopairut	Director
3. Dr. Pramuan Leophairatana	Director
4. Mr. Prayad Liewphairatana	Director
5. Mrs. Orapin Leophairatana	Director
6. Miss Pattrapan Leopairut	Director
7. Mr. Pakorn Leopairut	Director
8. Mr. Pakkapol Leopairut	Director
9. Mrs. Achira Chatdarong	Director
10. Mrs. Nitawan Leophairatana	Director
11. Mr. Thanakorn Liewphairatana	Director
12. Miss Chutinan Liewphairatana	Director
13. Mr. Vipot Kotbua	Director
14. Mr. Pakpoom Thongsorn	Director

The Board of Directors - TPI All Seasons Co., Ltd. as at December 31, 2019

Name		Position
1.	Mr. Prachai Leophairatana	Chairman
2.	Mr. Prateep Leopairut	Director
3.	Dr. Pramuan Leophairatana	Director
4.	Mr. Prayad Liewphairatana	Director
5.	Mrs. Orapin Leophairatana	Director
6.	Mr. Panya Tangsingtrong	Director
7.	Mr. Pakorn Leopairut	Director
8.	Mrs. Nitawan Leophairatana	Director
9.	Mrs. Achira Chatdarong	Director
10.	Mr. Virat Chatdarong	Director
11.	Mr. Porakrit Leophairatana	Director

The Board of Directors - Mondo Thai Co., Ltd. as at December 31, 2019

Name		Position
1.	Mr. Prachai Leophairatana	Chairman
2.	Mr. Prateep Leopairut	Director
3.	Dr. Pramuan Leophairatana	Director
4.	Mr. Prayad Liewphairatana	Director
5.	Mrs. Orapin Leophairatana	Director

The Board of Directors - TPI Commercial Co., Ltd. as at December 31, 2019

Name		Position
1.	Mr. Prachai Leophairatana	Chairman
2.	Mrs. Orapin Leophairatana	Director
3.	Mr. Pakorn Leopairut	Director
4.	Miss Pattrapan Leopairut	Director
5.	Mr. Pakkapol Leopairut	Director
6.	Mrs. Achira Chatdarong	Director
7.	Mrs. Nitawan Leophairatana	Director
8.	Mr. Thanakorn Liewphairatana	Director
9.	Miss Chutinan Liewphairatana	Director
10.	Mr. Prasert Ittimakin	Director
11.	Mr. Vipot Kotbua	Director
12.	Mr. Pakpoom Thongsorn	Director
13.	Mr. Chairat Kittithorn	Director

The Board of Directors - TPI Service Co., Ltd. as at December 31, 2019

Name		Position
1.	Mr. Prachai Leophairatana	Chairman
2.	Mr. Prateep Leopairut	Director
3.	Dr. Pramuan Leophairatana	Director
4.	Mr. Prayad Liewphairatana	Director
5.	Mrs. Orapin Leophairatana	Director
6.	Mr. Pakorn Leopairut	Director
7.	Mr. Pakkapol Leopairut	Director
8.	Mrs. Achira Chatdarong	Director
9.	Mrs. Nitawan Leophairatana	Director
10.	Mr. Thanakorn Liewphairatana	Director

The Board of Directors - Thai Nitrate Co., Ltd. as at December 31, 2019

Name		Position
1.	Mr. Prachai Leophairatana	Chairman
2.	Dr. Pramuan Leophairatana	Director
3.	Mr. Prayad Liewphairatana	Director
4.	Mrs. Orapin Leophairatana	Director
5.	Mr. Pakorn Leopairut	Director
6.	Mr. Pakkapol Leopairut	Director

The Board of Directors - Master Achieve (Thailand) Co., Ltd. as at December 31, 2019

Name		Position
1.	Mr. Prachai Leophairatana	Chairman
2.	Mrs. Orapin Leophairatana	Director
3.	Mr. Pakorn Leopairut	Director
4.	Mr. Pakkapol Leopairut	Director
5.	Mrs. Achira Chatdarong	Director
6.	Mrs. Nitawan Leophairatana	Director
7.	Miss Pattrapan Leopairut	Director
8.	Mr. Thanakorn Liewphairatana	Director
9.	Miss Chutinan Liewphairatana	Director

The Board of Directors - TPI Bio Pharmaceuticals Co., Ltd. as at December 31, 2019

	Name	Position
1.	Mr. Prachai Leophairatana	Chairman
2.	Mr. Prateep Leopairut	Director
3.	Dr. Pramuan Leophairatana	Director
4.	Mr. Prayad Liewphairatana	Director
5.	Mrs. Orapin Leophairatana	Director
6.	Miss Pattrapan Leopairut	Director
7.	Mr. Pakorn Leopairut	Director
8.	Mr. Pakkapol Leopairut	Director
9.	Mr. Thanakorn Liewphairatana	Director
10.	Miss Chutinan Liewphairatana	Director
11.	Mr. Porakrit Leophairatana	Director

The Board of Directors - TPI Healthcare Co., Ltd. as at December 31, 2019

	Name	Position
1.	Mr. Prachai Leophairatana	Chairman
2.	Mr. Prateep Leopairut	Director
3.	Dr. Pramuan Leophairatana	Director
4.	Mr. Prayad Liewphairatana	Director
5.	Mrs. Orapin Leophairatana	Director
6.	Miss Pattrapan Leopairut	Director
7.	Mr. Pakorn Leopairut	Director
8.	Mrs. Nitawan Leophairatana	Director
9.	Mr. Pakkapol Leopairut	Director
10.	Mr. Porakrit Leophairatana	Director

The Board of Directors - TPI Refinery (1997) Co., Ltd. as at December 31, 2019

	Name	Position
1.	Mr. Prachai Leophairatana	Chairman
2.	Mr. Prateep Leopairut	Director
3.	Dr. Pramuan Leophairatana	Director
4.	Mr. Prayad Liewphairatana	Director
5.	Mrs. Orapin Leophairatana	Director
6.	Mr. Pakorn Leopairut	Director
7.	Mrs. Nitawan Leophairatana	Director
8.	Mr. Pakkapol Leopairut	Director
9.	Mrs. Panee Liewphairatana	Director
10.	Mrs. Achira Chatdarong	Director
11.	Mr. Thanakorn Liewphairatana	Director
12.	Mr. Porakrit Leophairatana	Director

The Board of Directors - Thai Propoxide Co., Ltd. as at December 31, 2019

Name		Position
1.	Mr. Prachai Leophairatana	Chairman
2.	Mr. Prateep Leopairut	Director
3.	Dr. Pramuan Leophairatana	Director
4.	Mr. Prayad Liewphairatana	Director
5.	Mrs. Orapin Leophairatana	Director
6.	Miss Pattrapan Leopairut	Director
7.	Mr. Pakorn Leopairut	Director
8.	Mr. Pakkapol Leopairut	Director
9.	Mr. Thanakorn Liewphairatana	Director
10.	Miss Chutinan Liewphairatana	Director

The Board of Directors - Polene Plastic Co., Ltd. as at December 31, 2019

Name		Position
1.	Mr. Prachai Leophairatana	Chairman
2.	Mr. Prateep Leopairut	Director
3.	Dr. Pramuan Leophairatana	Director
4.	Mr. Prayad Liewphairatana	Director
5.	Mrs. Orapin Leophairatana	Director
6.	Miss Pattrapan Leopairut	Director
7.	Mr. Pakorn Leopairut	Director
8.	Mr. Pakkapol Leopairut	Director
9.	Mr. Thanakorn Liewphairatana	Director
10.	Miss Chutinan Liewphairatana	Director

Board of Directors as at 31 December 2019

NAME/AGE/ FAMILY RELATION AMONG DIRECTORS & EXECUTIVES	EDUCATIONAL BACKGROUND/TRAINING	% SHARE HOLDING*	WORK EXPERIENCE		
			DURATION	POSITION	COMPANY/ BUSINESS
Mr. Khantachai Vichakkhana 71 years of age -no relationship	Master of Political Science, (Public Administration), Thammasat University	0.00	Jun 25 2018 - Present	Chairman and Independent Director	TPI Polene Plc.
			Jan 2016-Present	Independent Director	TPI Polene Power Plc.
			Aug8,2014-Present	Director and the Nomination, Remuneration and Corporate Governance committee	L.P.N. Development Public Co.,Ltd.
	Bachelor of Law, Thammasat University			Independent Director	Tong Hua Holding Plc.
	Directors Accreditation Program (DAP- No.112/2014) Thai Institute of Directors (IOD)		2002-2008	Deputy Director -General	Department of Lands
			2000-2002	Directors: Land Registration Bureau of Standards	Department of Lands
			2000	Staff Plan & Policy Analysis (Land)	Department of Lands
	Role of Compensation		1999-2000	Inspector-General	Department of Lands
	Committee (RCC-No.19/2014) Thai Institute of Directors (IOD)		1998-1999	Director of Bureau Authority Land	Department of Lands
			1995-1998	Land Management Division	Department of Lands
			1992-1995	Department of Important book	Department of Lands
	Directors Certification Program (DCP- No.119/2015) Thai Institute of Directors (IOD)		1990-1992	Land Officer- Chonburi	Department of Lands
			1989-1990	Land Officer- Phuket	Department of Lands
			1988-1989	Land Officer- Nonthaburi and Bangyai District	Department of Lands
	Guest Speaker Training Program- Land Class 2: Department of Land (1979)		1986-1988	Land Officer- Nakhornnayok	Department of Lands
			1986	Land Officer- Uttaradit	Department of Lands
			Extracurricular	Council Member	Rajamangala University or technology Bangkok
	Internal Security Operations Command Program (ISOC): Royal Thai Army (1979)			Assets Management Committee	Thai Red Cross Council
				Inquiry Committee	Election Commission of Thailand
				Advisor	Islamic Bank of Thailand
				Committee	Executive Public Administration Foundation (EPAF) TriamudomsuksaAlumni Foundation
	Advance Land Management School Program Class 3: Department of Lands (1984)			Committee	Retired Government Officials' Pension Association of Interior Foundation
	Advance administration Program: Class 30, Institute of Administration Development, Department of Provincial Administration (1993)			Committee	EPA Thammasat University
				Committee	Anan Anantakool Foundation
				Committee	Dr.Suk Pookayaphon Foundation Hospital & phrapiya school Foundation
				Assets Management Committee	Srisavarindhira Thai Red Cross Institute of Nursing
	High Level Information Technology Executives (CIO) Seminar (2003)				
	Political Development in Democratic Governance for Executives Program Class 8, King Prajadhipok's Institute (2004)				

NAME/AGE/ FAMILY RELATION AMONG DIRECTORS & EXECUTIVES	EDUCATIONAL BACKGROUND/TRAINING	% SHARE HOLDING*	WORK EXPERIENCE		
			DURATION	POSITION	COMPANY/ BUSINESS
Mr. Prachai Leophairatana 75 years of age Younger brother of Miss Malinee Leophairatana, elder brother of Mr. Prateep Leopairut, Dr. Pramuan Leophairatana and Mr. Prayad Liewphairatana	Honorary Doctorate Degree in Industrial Engineering, Rajamangala University of Technology Krungthep	0.00	2001-Present	Chief Executive Officer	TPI Polene Plc.
			1991-Present	Chairman	TPI Polene Power Plc.
			Jan2016-Present	Chairman of the Management Committee	TPI Polene Power Plc.
	M.S.(EE) University of California (Berkeley) U.S.A.		April 2012-Present	Director	Bangkok Union Insurance Public Co.,Ltd.
			Oct2019-Present	Executive Director	TPI Deep Sea Port Co.,Ltd.
	B.E.(EE) (1 st Class Hons.) University of Canterbury, New Zealand		Oct2019-Present	Executive Director	TPI Polene Power (Songkhla) Co.,Ltd.
			Oct2019-Present	Executive Director	TPI Wind Power Co.,Ltd.
			Oct2019-Present	Executive Director	TPI Solar Power Co.,Ltd.
	Directors Accreditation Program (DAP- No.35/2005)		2000-2006	Board Executive Director	Bangkok Union Insurance Public Co.,Ltd.
	Thai Institute of Directors (IOD)		1978-2006	Chief Executive Officer	Thai Petrochemical Industry Public Co.,Ltd. and TPI Polene Group of Companies.
			1992-2000	Senator	Parliamentary Commission
			1969-1997	Chairman	Cathay Finance & Securities Plc.
Dr. Pramuan Leophairatana 71 years of age Younger brother of Miss Malinee Leophairatana, Mr. Prachai Leophairatana and Mr. Prateep Leopairut, elder brother of Mr. Prayad Liewphairatana	M.S., SC.D. Massachusetts Institute of Technology (MIT), U.S.A.	4.22	2001-Present	President	TPI Polene Plc.
			1973-Present	Director	Leophairatana Enterprises Co.,Ltd.
			1988-Present	Director	Thai Plastic Product Co.,Ltd.
	B.S. (Honors) University of California (Berkeley), U.S.A.		1989-Present	Director	Thai Plastic Film Co.,Ltd.
			1989-Present	Director	United Grain Industry Co.,Ltd.
	Directors Accreditation Program (DAP- No.39/2005) Thai Institute of Directors (IOD)		1991-Present	Vice Chairman	TPI Polene Power Plc.
			1991-Present	Executive Director	TPI Concrete Co.,Ltd.
			1997-Present	Executive Director	Bangkok Union Life Insurance Public Co.,Ltd.
	National Defense College No.41 and National Defense College in cooperation with the private sector No.11, King Prajadhipok's Institute		2002-Present	Chairman	Polene Plastic Co.,Ltd.
			2010-Present	Executive Director	TPI Polene Bio Organics Co.,Ltd.
			Jul.2014-Present	Executive Director	Mondo Thai Co.,Ltd.
			Aug.2016-Present	Executive Director	Thai Nitrate Co.,Ltd.
			Oct2019-Present	Executive Director	TPI Polene Power (Songkhla) Co.,Ltd.
			Oct2019-Present	Executive Director	TPI Solar Power Co.,Ltd.
			Oct2019-Present	Executive Director	TPI Wind Power Co.,Ltd.
			Oct2019-Present	Executive Director	TPI Deep Sea Port Co.,Ltd.
			Oct.2013-Jan.2015	Executive Director	Thai Nitrate Co.,Ltd.
			1996-Jul.2014	Executive Director	Mondo Thai Co.,Ltd.
			1990-Aug.2013	Executive Director	Thai Nitrate Co.,Ltd.
			1978-2006	Director	Thai Petrochemical Industry Plc.

NAME/AGE/ FAMILY RELATION AMONG DIRECTORS & EXECUTIVES	EDUCATIONAL BACKGROUND/TRAINING	% SHARE HOLDING*	WORK EXPERIENCE		
			DURATION	POSITION	COMPANY/ BUSINESS
Miss Malinee Leophairatana 78 years of age Elder sister of Mr.Prachai Leophairatana, Mr.Prateep Leopairut, Dr.Pramuan Leophairatana and Mr.Prayad Liewphairatana	Master Degree in Actuarial Science Georgia State University, U.S.A. Bachelor of Commerce and Accounting Major in Statistics (Second Honour) Chulalongkorn University Directors Certification Program (DCP) No.22/2002 Thai Institute of Directors (IOD) Certified as Actuary under Section 78/2 of The Non-Life Insurance Act B.E.2535 as Amended by Non-Life Insurance Act (No.2), B.E.2551	0.04	April 2016-Present	Director	TPI Polene Plc.
			Jan 2016-Present	Director	TPI Polene Power Plc.
			1973-Present	Director	Leophairatana Enterprises Co., Ltd.
			2011-Present	Chairman Executive Officer	Bangkok Union Insurance Plc.
			1997-Present	Director	Bangkok Union Life Insurance Plc.
			1973-2011	Managing Director	Bangkok Union Insurance Plc.
			1987-1989	President	Thai General Insurance Association
Dr. Chavin Iamsopana 77 years of age Brother-in-law of Mr. Prachai Leophairatana, Mr.Prateep Leopairut, Dr.Pramuan Leophairatana, and Mr.Prayad Liewphairatana	Doctor of Engineering, Osaka City University Japan Directors Accreditation Program (DAP- No.28/2004) Thai Institute of Directors (IOD) Directors Certification Program (DCP-No.46/2004) Thai Institute of Directors (IOD) Audit Committee Program (ACP-No.15/2006) Thai Institute of Directors (IOD)	0.11	1987-Present	Executive Director	TPI Polene Plc.
			1989-Present	Executive Director	Thai Plastic Film Co.,Ltd.
			1989-Present	Executive Director	Thai Plastic Product Co.,Ltd.
			1989-Present	Executive Director	United Grain Industry Co.,Ltd.
			1997-Present	President	BUI Life Insurance Co.,Ltd.
			2004-Present	Executive Director	Bangkok Union Insurance Plc.
Mr. Prayad Liewphairatana 69 years of age Younger brother of Miss Malinee Leophairatana, Mr. Prachai Leophairatana, Mr. Prateep Leopairut, and Dr. Pramuan Leophairatana	M.S.C.E. University of Michigan (ANN ARBOR) U.S.A. Directors Accreditation Program (DAP- No.29/2004) Thai Institute of Directors (IOD)	4.52	1987-Present	President	TPI Polene Plc.
			1973-Present	Director	Leophairatana Enterprises Co.,Ltd.
			1988-Present	President	Thai Plastic Product Co.,Ltd.
			1988-Present	President	United Grain Industry Co.,Ltd.
			1989-Present	President	Thai Plastic film Co.,Ltd.
			1991-Present	Executive Director	TPI Polene Power Plc.
			1991- Present	Executive Director	TPI Concrete Co.,Ltd.
			1996-Present	Executive Director	Mondo Thai Co.,Ltd.
			1997- Present	Executive Director	BUI Life Insurance Co.,Ltd.
			2002-Present	Executive Director	Polene Plastic Co.,Ltd.
			Aug 2, 2016-Present	Executive Director	Thai Nitrate Co.,Ltd.
			2010-Present	Executive Director	TPI Polene Bio Organics Co.,Ltd.
			1981-2006	Director	International Plastic Trading Co.,Ltd.

NAME/AGE/ FAMILY RELATION AMONG DIRECTORS & EXECUTIVES	EDUCATIONAL BACKGROUND/TRAINING	% SHARE HOLDING*	WORK EXPERIENCE		
			DURATION	POSITION	COMPANY/ BUSINESS
Mrs. Orapin Leophairatana 72 years of age Mr. Prachai Leophairatana's wife	Political Science (2 nd Class Honors) Chulalongkorn University Directors Accreditation Program (DAP- No.35/2005) Thai Institute of Directors (IOD)	4.56	1998-2003,	Director/Senior Executive	TPI Polene Plc.
			2005-Present	Vice President	
			1998-Present	Executive Director	TPI Concrete Co., Ltd.
			2002-Present	Executive Director	Polene Plastic Co.,Ltd.
			2007-Present	Vice Chairman	TPI Polene Power Plc.
			2009-Present	Executive Director	TPI All Season Co., Ltd.
			2010-Present	Executive Director	United Grain Industry Co.,Ltd.
			2010-Present	Executive Director	Thai Petrochemical Industry Co.,Ltd.
			2010-Present	Executive Director	TPI Polene Bio Organics Co.,Ltd.
			Jul.2014-Present	Executive Director	Mondo Thai Co.,Ltd.
			Oct2019-Present	Executive Director	TPI Polene Power (Songkhla) Co.,Ltd.
			Oct2019-Present	Executive Director	TPI Solar Power Co.,Ltd.
			Oct2019-Present	Executive Director	TPI Wind Power Co.,Ltd.
			Oct2019-Present	Executive Director	TPI Deep Sea Port Co.,Ltd.
			Oct.2013-Jan.2015	Executive Director	Thai Nitrate Co.,Ltd.
			2009-Aug 2013	Executive Director	Thai Nitrate Co.,Ltd.
			2001-2011	Director	Thai Listed Company Association
			April-Dec.1997	Director	Association of Finance Companies
			1986-1997	Director	Bangkok Stock Trading Center
			1995-1997	Chairman	Association of the Securities Brokerage
			1995-1997	Managing Director	Cathay Finance & Securities Plc.
			1977- 1982	Third Secretary	Ministry of Foreign Affairs
Mr. Supoj Singsanei 70 years of age -no relationship	M.B.A. Finance, Michigan State University, U.S.A. Bachelor of Accounting (Honor), Thammasat University Directors Certification Program (DCP-No.90/2007) Thai Institute of Directors (IOD) The Role of Chairman Program (RCP) No.18/2008 Thai Institute of Directors (IOD) Successful Formulation & Execution of Strategy (SFE) No.4/ 2009 Thai Institute of Directors (IOD)	-	Jun 25, 2018-Present	Chairman of the Audit Committee and Independent Director	TPI Polene Plc.
			Apr 25, 2018- Jun 2018	Independent Director and Audit Committee	TPI Polene Plc.
			2016- Present	Director	Marui Real Estate Co., Ltd.
			1988- Present	Director	Pisant Co., Ltd.
			2018- Present	Chairman and Chairman of the Audit Committee	Saksiam Leasing Plc.
			2018- Present	Chairman and Chairman of the Audit Committee	Samart Aviation Plc.
			2019- Present	Director	Sabaijai Money Co.,Ltd.
			1995-2015	Audit Partner and Senior Consultant	KPMG Phoomchai Audit Co., Ltd.

NAME/AGE/ FAMILY RELATION AMONG DIRECTORS & EXECUTIVES	EDUCATIONAL BACKGROUND/TRAINING	% SHARE HOLDING*	WORK EXPERIENCE		
			DURATION	POSITION	COMPANY/ BUSINESS
Mr. Manas Sooksmarn 84 years of age -no relationship	Master of Science in Industrial Engineering and Management, Oklahoma State University, U.S.A. Post Graduate diploma Industrial Development Programming. (Economics) Institute of Social Studies (ISS), The Hague, Netherlands Master of Political Science, Ramkhamhaeng University B.E. (Industrial Engineering), Chulalongkorn University. National Defense College No.31 Directors Accreditation Program (DAP- No.47/2005) Thai Institute of Directors (IOD)	-	2005-Present	Member of the Audit Committee and Independent Director	TPI Polene Plc.
			1996-2000	Senator	The Senate of Thailand
			1996-1997	Committee	Express Authority of Thailand
			1997	Advisor to Deputy Minister	Ministry of Interior
			1997, 2001	Advisor to Deputy Minister	Ministry of Agriculture and Cooperatives
			2006	Honorable Committee	The Constitutional Court
Mr. Pises Iamsakulrat 55 years of age -no relationship	Master of International Trade, Golden Gate University, U.S.A. Bachelor Degree, Business Administration, Menlo College, California, U.S.A Directors Accreditation Program (DAP- No. 140/2017) Thai Institute of Directors (IOD)	0.04	Mar1,2018-Present	Independent Director and Audit Committee	TPI Polene Plc.
			2008- Present	Director	TPI Polene Plc.
			1987- Present	Managing Director	Iamsakulrat Co., Ltd.
			1990- Present	Managing Director	Lampang Food Products Co., Ltd.
			1995- Present	Vice President	Laos Industrial-Agriculture Co., Ltd.
			1997- Present	Director	K. Cotton & Gloss Co., Ltd.
			1997- Present	Director	TPI Holding Co., Ltd.
			2004- Present	Managing Director	Maekong Inter Trade Co., Ltd.
Mr. Thavich Taychanavakul 71 years of age -no relationship	Bachelor Degree, Business Administration Kinki University, Japan National Defense College No. 366 Directors Accreditation Program (DAP- No. 6/2003) Thai Institute of Directors (IOD) Finance for Non-finance Director (FND) No.30/2006 Thai Institute of Directors (IOD)	0.01	Mar1,2018-Present	Audit Committee	TPI Polene Plc.
			2008- Present	Independent Director	TPI Polene Plc.
			2013-Present	Chairman Executive Director	Mae Fah Luang University Council
			2012-Present	Advisor	Thai Industrial Estate Association
			2012-Present	Chairman Executive Director	Hi-Tech Kabin Logistics Co.,Ltd.
			1999-Present	Chairman Executive Director	Ayutthaya Technology Hi-Tech Center Co.,Ltd.
			1990- Present	Chairman Executive Director	Thai Industrial Estate Co., Ltd.
			May15, 2014-Present	Audit Committee/Independent Director	Bangkok Union insurance Plc.
			Mar18, 2019-Present	Chairman Executive Director	Inter Far East Energy Corporation Plc.
Mr.Tayuth Sriyusiri 65 years of age -no relationship	Master Of Business Administration, Boston University, U.S.A. Bachelor's Degree, Engineering, Mechanic, Worcester University, U.S.A. Director Accreditation Program (DAP- No.29/2004) Thai Institute of Directors (IOD)	0.49	2008-Present	Executive Director	TPI Polene Public Plc.
			1982- Present	Managing Director	K. Cotton & Gloss Co., Ltd.
			1994- Present	Director	TPI Holdings Co., Ltd.
			1999- Present	Director	Micro Fiber Industry Co., Ltd.
			2005- Present	Director	Hua Thai Manufacturing Plc.

NAME/AGE/ FAMILY RELATION AMONG DIRECTORS & EXECUTIVES	EDUCATIONAL BACKGROUND/TRAINING	% SHARE HOLDING*	WORK EXPERIENCE		
			DURATION	POSITION	COMPANY/ BUSINESS
Mr. Pakorn Leopairut 40 years of age -no relationship	Master of Public and Private Management NIDA CEDI-BABSON ENTREPRENEURIAL LEADERSHIP PROGRAM No. 1/2556 Young F.T.I Eite No. 1 The Federation Of Thai Industries Executive Development Program No.10 Ministry of Finance FPO:Forum Economic Guru Seminar No.3 Ministry of Finance Energy Executive Program No. 1 The Federation Of Thai Industries Directors Accreditation Program (DAP- No.132/2016) Thai Institute of Directors (IOD) Tisco Wealth Enhancement Program (WEP 4) No.4 (2016) The Young Executive Program in Energy Literacy for a Sustainable Future (YTEA) No.7 (2019)	4.50	2019-Present	Executive Director	TPI Polene Plc.
			2008-Present	Assistant Vice President	TPI Polene Plc.
			2007-Present	Executive Director	TPI Polene Power Plc.
			Jan 2016-Present	Member of the Management Committee	TPI Polene Power Plc.
			Feb 2016-Present	President	TPI Polene Power Plc.
			2009-Present	Executive Director	TPI All Seasons Co., Ltd.
			2010-Present	Executive Director	TPI Polene Bio Organics Co., Ltd.
			2010-Present	Executive Director	TPI Service Co., Ltd.
			2010-Present	Executive Director	Zenith International Power Co., Ltd.
			2014-Present	Executive Director	TPI Commercial Co., Ltd.
			Jul 2015-Present	Executive Director	TPI Healthcare Co., Ltd.
			Jul 2015-Present	Executive Director	TPI Refinery (1997) Co., Ltd.
			2006-Present	Executive Director	Thai Petrochemical Industry Co., Ltd.
			2007-Present	President	Thai Nitrate Co., Ltd.
			Oct2019-Present	Executive Director	TPI Polene Power (Songkhla)
			Oct2019-Present	Executive Director	TPI Solar Power Co., Ltd.
			Oct2019-Present	Executive Director	TPI Wind Power Co., Ltd.
			Oct2019-Present	Executive Director	TPI Deep Sea Port Co., Ltd.
			2007-2008	Investment Analyst	MFC Asset Management Plc.
			2002-2007	Supervisor	Thai Petrochemical Industry Plc.

NAME/AGE/ FAMILY RELATION AMONG DIRECTORS & EXECUTIVES	EDUCATIONAL BACKGROUND/TRAINING	% SHARE HOLDING*	WORK EXPERIENCE		
			DURATION	POSITION	COMPANY/ BUSINESS
Mr. Pornpol Suwanamas 41 years of age -no relationship	Bachelor of Humanities, Srinakharinwirot University	0.04	2019-Present	Director	TPI Polene Plc.
			2008-Present	Director and Secretary	Mind Management Promotion Foundation under patriarchal patronage
	Master of Technology and printing / Mind and Brain Learning of Oxford Brookers University		2008-Present	Director and Secretary	Paendin Dham Foundation under patriarchal patronage
			2010-Present	Director and Secretary	Novice promotion foundation under patriarchal patronage
	PhD. Of Buddhist theology at Wat Bowoniwet school in Bangkok		2013-Present	Vice Chairman	Rojana Dhamma Foundation
			2017-Present	Director	The National council on social welfare of Thailand
	Certification of No.29 Meditation instructor Course from Willpower Institute, Wat Tham Mongkol.		2018-May,2019	Working Group	Ministry of Labor
			1982-Dec20,2019	Assistant secretary to the abbot of the Rama IX Kanchanaphisek Temple.	
	Certification of No.13 teacher training from Willpower Institute , Wat Tham Mongkol.		2013-Dec20,2019	Assistant secretary to Chieng Rai lord abbot of Buddhist monastery	
			2019	-Junior of Budget Commission	
	Intermediate Certificate Course of Political Leadership in the new era , King Prajadhipok's Institute			-Consultant of Junior of Religion Commission	
				-Consultant of Junior of labor commission senator	
	Advanced Certificate Course in Promotion of a Peaceful Society. King Prajadhipok's Institute		2018-May, 2019	Advisor of chairman	Rojana Industrial Park PCL.
				Director	Pathumwan Demonstration School
					Srinakarinwirot University (primary school)
			2019	Director	Pathumwan Demonstration School Srinakarinwirot University (Secondary school)
				Monk teacher- morality course	Navaminthrachinuthit Bodidecha School.
				Monk teacher- morality course	Rama IX Kanchanaphisek School
				Monk teacher- morality course	Udomsuksa School
				Monk teacher- morality course	Kasetsart University laboratory school
				Special Lecturer	Fa Sai Wittaya School
Mr. Nitisit Jongphitakratana 49 years of age -no relationship	Master of Law, Thammasat University	-	2006-Present	Secretary	TPI Polene Plc.
			2011-Present	Asst.Vice President Department	TPI Polene Plc.
			2006-2011	Manager Department	TPI Polene Plc.

NAME/AGE/ FAMILY RELATION AMONG DIRECTORS & EXECUTIVES	EDUCATIONAL BACKGROUND/TRAINING	% SHARE HOLDING*	WORK EXPERIENCE		
			DURATION	POSITION	COMPANY/ BUSINESS

OTHER EXECUTIVES

Mr. Prasert Ittimakin 60 years of age -no relationship	M.B.A. Finance University of St. Thomas, U.S.A.	0.00	2001-Present	Senior Vice President Accounting and Finance Division	TPI Polene Plc.
	Bachelor of Accounting, Chulalongkorn University		1998-2001	Vice President Accounting and Finance Division	TPI Polene Plc.
			1990-1998	Vice President Corporate Finance Department	Asia Credit & Securities Plc.
Mr. Karan Pipitsombat 60 years of age -no relationship	Master of Public Administration (MPPM) NIDA	0.00	2006-Present	Senior Vice President (Plant Manager)	TPI Polene Plc.
	Bachelor of Engineering, Mechanical, Chiang Mai University		2001-2006	Vice President	TPI Polene Plc.
Mr. Somkeart Srisuwan 61 years of age -no relationship	M.B.A. of Kasetsart	0.00	2012-Present	Senior Vice President Information Technology Division	TPI Polene Plc.
	Bachelor of Accounting, Chulalongkorn University		1999-2012	Senior Manager (SVP) Office of Procurement and Administration Division	CIMB THAI Bank
			1993-1999	Senior Manager (SVP) System Development Department Division	Krung Thai Thanakit Finance Co.,ltd.
Miss Chularat Danwattanachai 58 years of age -no relationship	M.B.A. Thammasart University	-	2001-Present	Vice President Accounting and Finance Division	TPI Polene Plc.
			1999-2001	Asst.Vice President Accounting and Finance Division	TPI Polene Plc.
			1989-1998	Asst. Vice President Corporate Finance Department	Asia Credit & Securities Plc.
Mr. Pongsak Yiengsakun 65 years of age -no relationship	Bachelor of Business Administration Banking and Finance, Chulalongkorn University	-	2012-Present	Vice President Financial Operation Department	TPI Polene Plc.
			2001-2012	Asst.Vice President Financial Operation Department	TPI Polene Plc.
			1992-2001	Manager of Finance Department	TPI Polene Plc.
Mrs. Bussara Ketmanee 56 years of age -no relationship	Bachelor of Accounting, Ramkhamhaeng University	-	2018-Present	Asst.Vice President Accounting Department	TPI Polene Plc.
			2012-2018	Manager of Accounting Department	TPI Polene Plc.

Remarks: * Percentage of shareholding above includes shares held by spouses and offspring.

Corporate Governance

Throughout 2019, the Board of Directors of the Company operated in compliance with the principles of good corporate governance by carrying out their duties with transparency, ethics, and responsibility to shareholders, customers, employees, society and other stakeholders.

As the Company values ethical business conduct, we issued a Code of Business Conduct, which is constantly reviewed to make it more suitable for changed circumstances. The Company's Directors acknowledge best practice for directors of a listed company as their principle guideline. The Directors, the management and all levels of staff carry out their duties with honesty, integrity, and good ethics. All realize that the Company is a long-established, leading, reputable company with a track record of over 20 years. Corporate governance practices of the Company can be divided into 5 sections as follows:

Section 1. Stakeholder Rights

The Company realizes and respects the importance of the rights of all shareholders. The Company has policies to protect shareholders fundamental rights and ensure equitable treatment under the law as follows:

1. Shareholders' Meeting

The Company schedules an annual general meeting of the shareholders ("AGM") within 4 months of the annual closing date of its accounting books. In case there are emergency issues that might affect the interest of the shareholders and/or related to the terms and regulations or any legal issues, to be proposed for approval in the meeting. The extraordinary shareholders' meeting will be held as the case may be. On December 31, 2019, the Annual General Shareholders' meetings were held on April 29, 2019 at the Conference Room on the 9th floor of TPI Tower, 26/56 Chan Tat Mai Rd, Thungmahamek, Sathorn, Bangkok. A total of 12 directors attended the AGM.

The Audit Committee of the Company and the Legal Advisor acted as the agents for the ballot throughout the meeting and the Chairman allocates sufficient time for each item and facilitates the meeting appropriately according to related governing laws and all respective agenda were proposed and resolved in the meeting.

2. Delivering Meeting Notices

After the Company's Board of Directors approved and resolved the Annual General Shareholders Meeting, the Company will disclose the Invitation to the Annual General Shareholders Meeting with all relevant documents on the Company's website at <http://www.tpipolene.co.th> for shareholders' consideration in advance of the meeting.

The Company assigned Thailand Securities Depository Co., Ltd., its SEC Securities Registrar, to mail meeting notices together with details of the agenda and accompanying documents (both supplementary and supporting) for the decisions of the Board of Directors. The Securities Registrar mails the opinion of the Board, minutes of the previous meeting, the annual report, all meeting documents, and proxy forms designed by the Ministry of Commerce, to shareholders at least 7 days ahead of the meeting date. An invitation to the AGM is also announced in newspapers for 3 consecutive days in advance of the meeting.

3. Facilitating Shareholders

The Company treats all shareholders in a fair manner. The Company always allows registration of shareholders at least one hour before each meeting. A barcode system summarizing details of each shareholder is printed on the registration form, or the proxy form, to facilitate registration and save time. A suitable reception is also extended to all shareholders.

4. Conduct of Shareholders' Meetings

Before the meeting, the Chairman explains clearly the rules on voting and vote counting for individual agenda items. Once information has been disclosed for each item, the chairman allocates sufficient time for each item and facilitates the meeting appropriately. During the meeting, the chairman allows thorough expression of views and queries by shareholders before voting and summarizes the meeting's resolution on each agenda item. Minutes of the meeting must be completely and accurately recorded, with a summary of voting results on each item.

5. After the Shareholders' Meetings

The Company duly submits the resolution of the Shareholders' meeting to the SET one day after the meeting ends. The Company duly submits the minutes of the Shareholders' meeting to the SET, the Securities Registrar of Public Company, Department of Business Development, the Ministry of Commerce, within 14 days and also discloses the minutes of the Shareholders' meeting on the Company's website at www.tpipolene.co.th

Section 2. Equitable Treatment of Shareholders

The Company values and treats all shareholders equally and fairly through the following actions:

1. Conducting the meeting in sequence of agenda items as specified in the invitation and not adding agenda items without notifying shareholders in advance, to ensure they have enough time to investigate before making their decisions.

2. Appointing Proxies to maintain the rights of those shareholders who cannot attend in person: they are able to appoint proxies, or to delegate their votes to any independent director in attendance.

In addition, the Company also discloses the format of the proxies together with all details and procedures on the Company's website at <http://www.tpiolene.co.th> in advance of the meeting.

3. Encouraging shareholders to use ballots for every agenda item, voting tickets are provided for each agenda item separately.

4. All groups of shareholders can access the Company information completely, accurately, transparently, and in a timely manner. The Company has established an Investor Relations Office to take responsibility for providing information in both Thai and English to all shareholders, equally and completely, to ensure that shareholders can make appropriate investment decisions. Corporate information is disclosed on the Company's website, as well as on the websites of the SET and the SEC to facilitate access by shareholders and other interested investors.

5. Ensuring strict supervision of the use of inside information by explicitly defining in writing the misuse of inside information as part of the Code of Conduct. In addition, in order to prevent any conflicts of interest, or misuse of inside information by the Board and Management, the Company has put in place internal information controls to supervise the use of inside information as follows:

1. Directors and Management will be regularly informed of related laws and regulations pertaining to misuse of inside information, through various communication channels.
2. The Company discloses in the TPIPL annual report the shareholdings of Directors, Management (and the holdings of management equivalents in Finance and Accounting Division) in compliance with the regulations of the Office of Securities and Exchange Commission.
3. The Directors and Management of the Company are fully responsible for submitting a report of their shareholdings in the Company, and those of their spouses and minors, in accordance with provisions contained in the Securities and Exchange Act B.E. 2535.
4. Any misuse of internal information shall be subject to disciplinary action, including dismissal, as announced in the Company's rules and regulations.

6. Devising practical guidelines for potential conflict of interest in its Good Corporate Governance and Code of Conduct for the Directors. Management and employees must strictly comply with these.

Section 3. Stakeholder Roles

The Company is well aware of the roles of all stakeholders. The Company sets precise responsibilities to be prudent, fair, and respect the rights of all stakeholders, in operating its business. Hence, the Company has established a Code of Business Conduct emphasizing the balanced consideration of all stakeholders, which has been disclosed via <http://www.tpiolene.co.th>

TPI Polene has embraced the Code of Conduct as a policy for Directors, Management and all employees to put the Code into practice and to abide by strict moral guidelines.

All management levels have to strictly follow the Code of Conduct as best practice principles, and it is a strict policy to ensure that all employees under each relevant organization line will acknowledge, understand, and follow the Code of Conduct.

The Company has a strict policy to treat all stakeholders fairly as follows:

- 1. Shareholders:** In its business operations, the Company concentrates on establishing the greatest benefit to shareholders. The accounting and financial systems are in place to ensure that any mistakes and irregularities will be identified in due course and that financial reports are accurate, adequate and reliable. The Company's continuously strong financial potential is demonstrated in its ability to make appropriate dividend payments to shareholders.
- 2. Customers:** The Company places a great emphasis on customer satisfaction through the quality of its products and services, provided at reasonable prices. For the manufacturing of cement, plastic resin and ready-mixed concrete, the Company and its subsidiaries have also been awarded ISO 9001:2000 certifications from the International Organization for Standardization. In addition, TPI Group has gained recognition for the quality of all cement products from the Thai Industrial Standards Institute and the Office of Customer Protection Board.

In addition, the Company holds seminars for customers to enhance relationships and to educate them about the variety of products offered. We also develop customer interaction via certified agents that welcome all customer suggestions, as these lead to higher efficiency of product development, and maintain customer loyalty.

3. **Management and Employees:** The Company realizes the importance of human resources. Hence, the Company fosters development of all levels of management and staff with internal and external training to enhance their capabilities. The Company applies compensation systems which reward and benefit management and staff appropriately and in line with remunerations in other companies in the same industry.

In addition, the Company also focuses on the safety of its human resources by adopting Health and Safety Management standards. This is reflected in the attainment of the Health and Safety Management standard TIS 18001 certification from the Anglo Japanese American Registrars (AJA) for our cement plant. For our plastic resin and ready-mixed concrete businesses, the Company was also awarded TIS 18001 certifications. These systems have been implemented to reduce accidents in the workplace.

4. **Trade partners:** The Company ethically sets its business operation strategies, thus enhancing relationships with all trade partners through transparent and fair practices. The Company has a policy of benefit sharing and equitable treatment for trade partners and strictly adheres to contractual agreements made. The Company is independent, without strong involvement with any trade partners.
5. **Competitors:** The Company applies equitable treatment and abides by the framework of fair competition.
6. **Community and Society:** The Company, as a Thai Company, continues to be determined to discharge its responsibilities towards the nation, society and communities. Accordingly, the Company is continuously committed to promoting and supporting beneficial activities towards society, religion, education and youth by establishing a full-scale foundation under the name, “the Environment for Better Life Foundation” as detailed in section “TPI Polene and Society”.
7. **Environmental Responsibility:** The Company acts as a good citizen, conscious and aware of being one part of this society. It continues to be determined to discharge its responsibilities towards relevant rules and regulations and support the community surrounding its facilities by eliminating problems and protecting the environment, thus providing better living standards for the communities near its plants. As reflected in its full support for environmental enhancement, the Company has received ISO 14001 certification for Environmental Management System as detailed in section “TPI Polene for Safety and Environment”.

Section 4. Information Disclosure and Transparency

The Company is aware of its duty to conduct business in conformity with relevant rules and regulations as follows:

1. **Disclosure of Company information including financial reports** is executed accurately, completely and in a timely fashion as reflected in the Annual Report form (Form 56-1), the Company’s Annual Report (Form 56-2) and other reports, which are carried out in compliance with the guidelines set by the SEC and the SET.
2. **A plant visit** is provided for interested institutional investors, shareholders and analysts to access information and have meetings with the Management of the Company. In addition, the Investor Relations Unit has been established to be responsible for communicating information to institutional investors, shareholders, analysts, and relevant authorities in an equitable and fair manner.
3. **Disclosure of Company information is made through approved communication channels** via the SET, the SEC and the Company’s Internet website in Thai and in English.
4. **The Company pays close attention to the quality of the financial information it provides**, particularly in its accuracy and adequacy. In addition, all financial information conforms to generally-accepted accounting principles and is audited by independent auditors. Hence, the Company has provided a report of the Board of Director’s responsibility for financial statements in this Annual Report.
5. **Functions and responsibilities of the Board and Sub-Committees are disclosed:** see above in the section “Management”. In addition, the number of meetings and meeting attendance of each member are disclosed in the section “Corporate Governance”, clause 5 “Responsibilities of the Board”.
6. **Disclosure of remuneration to Directors and Management Remuneration:** this is detailed above in the section “Management”. Remuneration levels are based on the operating results of the Company during the previous fiscal year; reflect duties and responsibilities fairly and reasonably; and are comparable to general practices in the industry.

Section 5. Responsibility of the Board

The Board plays a key role in supervising corporate governance to create maximum benefits for the Company. Each director represents all shareholders and takes part in promoting good corporate governance within the Company, and in maintaining the rights of, and creating benefits for, all shareholders and other stakeholders. Details as follows:

1. Structure of the Board

(1) Composition

As of 31 December 2019, the Company's Board of Directors consists of 14 directors, of whom 7 were management team members and 7 were non-management, of whom 5 were independent directors. This exceeds one-third of the Board.

(2) Qualifications of the Company's Directors

The Company's Board of Directors comprises qualified members who have skills, experience, honesty, ethics, and independence. They have capabilities in diverse fields, pertinent to the Company's businesses and, accordingly, can safeguard the interests of all shareholders.

In addition, all Directors are aware of their duties, responsibilities and nature of the Company's businesses. They perform their duties with honesty and prudence, and regularly update themselves on new knowledge. Directors attend each Board meeting with full responsibilities.

(3) Definition of the Independent Director Qualification

The Board of Directors has defined the qualification of Independent Directors in line with the requirements of SEC and SET. Details are contained in the section "Management", above.

(4) Segregation of the Power of the Chairman and the Chief Executive Officer

The Company's Board is well organized to ensure there is clear distinction between supervision, policy-making, and day-to-day business administrative roles. The positions of the Chairman of the Board and the Chief Executive Officer are separated. This ensures separation between governing and managing duties.

(5) Independence of the Chairman

The Chairman of the Board, as an independent director, is not a member or chairman of any sub-committee and is thus able to express his views on business operations independently. This ensures a balance of power.

In addition, the Chairman's leadership plays a key role in ensuring the Board's efficiency and the Shareholder's meeting promoting to be in compliance with good corporate governance.

(6) Corporate Secretary

A knowledgeable and experienced Secretary to the Board serves as an advisor to the Board regarding pertinent laws, relevant rules and regulations, and monitors compliance of the Board's actions on a regular basis. In addition, the Secretary is also responsible for assisting in Board activities and coordinating with other relevant functions to comply with the Board's resolutions and good corporate governance principles.

2. Sub-Committee:

The Board of Directors has appointed Directors who have knowledge and skills suitable to be members of Sub-Committees to assist in important matters. The Sub-Committees consist of the Executive Management Committee and the Audit Committee.

The Executive Management Committee is composed of 7 members who are knowledgeable, capable, ethical and experienced in diverse fields. Duties and responsibility of the Executive Management Committee are contained in the section "Management".

The Audit Committee consists of 3 Independent Directors. Members' qualifications meet the requirements stipulated in relevant SEC and SET announcements. The Committee is assigned to perform checks on management and secure the balance of power in various business activities to ensure reliability and integrity and serving the best interests of all stakeholders at all times. Duties and responsibilities of the Audit Committee are contained in the section "Management".

3. Roles, Duties and Responsibilities of the Board

(1) Good Corporate Governance and the Code of Business Conduct. The Board of Directors values good corporate governance and maintains high standards of integrity and ethics. All Directors have responsibilities in carrying out their duties and are held accountable to the Company and its stakeholders. They perform their duties with integrity, in compliance with the governing laws and

regulations of the Company and based on professional standards. The Company conducts business in a transparent, honest and fair manner for the interests of all groups of stakeholders.

The Company also issued a Code of Business Conduct for its Board, Management, staff and all employees. These principles are strictly followed, together with the Company's rules and regulations, as detailed in Section 3: Stakeholder Roles.

(2) Conflict of Interest: The Board has a clear policy to execute transactions, which have potential conflicts of interest in a manner that is in the best interests of the Company and its shareholders. Transactions between the Company (and its subsidiaries) and anyone, with which a possible conflict of interest might occur, require approval under the rules and regulations imposed by the SEC and the SET concerning information disclosure. In addition, such transactions are subject to an approval process in which only unconnected persons may participate.

Details of connected transactions that may involve conflicts of interest (according to criteria of the SET and the SEC) must be disclosed in the Company's Annual Report; in the Annual Report form (Form 56-1) or declared in other reports. This also includes disclosure of information on connected transactions according to the general accepted accounting standard criteria. Details of connected transactions are disclosed in the section "Inter-Company Transactions".

In addition, pursuant to the Articles of Association, Directors shall notify the Company without delay of their interests in any contract executed with the Company or affiliated companies, and of their holding, and its increase or decrease, of shares or debentures of the Company.

(3) Internal Control and Internal Audit: The Board employs an appropriate, and effective, internal control system to ensure Management prevents and mitigates business risks and produces accurate and reliable financial statements.

To protect the assets of the Company and shareholders' investments from potential loss, an internal audit unit has been set up as a separate division, responsible for auditing and monitoring the Company's operations for efficiency and effectiveness under a sufficient and appropriate internal audit system. The internal audit unit is independent and able to report its resultant audit openly. This allows management to be notified of problems and irregularities in a timely manner and to be able to establish measures to safeguard the Company's assets and shareholders' investments against fraud in the Company or its subsidiaries. This can also be applied to improve and develop the efficiency and effectiveness of the Company's operations.

In addition, an Audit Committee has been appointed to review and evaluate internal control systems, to examine disclosure and assessment of all relevant information for investors, and to ensure that the Company performs in compliance with regulations and governing laws.

At the Board of Directors meeting No. 1/2563 held on 30 January 2020, attended by the Audit Committee and the Independent Directors, the Board evaluated five aspects of the sufficiency of the internal control systems of the Company and its subsidiaries. These were: the organization and environmental control system; the risk management system; Management control system; the information and communication system; and the monitoring system.

The resultant assessment showed that the internal control systems of the Company and its subsidiaries operated appropriately and sufficiently in all five aspects, thus mitigating business and operational risks and allowing the Company to manage its operations effectively and efficiently.

In addition, the Company and its subsidiaries have policies and measures in place to regulate business transactions with major shareholders, Directors and Management or connected persons so as to avoid conflicts of interest, in order to pursue the best interests of all parties concerned. (See details in the Audit Committee Report)

(4) Meetings of the Board: The Company arranges regular meetings of the Board at least once a month, and may hold special meetings as deemed appropriate, to continuously supervise management operations. The time allowed for each meeting is sufficient for the Board to consider all related matters. The Chairman and the Chief Executive Officer jointly establish and approve meeting agendas to ensure that all material issues are fully considered by the Board. Each Director may independently propose agenda items and freely expresses opinions. At meetings, Directors are encouraged to use discretion to consider all raised issues.

The Company convenes each meeting in compliance with the provisions of the Public Company Act. The minutes of each meeting are properly documented, are certified by the Board, and are systematically filed under tight security. In 2019, the Board of Directors and the Audit Committee convened meetings a total of 12 times and 5 times, respectively, with attendance as detailed below:

Name	Position	Number of Meeting Attendance	
		The Board of Directors	The Audit Committee
		12 Times / 2019	5 Times / 2019
1. Mr. Prachai Leophairatana	Director	12/12	-
2. Mr. Prateep Leopairut ^{1/}	Director	4/12	-
3. Dr. Pramuan Leophairatana	Director	9/12	-
4. Miss Malinee Leophairatana	Director	10/12	-
5. Dr. Chavin Iamsopana	Director	12/12	-
6. Mr. Prayad Liewphairatana	Director	12/12	-
7. Mrs. Orapin Leophairatana	Director	12/12	-
8. Mr. Manas Sooksmarn	Independent Director and Audit Committee	11/12	3/5
9. Mr. Pises Iamsakulrat	Independent Director and Audit Committee	11/12	4/5
10. Mr. Thavich Taychanavakul	Independent Director and Audit Committee	10/12	4/5
11. Mr. Tayuth Sriyusiri	Director	11/12	-
12. Mr. Khantachai Vichakkana	Chairman and Independent Director	12/12	-
13. Mr. Chulasingh Vasantasingh ^{2/}	Independent Director	3/12	-
14. Mr. Supoj Singsane	Chairman of the Audit Committee and Independent Director	12/12	5/5
15. Mr. Pakorn Leopairut ^{3/}	Director	7/12	-
16. Mr. Pornpol Suwanamas ^{3/}	Director	0/12	-

Remarks: 1/. Mr. Prateep Leopairut, Director of the Company, resigned from the position of Director of the Company on 27 May 2019
2/. Mr. Chulasingh Vasantasingh, Independent Director of the Company passed away on 6 July 2019
3/. At the Company's Board of Directors' meeting on 30 May 2019, it passed a resolution to approve the appointment of Mr. Pakorn Leophairatana to the position of Director of the Board.
4/. At the Company's Board of Directors' meeting on 26 December 2019, it passed a resolution to approve an appointment of Mr. Pornpol Suwanamas to be in the position of Director of the Board.

4. Remuneration of Directors and Management

The Company rewards its Directors fairly and reasonably, taking into account directors' responsibilities and the Company's operating results. Directors' remuneration has been approved at the shareholders meeting.

The Company fairly remunerates its Management, taking into account their responsibilities, performance, the operating results of the Company, and comparability within the same field of business. Details of remuneration are disclosed in the section "Management".

5. Training of Directors and the Executive

The Company continuously builds the corporate governance knowledge of its Directors and Management so they may carry out their business operations in compliance with good corporate governance principles. The Company supports all Directors to participate in training courses organized by the Thai Institute of Directors Association ("IOD"), so as to add to their knowledge concerning their roles in the Company and apply such learning to their job performance.

Report of the Board of Directors' Responsibilities for Financial Statements

The Board of Directors of the Company are aware of their duties and responsibilities to ensure that the financial reports of the Company and its subsidiaries are accurate, complete, and transparent, and are prepared in compliance with generally accepted accounting principles and reflect the application of an appropriate and consistent accounting policy. Such reports must be prepared prudently and on a reasonable basis and must reflect the Company's financial position and operational performance fairly and precisely for the benefit of shareholders and general investors.

In this regard, the Board of Directors have entrusted an Independent Audit Committee to be responsible for the review of accounting policy and financial reports, internal controls, internal audit and risk management systems. Comments on these issues have been included in the Audit Committee Report, which thereby forms a part of this Annual Report.

The Board of Directors are of the opinion that the overall internal control systems of the Company and its subsidiaries have functioned satisfactorily and credibly to ensure that the financial statements of the Company and its subsidiaries present financial positions, operational results and financial cash flow which are accurate and reliable in all material aspects.

Sincerely Yours,



Mr. Khantchai Vichakkana
Chairman of the Board



Mr. Prachai Leopairatana
Chief Executive Officer

Independent Auditor's Report

To the Shareholders of TPI Polene Public Company Limited

Opinion

I have audited the consolidated and separate financial statements of TPI Polene Public Company Limited and its subsidiaries (the "Group") and of TPI Polene Public Company Limited (the "Company"), respectively, which comprise the consolidated and separate statements of financial position as at 31 December 2019, and the consolidated and separate statements of comprehensive income, changes in equity and cash flows for the year then ended, and notes, comprising a summary of significant accounting policies and other explanatory information.

In my opinion, the accompanying consolidated and separate financial statements present fairly, in all material respects, the financial position of the Group and the Company, respectively, as at 31 December 2019 and their financial performance and cash flows for the year then ended in accordance with Thai Financial Reporting Standards (TFRSs).

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 requirements of the Code of Ethics for Professional Accountants issued by the Federation of Accounting Professions that is 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.

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.

Valuation of inventory	
Refer to Note 3 and 8 to the financial statements.	
The key audit matter	How the matter was addressed in the audit
<p>Inventory is a significant balance. There is slow moving in some type of inventory. There is a risk arising from the degree of judgment involved in assessing the net realisable value which is based on assumptions concerning future events and activities.</p> <p>Due to the high level of management's judgment and the significant carrying amounts involved, this is one of the key judgmental areas that my audit is concentrated on.</p>	<p>My audit procedures in this area included, among others:</p> <ul style="list-style-type: none">• understanding the Group's business plan and process on estimate the net realisable value derived from business plan;• considering the management's significant assumptions used in their assessment of the net realisable value of inventory, which included comparing them to internally and externally derived data; and• evaluating the adequacy disclosure in accordance with the related Thai Financial Reporting Standards.

<i>Impairment assessment of property, plant and equipment in consolidated financial statements and loan to and investment in subsidiaries in separate financial statements</i>	
Refer to Note 4, 10 and 14 to financial statements.	
The key audit matter	How the matter was addressed in the audit
<p>The continuous loss in operation of two subsidiaries; TPI Polene Bio Organics Co.,Ltd. and TPI All Seasons Co., Ltd. indicated that property, plant and equipment and loan to and investment in subsidiaries may be impaired.</p> <p>Since the consideration of impairment of assets depend on the management's judgments and assumptions in respect to the forecast of operating results, discount rate and key assumptions used to estimate the recoverable amount of aforementioned business, this is one of the key judgmental areas that my audit is concentrated on.</p>	<p>My audit procedures in this area included, among others:</p> <ul style="list-style-type: none"> • understanding the management's process of identifying impairment indicator and impairment testing and estimate recoverable amount; • evaluating key assumptions used in discounted future cash flows such as growth rate, future outcomes and considering the reasonableness of forecasts by comparing historical estimation with the actual results as well as assessing the appropriateness of discount rate used; and • evaluating the adequacy of disclosure in accordance with the related Thai Financial Reporting Standards.

<i>Valuation of Exploration assets</i>	
Refer to Note 3 and 14 to the financial statements.	
The key audit matter	How the matter was addressed in the audit
<p>A subsidiary, TPI Refinery (1997) Co., Ltd., recognises all costs associated with the exploration as exploration assets and will be charged to profit or loss in the period when there is no discovery of proved reserves or no discovery of commercially adequate reserves and no future exploration and assessment plan.</p> <p>Due to the future exploration and assessment plan including the operation as planned, high level of management's judgments involved. This is one of the key judgmental areas that my audit is concentrated on.</p>	<p>My audit procedures in this area included, among others:</p> <ul style="list-style-type: none"> • understanding the preparation of management's future exploration plan; • considering the management-approved future exploration plans; • evaluating the assumptions used in management's valuation of exploration assets by comparing with the petroleum estimates, and budget;. • evaluating the adequacy of disclosure in accordance with the related Thai Financial Reporting Standards.

<i>Recognition of deferred tax assets</i>	
Refer to Note 3 and 31 to the financial statements.	
The key audit matter	How the matter was addressed in the audit
<p>The Group has recognised deferred tax assets for unused tax losses that it believes are recoverable.</p> <p>The recoverability of recognised deferred tax assets is in part dependent on the Group's ability to generate future taxable profits sufficient to utilise tax losses (before the latter expire).</p> <p>Due to the inherent uncertainty in forecasting the amount and timing of future taxable profits, this is one of the key judgmental areas that my audit is concentrated on.</p>	<p>My audit procedures in this area included, among others:</p> <ul style="list-style-type: none"> • understanding the method of the management's recognition of deferred tax assets and the assessment of assumptions used in projecting the Group's future taxable profits; • considering the reasonableness of the forecast of future taxable profits by comparing the past forecast to the actual operating results and the operation plans and evaluating assumption used by management by comparing to operation plan and external information; and • evaluating the adequacy of disclosure in accordance with the related Thai Financial Reporting Standards.

Emphasis of Matter

I draw attention to note 37 (1) to the financial statements, which discloses the uncertainty related to the outcome of lawsuits filed against the Company in relation to its operation of mining. The Civil Court issued a judgement as follows:

- 1) On 2 August 2019, the Civil Court issued a judgment on the Black Case No. SorWor.5/2559, the breach of the terms and conditions of the Company's concession area, that the Company has to either make a restitution of limestone and a specific performance of soil rehabilitation or pay damages of Baht 1,603 million with interest at 7.5% per year from the date of notification of cadastral survey report to the date that payment is made in full. The Company has appealed against and stayed the enforcement of the judgment on 3 December 2019.
- 2) On 13 December 2019, the Civil Court issued a judgment on the Black Case No. SorWor.4/2559, the Black Case No. SorWor.6/2559 and the Black Case No. SorWor.1/2560, the violation in relation to Company's operation of mining outside its concession area and the breach of the terms and conditions of the Company's concession area that the Company has to either make a restitution of limestone and shale and a specific performance of soil rehabilitation or pay damages totaling Baht 4,687 million with interest at 7.5% per year from the discovery date of the unlawful of mining activity or the date of violation of mining to the date that payment is made in full. The Company is in process to appeal against and stay the enforcement of the judgment within the period that allowed by the Court to extend the appeal.

The Company has an opinion that the outcome of lawsuit is not yet final and uncertain, the Company has not recorded the provision for liability of lawsuit. Other cases are under the consideration of the Court. My opinion is not modified in respect of these matters.

Other Information

Management is 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 those charged with governance and request that the correction be made.

Responsibilities of Management and Those Charged with Governance for the Consolidated and Separate Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with TFRSs, and for such internal control as management determines 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, management is responsible for assessing the Group's and the 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 management either intends to liquidate the Group and the Company or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's and the 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 skepticism 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's and the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's 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's and the 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 the 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 those charged with governance 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 those charged with governance 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 those charged with governance, I determine those matters that were of most significance in the audit of the consolidated and separate 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.



(Bunyarit Thanormcharoen)

Certified Public Accountant

Registration No. 7900

KPMG Phoomchai Audit Ltd.

Bangkok

26 February 2020

Statement of financial position

TPI Polene Public Company Limited and its Subsidiaries

(in thousand Baht)

		Consolidated		Separate	
		financial statements		financial statements	
Assets	Note	31 December 2019	31 December 2018	31 December 2019	31 December 2018
Current assets					
Cash and cash equivalents	5	2,743,845	4,366,560	962,604	2,178,247
Current investments	6	2,650,696	4,260,652	-	300,000
Trade accounts receivable	4, 7	4,472,456	4,305,569	4,093,572	3,939,913
Other receivables		879,898	728,549	622,515	499,845
Short-term loans to related parties	4	-	-	499,171	268,801
Receivables and advances to related parties	4	79,070	60,833	262,886	238,262
Inventories	8	14,178,058	14,333,910	11,715,704	12,292,063
Other current assets		373,504	335,076	149,821	147,952
Total current assets		25,377,527	28,391,149	18,306,273	19,865,083
Non-current assets					
Investments in associates	9	752,558	772,197	229,500	229,500
Investments in subsidiaries	10	-	-	12,443,762	12,444,474
Long-term investments in related parties	12	45,653	45,870	45,653	45,870
Other long-term investments	6	34,970	62,090	18,351	35,440
Receivables and advances to related parties	4	-	-	421,984	421,984
Investment properties	13	372,750	373,688	74,044	74,044
Property, plant and equipment	14	86,252,301	79,455,918	50,390,531	50,060,551
Leasehold rights		-	113	-	-
Intangible assets	15	136,550	176,170	136,550	176,170
Advances payment for plant and equipment		438,713	460,569	268,075	299,215
Deferred tax assets	31	671,853	492,072	506,621	347,845
Other non-current assets	4	285,270	258,088	213,768	196,176
Total non-current assets		88,990,618	82,096,775	64,748,839	64,331,269
Total assets		114,368,145	110,487,924	83,055,112	84,196,352

The accompanying notes are an integral part of these financial statements.

Statement of financial position

TPI Polene Public Company Limited and its Subsidiaries

(in thousand Baht)

	Note	Consolidated financial statements		Separate financial statements	
		31 December 2019	31 December 2018	31 December 2019	31 December 2018
Liabilities and equity					
Current liabilities					
Bank overdrafts and short-term loans					
from financial institutions	16	2,939,529	2,643,969	2,607,863	1,685,614
Trade accounts payable	4, 17	2,535,610	3,001,798	2,307,482	2,910,219
Other payables	18	3,734,776	3,674,161	1,802,895	1,774,191
Short-term loans from related parties	4	-	-	-	44,217
Payables and advances from related parties	4	9,827	19,596	581,604	264,086
Current portion of long-term loans from					
financial institutions	16	1,605,033	1,576,515	1,605,033	1,576,515
Current portion of debentures	16	7,205,000	7,750,000	7,205,000	7,750,000
Interest payable		313,840	268,321	281,416	253,363
Current portion of finance lease liabilities	16	-	775	-	775
Income tax payable		62,373	84,847	-	-
Other current liabilities		254,596	200,298	97,370	69,704
Total current liabilities		18,660,584	19,220,280	16,488,663	16,328,684
Non-current liabilities					
Long-term loans from financial institutions	16	2,984,304	6,235,392	2,984,304	6,235,392
Debentures	16	38,495,000	32,250,000	30,675,000	28,250,000
Deferred tax liabilities	31	59,578	69,232	-	-
Non-current provisions for employee benefit	19	2,337,557	1,541,170	1,970,539	1,298,077
Other non-current liabilities		337,676	235,261	168,531	168,531
Total non-current liabilities		44,214,115	40,331,055	35,798,374	35,952,000
Total liabilities		62,874,699	59,551,335	52,287,037	52,280,684

The accompanying notes are an integral part of these financial statements.

Statement of financial position

TPI Polene Public Company Limited and its Subsidiaries

(in thousand Baht)

		Consolidated		Separate	
		financial statements		financial statements	
Liabilities and equity	Note	31 December 2019	31 December 2018	31 December 2019	31 December 2018
Equity					
Share capital:	20				
Authorised share capital		23,805,500	24,815,000	23,805,500	24,815,000
Issued and paid-up share capital		19,180,500	20,190,000	19,180,500	20,190,000
Treasury shares	21	-	(1,682,625)	-	1,682,625
Additional paid in capital:					
Share premium on ordinary shares		60,600	60,600	60,600	60,600
Share premium on treasury shares	21	35,218	35,218	-	-
Other surpluses (deficits)		9,840,436	9,840,436	-	-
Retained earnings					
Appropriated					
Legal reserve	22	850,858	836,921	850,858	836,921
Treasury shares reserve	22	-	1,682,625	-	1,682,625
Unappropriated		13,341,336	12,409,100	10,676,370	10,828,299
Other components of equity		108,164	109,437	(253)	(152)
Equity attributable to owners of the parent		43,417,112	43,481,712	30,768,075	31,915,668
Non-controlling interests	11	8,076,334	7,454,877	-	-
Total equity		51,493,446	50,936,589	30,768,075	31,915,668
Total liabilities and equity		114,368,145	110,487,924	83,055,112	84,196,352

The accompanying notes are an integral part of these financial statements.

Statement of comprehensive income

TPI Polene Public Company Limited and its Subsidiaries

(in thousand Baht)

		Consolidated financial statements		Separate financial statements	
		Year ended 31 December		Year ended 31 December	
	Note	2019	2018	2019	2018
Income	4, 23				
Revenue from sale of goods	32	37,040,563	34,993,161	26,901,561	25,764,300
Transportation income		1,166,524	1,284,354	1,216,592	1,270,873
Net foreign exchange gain		404,780	382,189	337,228	243,624
Investment income	24	106,125	81,197	2,055,627	2,616,797
Other income	25	550,482	573,739	699,817	674,724
Total income		39,268,474	37,314,640	31,210,825	30,570,318
Expenses	4, 29				
Cost of sales of goods	8	28,404,067	28,018,397	24,312,664	23,583,580
Cost of distributions and transportations	26	4,032,386	4,167,612	3,589,241	3,665,993
Administrative expenses	27	2,111,251	1,797,180	1,398,435	1,399,584
Finance costs	30	1,959,023	1,719,358	1,797,714	1,681,534
Total expenses		36,506,727	35,702,547	31,098,054	30,330,691
Share of profit (loss) of associates	9	(18,704)	31,090	-	-
Profit before income tax expense		2,743,043	1,643,183	112,771	239,627
Tax income (expense)	31	21,528	(218,509)	165,981	12,783
Profit for the year		2,764,571	1,424,674	278,752	252,410
Other comprehensive income (expense)					
Items that will be reclassified subsequently to profit or loss					
Exchange differences on translating foreign operations		(250)	92	-	-
Losses on remeasuring available-for-sale investments		(111)	(72)	(126)	(80)
Share of other comprehensive income (expense) of associates	9	(935)	(4,758)	-	-
Income tax relating to items that will be reclassified	31	25	16	25	16
Total items that will be reclassified subsequently to profit or loss		(1,271)	(4,722)	(101)	(64)

The accompanying notes are an integral part of these financial statements.

Statement of comprehensive income

TPI Polene Public Company Limited and its Subsidiaries

(in thousand Baht)

		Consolidated financial statements		Separate financial statements	
		Year ended 31 December		Year ended 31 December	
	Note	2019	2018	2019	2018
Items that will not be reclassified to profit or loss					
Losses on remeasurements of					
defined benefit plans	19	(245,792)	(40,542)	(207,436)	(29,323)
Income tax relating to items that					
will not be reclassified	31	49,235	8,109	41,487	5,864
Total items that will not be reclassified to profit or loss		(196,557)	(32,433)	(165,949)	(23,459)
Other comprehensive income (expense) for the year, net of tax		(197,828)	(37,155)	(166,050)	(23,523)
Total comprehensive income for the year		2,566,743	1,387,519	112,702	228,887
Profit (loss) attributable to:					
Owners of the parent		1,393,525	323,781	278,752	252,410
Non-controlling interests		1,371,046	1,100,893	-	-
Profit for the year		2,764,571	1,424,674	278,752	252,410
Total comprehensive income (expense) attributable to:					
Owners of the parent		1,195,695	286,625	112,702	228,887
Non-controlling interests		1,371,048	1,100,894	-	-
Total comprehensive income for the year		2,566,743	1,387,519	112,702	228,887
Basic earnings per share (in Baht)	33	0.073	0.016	0.015	0.013

The accompanying notes are an integral part of these financial statements.

Statement of change in equity

TPI Polene Public Company Limited and its Subsidiaries

Consolidated financial statements															(in thousand Baht)	
Note	Other surpluses (deficits)			Retained earnings			Other components of equity					Equity attributable to owners of the parent	Non-controlling interests	Total equity		
	Issued and paid-up share capital	Treasury shares held by subsidiaries	Treasury Shares	Share premium on ordinary share	Share premium treasury share	Shareholding changes in Group	Legal reserve	Treasury Shares reserve	Unappropriated	Translating foreign operations	Fair value changes in available-for-sale investments				Share of other comprehensive income (expense) of associates	Total other components of equity
Year ended 31 December 2018																
	20,190,000	(359,235)	-	60,600	-	9,840,436	824,300	-	14,212,355	-	50	114,160	114,160	44,882,616	7,203,518	52,086,134
Transactions with owners, recorded directly in equity																
Contributions by and distributions to owners of the parent																
21	-	359,235	(1,682,625)	-	35,218	-	-	1,682,625	(1,682,625)	-	-	-	-	(1,288,172)	-	(1,288,172)
34	-	-	-	-	-	-	-	-	(399,357)	-	-	-	-	(399,357)	(849,535)	(1,248,892)
	-	359,235	(1,682,625)	-	35,218	-	-	1,682,625	(2,081,982)	-	-	-	-	(1,687,529)	(849,535)	(2,537,064)
Total transaction with owners, recorded directly in equity																
Comprehensive income (expense) for the year																
	-	-	-	-	-	-	-	-	323,781	-	-	-	-	323,781	1,100,893	1,424,674
	-	-	-	-	-	-	-	-	(32,433)	92	(57)	(4,758)	(4,723)	(37,156)	1	(37,155)
	-	-	-	-	-	-	-	-	291,348	92	(57)	(4,758)	(4,723)	286,625	1,100,894	1,387,519
Transfer to legal reserve																
22	-	-	-	-	-	-	12,621	-	(12,621)	-	-	-	-	-	-	-
	20,190,000	-	(1,682,625)	60,600	35,218	9,840,436	836,921	1,682,625	12,409,100	92	(7)	109,352	109,437	43,481,712	7,454,877	50,936,585
Balance at 31 December 2018																

The accompanying notes are an integral part of these financial statements.

Statement of change in equity

Consolidated financial statements													(in thousand Baht)		
Note	Other surpluses (deficits)			Retained earnings			Other components of equity					Equity attributable to owners of the parent	Non-controlling interests	Total equity	
	Issued and paid-up share capital	Treasury Shares	Share premium on ordinary share	Share premium on treasury share	Shareholding changes in Group	Legal reserve	Treasury Shares reserve	Unappropriated	Translating foreign operations	Fair value changes in available-for-sale investments	Share of other comprehensive income (expense) of associates				Total other components of equity
Year ended 31 December 2019															
	20,190,000	(1,682,625)	60,600	35,218	9,840,436	836,921	1,682,625	12,409,100	92	(7)	109,352	108,437	43,481,712	7,464,877	50,936,589
Transactions with owners, recorded directly in equity															
Contributions by and distributions to owners of the parent															
21	-	(301,270)	-	-	-	-	301,270	(301,270)	-	-	-	-	(301,270)	-	(301,270)
21	(1,009,500)	1,983,895	-	-	-	-	(1,983,895)	1,009,500	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	(959,025)	-	-	-	-	(959,025)	(749,591)	(1,708,616)
Total transaction with owners, recorded directly in equity															
	(1,009,500)	1,682,625	-	-	-	-	(1,682,625)	(250,795)	-	-	-	-	(1,260,295)	(749,591)	(2,009,886)
Comprehensive income (expense) for the year															
	-	-	-	-	-	-	-	1,393,525	-	-	-	-	1,393,525	1,371,046	2,764,571
	-	-	-	-	-	-	-	(196,557)	(250)	(88)	(935)	(1,273)	(197,830)	2	(197,828)
Total comprehensive income (expense) for the year															
	-	-	-	-	-	-	-	1,196,968	(250)	(88)	(935)	(1,273)	1,195,695	1,371,048	2,566,743
Transfer to legal reserve															
22	-	-	-	-	-	13,937	-	(19,937)	-	-	-	-	-	-	-
Balance at 31 December 2019															
	19,180,500	-	60,600	35,218	9,840,436	850,858	-	13,341,336	(158)	(95)	108,417	108,164	43,417,112	8,076,334	51,493,446

The accompanying notes are an integral part of these financial statements.

Statement of change in equity

TPI Polene Public Company Limited and its Subsidiaries

		Separate financial statements					(in thousand Baht)	
Note		Issued and paid-up share capital	Treasury Shares	Share premium	Retained earnings		Other components of equity	
					Legal reserve	Treasury Shares reserve	Unappropriated	Fair value changes in available-for-sale investments
	Year ended 31 December 2018							
	Balance at 1 January 2018	20,190,000	-	60,600	824,300	-	12,698,394	(88)
	Transaction with owners, recorded directly in equity							
	Contributions by and distributions to owners of the Company							
21	Treasury shares purchased	-	(1,682,625)	-	-	1,682,625	(1,682,625)	-
34	Dividends	-	-	-	-	-	(403,800)	-
	Total transaction with owners, recorded directly in equity	-	(1,682,625)	-	-	1,682,625	(2,086,425)	-
	Comprehensive income (expense) for the year							
	Profit (loss)	-	-	-	-	-	252,410	-
	Other comprehensive income (expense)	-	-	-	-	-	(23,459)	(64)
	Total comprehensive income (expense) for the year	-	-	-	-	-	228,951	(64)
	Transfer to legal reserve	-	-	-	12,621	-	(12,621)	-
	Balance at 31 December 2018	20,190,000	(1,682,625)	60,600	836,921	1,682,625	10,828,299	(152)
								31,915,668

The accompanying notes are an integral part of these financial statements.

Statement of change in equity

TPI Polene Public Company Limited and its Subsidiaries

Separate financial statements							(in thousand BnR)
Note	Issued and paid-up share capital	Treasury Shares	Share premium	Retained earnings		Other components of equity	
				Legal reserve	Treasury Shares reserve	Unappropriated	Fair value changes in available-for-sale investments
Year ended 31 December 2019							
Balance at 1 January 2019							
	20,190,000	(1,682,625)	60,600	836,921	1,682,625	10,228,299	31,915,668
Transaction with owners, recorded directly in equity							
Contributions by and distributions to owners of the parent							
21	-	(301,270)	-	-	301,270	(301,270)	(301,270)
21	(1,008,500)	1,983,895	-	-	(1,983,895)	1,009,500	-
34	-	-	-	-	-	(959,025)	(959,025)
Total transaction with owners, recorded directly in equity							
	(1,009,500)	(1,682,625)	-	-	1,682,625	(250,795)	(1,260,295)
Comprehensive income (expense) for the year							
	-	-	-	-	-	278,752	278,752
	-	-	-	-	-	(165,949)	(166,060)
Total comprehensive income (expense) for the year							
	-	-	-	-	-	112,803	112,702
Transfer to legal reserve							
22	-	-	-	13,937	-	(13,937)	-
Balance at 31 December 2019							
	19,190,500	-	60,600	850,858	-	10,676,370	30,788,075

The accompanying notes are an integral part of these financial statements.

Statement of cash flows

TPI Polene Public Company Limited and its Subsidiaries

(in thousand Baht)

	Consolidated financial statements		Separate financial statements	
	Year ended 31 December		Year ended 31 December	
	2019	2018	2019	2018
<i>Cash flows from operating activities</i>				
Profit for the year	2,764,571	1,424,674	278,752	252,410
<i>Adjustments to reconcile profit (loss) to cash receipts (payments)</i>				
Depreciation and amortisation	3,189,045	2,785,513	2,040,662	1,972,122
Interest income	(90,640)	(78,055)	(36,370)	(41,324)
Finance costs	1,959,023	1,719,358	1,797,714	1,681,534
Dividend income	(5)	(24)	(1,995,504)	(2,556,975)
Unrealised gain on foreign exchange	(70,521)	(244,400)	(8,630)	(228,811)
Reversal of bad and doubtful debt expense	(5,820)	(31,378)	-	(24,873)
(Reversal of) losses on decline in value of inventories	(35,374)	176,165	(35,374)	90,147
Provision for employees benefits	611,523	83,955	512,050	66,693
(Reversal of) provision for decommissioning	-	(134,035)	-	(138,922)
Loss on sale and write-off of plant and equipment	26,100	19,145	30,255	31,531
Impairment loss on investments in subsidiary	-	-	-	208,000
Gain on disposal of investments in subsidiary	-	-	(6,276)	-
Share of (profit) loss of associates	18,704	(31,090)	-	-
Tax (income) expense	(21,528)	218,509	(165,981)	(12,783)
	<u>8,345,078</u>	<u>5,908,337</u>	<u>2,411,298</u>	<u>1,298,749</u>

The accompanying notes are an integral part of these financial statements.

Statement of cash flows

TPI Polene Public Company Limited and its Subsidiaries

(in thousand Baht)

	Consolidated financial statements		Separate financial statements	
	Year ended 31 December		Year ended 31 December	
	2019	2018	2019	2018
<i>Changes in operating assets and liabilities</i>				
Trade accounts receivable	(164,211)	(1,210,526)	(153,659)	(1,220,440)
Other receivables	(170,428)	(63,961)	(63,068)	(7,262)
Receivable and advances to related parties	(18,237)	(2,906)	(24,624)	(91,198)
Inventories	191,226	(1,376,615)	611,733	(1,298,899)
Other current assets	(12,308)	222,857	19,436	(4,570)
Other non-current assets	(27,182)	2,075	(17,592)	12,610
Trade accounts payable	(465,634)	187,533	(602,748)	113,994
Other payables	170,130	165,863	79,111	53,646
Payable and advances from related parties	(9,769)	(4,436)	317,518	154,213
Other current liabilities	54,298	103,301	27,666	37,640
Provision for employee benefit	(60,928)	(27,102)	(47,024)	(26,823)
Other non-current liabilities	105,343	57,249	-	-
Cash generated from (used in) operating	7,937,378	3,961,669	2,558,047	(978,340)
Net tax received (paid)	(167,241)	(199,762)	27,411	(16,602)
Net cash from (used in) operating activities	7,770,137	3,761,907	2,585,458	(994,942)
<i>Cash flows from investing activities</i>				
Interest received	109,786	93,596	(23,941)	42,497
Dividend received	5	24	1,995,504	2,556,975
(Increase) decrease in current investment	1,609,956	(470,485)	300,000	(284,396)
(Increase) decrease in other long-term investments	26,942	(26,120)	17,000	(16,494)
Decrease in long-term investments in related party	217	-	217	-
Acquisition of property, plant and equipment	(9,088,372)	(6,663,019)	(2,014,897)	(1,430,062)
Acquisition of intangible assets	(1,054)	(500)	(1,054)	(500)
Proceeds from sale of plant and equipment	9,888	55,076	1,616	31,341
Advance payment for plant and equipment	(815,377)	(745,060)	(318,582)	(579,466)
Cash outflow on loans to related parties	-	-	(251,049)	(26,800)
Proceeds from repayment of loans to related parties	-	-	21,352	32,489
Proceeds from disposal of investments in subsidiary	-	-	105,988	-
Net cash outflow on acquisition of subsidiaries	-	-	(99,000)	(11,528)
Net cash inflow on disposal of treasury shares held by subsidiaries	-	388,786	-	-
Cash outflow for decommissioning	(1,621)	(1,598)	-	-
Net cash from (used in) investing activities	(8,149,630)	(7,369,300)	(266,846)	314,056

The accompanying notes are an integral part of these financial statements.

Statement of cash flows

TPI Polene Public Company Limited and its Subsidiaries

(in thousand Baht)

	Consolidated financial statements		Separate financial statements	
	Year ended 31 December		Year ended 31 December	
	2019	2018	2019	2018
<i>Cash flows from financing activities</i>				
Finance cost paid	(2,021,474)	(1,741,568)	(1,817,461)	(1,718,790)
Dividend paid to owners of the Company	(1,708,616)	(1,248,892)	(959,025)	(403,800)
Finance lease payments	(775)	(2,378)	(775)	(2,378)
Increase (decrease) in bank overdrafts and short-term loans				
from financial institutions	298,653	473,303	922,373	(158,505)
Repayment of short-term loans from related parties	-	-	(43,873)	(331,127)
Proceeds from long-term loans from financial institutions	2,727,600	3,000,000	2,727,600	3,000,000
Repayment of long-term loans from financial institutions	(5,942,445)	(751,049)	(5,942,445)	(751,049)
Proceeds from issue of debentures	13,450,000	12,000,000	9,630,000	8,000,000
Repayment of debentures	(7,750,000)	(5,000,000)	(7,750,000)	(5,000,000)
Payment of treasury shares	(301,270)	(1,682,625)	(301,270)	(1,682,625)
Net cash from (used in) financing activities	(1,248,327)	5,046,791	(3,534,876)	951,726
Net increase (decrease) in cash and cash equivalents,				
before effect of exchange rates	(1,627,820)	1,439,398	(1,216,264)	270,840
Effect of exchange rate	5,105	8,182	621	(3,388)
Net increase (decrease) in cash and cash equivalents	(1,622,715)	1,447,580	(1,215,643)	267,452
Cash and cash equivalents at 1 January	4,366,560	2,918,980	2,178,247	1,910,795
Cash and cash equivalents at 31 December	2,743,845	4,366,560	962,604	2,178,247
Supplemental disclosure of cash flows information				
Other payables - plant and equipment	1,396,662	1,504,260	22,158	72,565
Advances of plant and equipment	438,713	460,569	268,075	299,215

The accompanying notes are an integral part of these financial statements.

Notes to the financial statements For the year ended 31 December 2019

TPI Polene Public Company Limited and its Subsidiaries

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These notes form an integral part of the financial statements.

The financial statements issued for Thai statutory and regulatory reporting purposes are prepared in the Thai language. These English language financial statements have been prepared from the Thai language statutory financial statements, and were authorised for issue by the audit committee, as appointed by the Board of Directors of the Company, on 26 February 2020.

1 General information

TPI Polene Public Company Limited, the “Company”, is incorporated in Thailand and has its registered office at 26/56, TPI Tower, Chan Tat Mai Road, Tungmahamek, Sathorn, Bangkok.

The Company was listed on the Stock Exchange of Thailand in November 1990.

The Company operates in 3 major industries and has 18 distribution terminals around the country. It operates in the cement industry at Kang-Khoi, Saraburi and has 8 plants consisting of 4 cement manufacturing plants and 4 dry mortar manufacturing plants. It operates in the construction materials industry at Amphur Chalermprakiet, Saraburi and has cement roof tiles and fibre cement board manufacturing plants. It operates in the plastic industry at Amphur Muang, Rayong and has 2 LDPE and EVA plastic manufacturing plants. Details of the Company’s subsidiaries as at 31 December 2019 and 2018 are given in note 10.

2 Basis of preparation of the financial statements

(a) Statement of compliance

The financial statements are prepared in accordance with Thai Financial Reporting Standards (TFRS); guidelines promulgated by the Federation of Accounting Professions and applicable rules and regulations of the Thai Securities and Exchange Commission.

New and revised TFRS are effective for annual accounting periods beginning on or after 1 January 2019. The initial application of these new and revised TFRS has resulted in changes in certain of the Group’s accounting policies. There is no material impact on the Group’s financial statements. The Group has initially applied TFRS 15 Revenue from Contracts with Customers (“TFRS 15”) which replaces TAS 18 Revenue (“TAS 18”), TAS 11 Construction Contracts (“TAS 11”) and related interpretations. The details of accounting policies are disclosed in note 3(t).

In addition, the Group has not early adopted a number of new and revised TFRS which are not yet effective for the current period in preparing these financial statements. Those new and revised TFRS that are relevant to the Group’s operations are disclosed in note 39.

(b) Functional and presentation currency

The financial statements are prepared in Thai Baht, which is the Company’s functional currency.

(c) Use of judgements and estimates

The preparation of financial statements in conformity with TFRS requires management to make judgements, estimates and assumptions that affect the application of the Group’s accounting policies. Actual results may differ from these estimates. Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised prospectively.

Information about assumption and estimation uncertainties at 31 December 2019 that have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities in the next financial year is included in the following notes:

Note 7	Measurement of allowance for doubtful debts of trade accounts receivable;
Note 8	Measurement of allowance for decline in value of inventories adjusted to net realisable value;
Notes 10 and 14	Impairment test: key assumptions underlying recoverable amounts;
Note 19	Measurement of defined benefit obligations: key actuarial assumptions; and
Note 31	Recognition of deferred tax assets: availability of future taxable profit against which deductible temporary differences and tax losses carried forward can be utilised; and
Note 37	Contingent liabilities: key assumptions about the likelihood and magnitude of an outflow of resources.

3 Significant accounting policies

The accounting policies set out below have been applied consistently to all periods presented in these financial statements.

(a) *Basis of consolidation*

The consolidated financial statements relate to the Company and its subsidiaries (together referred to as the “Group”) and the Group’s interests in associates.

Business combinations

The Group applies the acquisition method for all business combinations when control is transferred to the Group, as describe in subsidiaries section, other than those with entities under common control.

The acquisition date is the date on which control is transferred to the acquirer. Judgment is applied in determining the acquisition date and determining whether control is transferred from one party to another.

Goodwill is measured as the fair value of the consideration transferred including the recognised amount of any non-controlling interest in the acquiree, less the net recognised amount (generally fair value) of the identifiable assets acquired and liabilities assumed, all measured as of the acquisition date. Any gain on bargain purchase is recognised in profit or loss immediately.

Consideration transferred includes the fair values of the assets transferred, liabilities incurred by the Group to the previous owners of the acquiree, and equity interests issued by the Group. Consideration transferred also includes the fair value of any contingent consideration and share-based payment awards of the acquiree that are replaced mandatorily in the business combination. If a business combination results in the termination of pre-existing relationships between the Group and the acquiree, then the lower of the termination amount, as contained in the agreement, and the value of the off-market element is deducted from the consideration transferred and recognised in other expenses.

Any contingent consideration is measured at fair value at the date of acquisition, and remeasured at fair value at each reporting date. Subsequent changes in the fair value are recognised in profit or loss.

A contingent liability of the acquiree is assumed in a business combination only if such a liability represents a present obligation and arises from a past event, and its fair value can be measured reliably.

Transaction costs that the Group incurs in connection with a business combination, such as legal fees, and other professional and consulting fees are expensed as incurred.

If the initial accounting for a business combination is incomplete by the end of the reporting period in which the combination occurs, the Group reports provisional amounts for the items for which the accounting is incomplete. Those provisional amounts are adjusted during the measurement period, or additional assets or liabilities are recognised, to reflect new information obtained about facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognised at that date.

Subsidiaries

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

Non-controlling interests

At the acquisition date, the Group measures any non-controlling interest at its proportionate interest in the identifiable net assets of the acquiree.

Changes in the Group’s interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions.

Loss of control

When the Group loses control over a subsidiary, it derecognises the assets and liabilities of the subsidiary, and any related non-controlling interests and other components of equity. Any resulting gain or loss is recognised in profit or loss. Any interest retained in the former subsidiary is measured at fair value when control is lost.

Interests in equity - accounted investees

The Group's interests in equity - accounted investees comprise interests in associates.

Associates are those entities in which the Group has significant influence, but not control or joint control, over the financial and operating policies.

Interests in associates are accounted for using the equity method. They are initially recognised at cost, which includes transaction costs. Subsequent to initial recognition, the consolidated financial statements include the Group's share of the profit or loss and other comprehensive income of equity-accounted investees, until the date on which significant influence.

Transactions eliminated on consolidation

Intra-group balances and transactions, and any unrealised income or expenses arising from intra-group transactions, are eliminated in preparing the consolidated financial statements. Unrealised gains arising from transactions with equity-accounted investees are eliminated against the investment to the extent of the Group's interest in the investee. Unrealised losses are eliminated in the same way as unrealised gains, but only to the extent that there is no evidence of impairment.

(b) Foreign currencies

Foreign currency transactions

Transactions in foreign currencies are translated to the respective functional currencies of Group entities at exchange rates at the dates of the transactions.

Monetary assets and liabilities denominated in foreign currencies at the reporting date are translated to the functional currency at the exchange rates ruling at that date.

Non-monetary assets and liabilities measured at cost in foreign currencies are translated to the functional currency at the exchange rates at the dates of the transactions.

Foreign exchange differences arising on translation are recognised in profit or loss.

Foreign operations

The assets and liabilities of foreign operations, including goodwill and fair value adjustments arising on acquisition, are translated to Thai Baht at the exchange rates at the reporting date.

The revenues and expenses of foreign operations are translated to Thai Baht at rates approximating the exchange rates at the dates of the transactions.

Foreign exchange differences are recognised in other comprehensive income and accumulated in the translation reserve, except to extent that the translation difference is allocated to non-controlling interest.

When a foreign operation is disposed of in its entirety or partially such that control, significant influence or joint control is lost, the cumulative amount in the translation reserve related to that foreign operation is reclassified to profit or loss as part of the gain or loss on disposal. If the Group disposes of part of its interest in a subsidiary but retains control, then the relevant proportion of the cumulative amount is reattributed to non-controlling interests. When the Group disposes of only part of an associate or joint venture while retaining significant influence or joint control, the relevant proportion of the cumulative amount is reclassified to profit or loss.

(c) Derivatives

Derivatives are used to manage exposure to foreign exchange arising from operational activity. Derivatives are not used for trading purposes.

Derivatives are recognised initially at fair value; attributable transaction costs are recognised in profit or loss when incurred. Subsequent to initial recognition, they are remeasured at fair value. The gain or loss on remeasurement to fair value is recognised immediately in profit or loss.

The fair value of forward exchange contracts is based on their listed market price at the reporting date.

(d) Cash and cash equivalents

Cash and cash equivalents in the statements of cash flows comprise cash balances, call deposits and highly liquid short-term investments. Bank overdrafts that are repayable on demand are a component of financing activities for the purpose of the statement of cash flows.

(e) Trade and other accounts receivable

A receivable is recognised when the Group has an unconditional right to receive consideration.

A receivable is stated at invoice value less allowance for doubtful accounts which is determined based on an analysis of payment histories and future expectations of customer payments. Bad debts are written off when incurred.

(f) Inventories

Inventories are measured at the lower of cost and net realisable value.

Cost of finished goods, diesel and natural gas, is calculated using the first in first out principle. Cost of other inventories are calculated using the weighted average cost principle. Cost comprises all costs of purchase, costs of conversion and other costs incurred in bringing the inventories to their present location and condition. In the case of manufactured inventories and work-in-progress, cost includes an appropriate share of production overheads based on normal operating capacity.

Net realisable value is the estimated selling price in the ordinary course of business less the estimated costs to complete and to make the sale.

A right to recover returned products is recognised when the products are expected to be returned by customers and measured by reference to the former carrying amount of the sold inventories less any expected costs to recover those products.

(g) Investments

Investments in associates and subsidiaries

Investments in associates and subsidiaries in the separate financial statements of the Company are accounted for using the cost method. Investments in associates in the consolidated financial statements is accounted for using the equity method.

Investments in other debt and equity securities

Debt securities and marketable equity securities held for trading are classified as current assets and are stated at fair value, with any resultant gain or loss recognised in profit or loss.

Debt securities that the Group has the positive intent and ability to hold to maturity are classified as held-to-maturity investments. Held-to-maturity investments are stated at amortised cost, less any impairment losses. The difference between the acquisition cost and redemption value of such debt securities is amortised using the effective interest rate method over the period to maturity.

Marketable equity securities, other than those securities held for trading or intended to be held to maturity, are classified as available-for-sale investments. Available-for-sale investments are, subsequent to initial recognition, stated at fair value, and changes therein, other than impairment losses on available-for-sale monetary items, are recognised directly in equity. Impairment losses are recognised in profit or loss.

When these investments are derecognised, the cumulative gain or loss previously recognised directly in equity is recognised in profit or loss. Where these investments are interest-bearing, interest calculated using the effective interest method is recognised in profit or loss.

Equity securities which are not marketable are stated at cost less any impairment losses.

The fair value of financial instruments classified as held-for-trading and available-for-sale is determined as the quoted bid price at the reporting date.

Disposal of investment

On disposal of an investment, the difference between net disposal proceeds and the carrying amount together with the associated cumulative gain or loss that was reported in equity is recognised in profit or loss.

If the Group disposes of part of its holding of a particular investment, the deemed cost of the part sold is determined using the weighted average method applied to the carrying value of the total holding of the investment.

(h) Investment properties

Investment properties are properties which are held to earn rental income, for capital appreciation or for both, but not for sale in the ordinary course of business, use in the production or supply of goods or services or for administrative purposes.

Investment properties are measured at cost less accumulated depreciation and impairment losses.

Cost includes expenditure that is directly attributable to the acquisition of the investment property. The cost of self-constructed investment property includes the cost of materials and direct labour, and other costs directly attributable to bringing the investment property to a working condition for its intended use and capitalised borrowing costs.

Depreciation is charged to profit or loss on a straight-line basis over the estimated useful lives of condominium which are 20 years.

No depreciation is provided on land for rent and freehold land.

(i) Property, plant and equipment

Recognition and measurement

Owned assets

Property, plant and equipment are measured at cost less accumulated depreciation and impairment losses.

Cost includes expenditure that is directly attributable to the acquisition of the asset. The cost of self-constructed assets includes the cost of materials and direct labour, any other costs directly attributable to bringing the assets to a working condition for their intended use, the costs of dismantling and removing the items and restoring the site on which they are located, and capitalised borrowing costs. Purchased software that is integral to the functionality of the related equipment is capitalised as part of that equipment.

When parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment.

Any gains and losses on disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount of property, plant and equipment, and are recognised in profit or loss.

Leased assets

Leases in terms of which the Group substantially assumes all the risk and rewards of ownership are classified as finance leases. Property, plant and equipment acquired by way of finance leases is capitalised at the lower of its fair value and the present value of the minimum lease payments at the inception of the lease, less accumulated depreciation and impairment losses. Lease payments are apportioned between the finance charges and reduction of the lease liability so as to achieve a constant rate of interest on the remaining balance of the liability. Finance charges are charged directly to the profit or loss.

Subsequent costs

The cost of replacing a part of an item of property, plant and equipment is recognised in the carrying amount of the item if it is probable that the future economic benefits embodied within the part will flow to the Group, and its cost can be measured reliably. The carrying amount of the replaced part is derecognised. The costs of the day-to-day servicing of property, plant and equipment are recognised in profit or loss as incurred.

Exploration assets

The Company follows the full cost method of accounting for petroleum and natural gas properties and related expenses whereby all costs associated with the exploration for productive and non-productive wells are treated as capitalised and will be charged to profit or loss when the exploratory wells have not identified proved reserves or have identified proved reserves but have not been found to be commercially producible or have abandoned.

Costs of properties comprise total acquisition costs of petroleum rights or the portion of costs applicable to properties as well as the decommissioning costs.

Depreciation

Depreciation is calculated based on the depreciable amount, which is the cost of an asset, or other amount substituted for cost, less its residual value.

Depreciation is charged to profit or loss on a straight-line basis over the estimated useful lives of each component of an item of property, plant and equipment or on units of production method of relevant assets. The estimated useful lives are as follows:

Land improvement	5 years
Leasehold improvement	8 - 10 years
Buildings and structures	10 - 49 years and per lease period
Machinery and equipment for production (concrete)	3 - 10 years
Other machinery and equipment for production	5 - 40 years
Tools and factory equipment	3 - 30 years
Furniture, fixtures and office equipment	3, 5 and 10 years
Vehicles	5 - 25 years

Machinery and equipment for production of LDPE, construction materials and machine for melt sheets and mixer trucks calculate depreciation based on units of production.

No depreciation is provided on freehold land, assets under construction and installation, and major spare parts have not been issued.

Depreciation methods, useful lives and residual values are reviewed at each financial year-end and adjusted if appropriate.

(j) Leasehold right

Leasehold right that is acquired by the Group's and has finite useful life is measured at cost less accumulated amortisation and impairment loss.

Amortisation

Amortisation is recognised in profit or loss on a straight-line basis over the period of the lease agreement. The period of the lease agreement is 10 years.

(k) Intangible assets

Concession

Cost of concessions on mining limestone and shale are include acquisition, exploration and development costs and are measured at cost less accumulated amortisation and accumulated impairment losses.

Research and development

Expenditure on research activities, undertaken with the prospect of gaining new scientific or technical knowledge and understanding, is recognised in profit or loss as incurred.

Development activities involve a plan or design for the production of new or substantially improved products and processes. Development expenditure is capitalised only if development costs can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable, and the Group intends to and has sufficient resources to complete development and to use or sell the asset. The expenditure capitalised includes the cost of materials, direct labour, overhead costs that are directly attributable to preparing the asset for its intended use, and capitalised borrowing costs. Other development expenditure is recognised in profit or loss as incurred.

Capitalised development expenditure is measured at cost less accumulated amortisation and accumulated impairment losses.

Other intangible assets

Other intangible assets that are acquired by the Group and have finite useful lives are measured at cost less accumulated amortisation and accumulated impairment losses.

Amortisation

Amortisation is based on the cost of the asset, or other amount substituted for cost, less its residual value.

Amortisation is recognised in profit or loss on a straight-line basis over the estimated useful lives of intangible assets from the date that they are available for use, since this most closely reflects the expected pattern of consumption of the future economic benefits embodied in the asset.

The estimated useful lives for the current and comparative periods are as follows:

Concessions	Life of concessions :	13 - 25 years
Software licenses		3 - 12 years
Development assets		5 years

Amortisation methods, useful lives and residual values are reviewed at each financial year-end and adjusted if appropriate.

(l) Impairment

The carrying amounts of the Group's assets are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists, the asset's recoverable amounts are estimated.

An impairment loss is recognised if the carrying amount of an asset or its cash-generating unit exceeds its recoverable amount. The impairment loss is recognised in profit or loss.

When a decline in the fair value of an available-for-sale financial asset has been recognised directly in equity and there is objective evidence that the value of the assets is impaired, the cumulative loss that had been recognised directly in equity is recognised in profit or loss even though the financial asset has not been derecognised. The amount of the cumulative loss that is recognised in profit or loss is the difference between the acquisition cost and current fair value, less any impairment loss on that financial asset previously recognised in profit or loss.

Calculation of recoverable amount

The recoverable amount of held-to-maturity securities carried at amortised cost is calculated as the present value of the estimated future cash flows discounted at the original effective interest rate.

The recoverable amount of available-for-sale financial assets is calculated by reference to the fair value.

The recoverable amount of a non-financial asset is the greater of the assets' value in use and fair value less costs to sell. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. For an asset that does not generate cash inflows largely independent of those from other assets, the recoverable amount is determined for the cash-generating unit to which the asset belongs.

Reversals of impairment

An impairment loss in respect of a financial asset is reversed if the subsequent increase in recoverable amount can be related objectively to an event occurring after the impairment loss was recognised in profit or loss. For financial assets carried at amortised cost and available-for-sale financial assets that are debt securities, the reversal is recognised in profit or loss. For available-for-sale financial assets that are equity securities, the reversal is recognised in other comprehensive income.

(m) Interest-bearing liabilities

Interest-bearing liabilities are recognised at cost.

(n) Trade and other accounts payable

Trade and other accounts payable are stated at cost.

Refund liabilities

A refund liability is the obligation to refund some or all of the consideration received from the customer and is measured at the amount the Group ultimately expects it will have to return to the customer. The refund liability is reassessed at each reporting date and make a corresponding change to the amount of revenue recognised.

(o) Contract liabilities

A contract liability is the obligation to transfer goods or services to the customer. A contract liability is recognised when the Group receives or has an unconditional right to receive non-refundable consideration from the customer before the Group recognises the related revenue.

(p) Employee benefits

Defined contribution plans

Obligations for contributions to defined contribution plans are expensed as the related service is provided.

Defined benefit plans

A defined benefit plan is a post-employment benefit plan. The Group's net obligation in respect of defined benefit legal severance pay plan is calculated by estimating the amount of future benefit that employees have earned in return for their service in the current and prior periods; that benefit is discounted to determine its present value. The discount rate is the yield at the reporting date on government bonds that have maturity dates approximating the terms of the Group's obligations and that are denominated in the same currency in which the benefits are expected to be paid.

The calculation of defined benefit obligations is performed annually by a qualified actuary using the projected unit credit method.

Remeasurements of the net defined benefit liability, actuarial gain or loss are recognised immediately in other comprehensive income. The Group determines the interest expense on the net defined benefit liability for the period by applying the discount rate used to measure the defined benefit obligation at the beginning of the annual period, taking into account any changes in the net defined benefit liability during the period as a result of contributions and benefit payments. Net interest expense and other expenses related to defined benefit plans are recognised in profit or loss.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss on curtailment is recognised immediately in profit or loss. The Group recognises gains and losses on the settlement of a defined benefit plan when the settlement occurs.

Short-term employee benefits

Short-term employee benefits are expensed as the related service is provided. A liability is recognised for the amount expected to be paid if the Group has a present legal or constructive obligation to pay this amount as a result of past service provided by the employee and the obligation can be estimated reliably.

(q) Provisions

A provision is recognised if, as a result of a past event, the Group has a present legal or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability. The unwinding of the discount is recognised as finance cost.

Decommissioning costs

The Group recorded provision for decommissioning cost whenever it is probable that there is an obligation as a result of the past event and reliable amount of obligation.

Decommissioning costs is based on discounting the expected future cash flows of provision for decommissioning costs. The estimates of decommissioning costs have been determined based on reviews and estimates by the Group's own engineers and managerial judgment.

(r) Measurement of fair values

The Group has an established control framework with respect to the measurement of fair values. This includes a valuation team that has overall responsibility for overseeing all significant fair value measurements, including Level 3 fair values, and reports directly to the chief financial officer.

The valuation team regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as broker quotes or pricing services, is used to measure fair values, then the valuation team assesses the evidence obtained from the third parties to support the conclusion that these valuations meet the requirements of TFRS, including the level in the fair value hierarchy in which the valuations should be classified.

Significant valuation issues are reported to the Group's Audit Committee.

When measuring the fair value of an asset or a liability, the Group uses observable market data as far as possible. Fair values are categorised into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows:

- Level 1: quoted prices in active markets for identical assets or liabilities.
- Level 2: inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly or indirectly.
- Level 3: inputs for the asset or liability that are not based on observable input.

If the inputs used to measure the fair value of an asset or liability might be categorised in different levels of the fair value hierarchy, then the fair value measurement is categorised in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement.

The Group recognises transfers between levels of the fair value hierarchy at the end of the reporting period during which the change has occurred.

(s) Treasury shares

Treasury shares

When share capital recognised as equity is repurchased, the amount of consideration paid, including directly attributable costs, is classified as treasury shares and recognised as a deduction from equity. An equal amount is appropriated from retained earnings and taken to a reserve for treasury shares within equity. When treasury shares are sold, the amount received is recognised as an increase in equity by crediting the cost of the treasury shares sold, calculated using the weighted average method, to the treasury shares account and transferring the equivalent amount back from reserve for treasury shares to retained earnings. Surpluses on the sale of treasury shares are taken directly to a separate category within equity, "Surplus on treasury shares". Net deficits on sale or cancellation of treasury shares are debited to retained earnings after setting off against any remaining balance of surplus on treasury shares.

(t) Revenue

Accounting policies for revenue recognition in 2019

Revenue is recognised when a customer obtains control of the goods or services in an amount that reflects the consideration to which the Group expects to be entitled, excluding those amounts collected on behalf of third parties, value added tax and is after deduction of any trade discounts and volume rebates.

Sale of goods and services

Revenue from sales of goods is recognised when a customer obtains control of the goods, generally on delivery of the goods to the customers. For contracts that permit the customers to return the goods, revenue is recognised to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognised will not occur. Therefore the amount of revenue recognised is adjusted for estimated returns, which are estimated based on the historical data.

Revenue for rendering of services is recognised over time as the services are provided. The stage of completion is assessed based on surveys of work performed. The related costs are recognized in profit or loss when they are incurred.

For bundled packages, the Group accounts for individual products and services separately if they are distinct (i.e. if a product or service is separately identifiable from other items and a customer can benefit from it) or the multiple services are rendered in different reporting periods. The consideration received is allocated based on their relative stand-alone selling prices which are determined based on the price list at which the Group sells the products and services in separate transactions.

Customer loyalty programme

The consideration received are allocated based on the relative stand-alone selling price of the products and the loyalty points. The amount allocated to the loyalty points is recognised as contract liabilities and revenue is recognised when loyalty points are redeemed or the likelihood of the customer redeeming the loyalty points becomes remote. The stand-alone selling prices of the points is estimated based on discount provided to customers and the likelihood that the customers will redeem the points, and the estimate shall be reviewed at the end of the reporting period.

Accounting policies for revenue recognition in 2018

Revenue excludes value added taxes and is arrived at after deduction of trade discounts and volume rebates.

Sale of goods and services rendered

Revenue is recognised in profit or loss when the significant risks and rewards of ownership have been transferred to the buyer. No revenue is recognised if there is continuing management involvement with the goods or there are significant uncertainties regarding recovery of the consideration due, associated costs or the probable return of goods. Service income is recognised as services are provided.

Loyalty programmes

The Group has a customer loyalty programme whereby customers are awarded credits (Points) entitling customers to the right to qualify for a free gift from the Group. The fair value of the consideration received or receivable in respect of the initial sale is allocated between the Points and the other components of the sale. The amount allocated to the Points is estimated by reference to the fair value of the free gift. The fair value is estimated based on the amount of the gift adjusted to take into account the expected forfeiture rate. Such amount is deferred and revenue is recognised only when the Points are redeemed and the Group has fulfilled its obligations to supply the products. The amount of revenue recognised in those circumstances is based on the number of Points that have been redeemed in exchange for a free gift, relative to the total number of Points that is expected to be redeemed. Deferred revenue is also released to profit or loss when it is no longer considered probable that the Points will be redeemed.

(u) Investment income

Revenue from investments comprises rental income from investment properties and dividend and interest income from investments and bank deposits.

Rental income

Rental income from investment property is recognised in profit or loss on a straight-line basis over the term of the lease. Lease incentives granted are recognised as an integral part of the total rental income. Contingent rentals are recognised as income in the accounting period in which they are earned.

Dividend income

Dividend income is recognised in profit or loss on the date the Group's right to receive payments is established.

Interest income

Interest income is recognised in profit or loss as it accrues.

(v) Finance costs

Interest expenses and similar costs are charged to profit or loss for the period in which they are incurred, except to the extent that they are capitalised as being directly attributable to the acquisition, construction or production of an asset which necessarily takes a substantial periods of time to be prepared for its intended use or sale.

(w) Lease payments

Payments made under operating leases are recognised in profit or loss on a straight-line basis over the term of the lease. Lease incentives received are recognised in profit or loss as an integral part of the total lease expense, over the term of the lease.

Contingent lease payments are accounted for by revising the minimum lease payments over the remaining term of the lease when the lease adjustment is confirmed.

Determining whether an arrangement contains a lease

At inception of an arrangement, the Group determines whether such an arrangement is or contains a lease. A specific asset is the subject of a lease if fulfilment of the arrangement is dependent on the use of that specified asset. An arrangement conveys the right to use the asset if the arrangement conveys to the Group the right to control the use of the underlying asset.

At inception or upon reassessment of the arrangement, the Group separates payments and other consideration required by such an arrangement into those for the lease and those for other elements on the basis of their relative fair values. If the Group concludes for a finance lease that it is impracticable to separate the payments reliably, an asset and a liability are recognised at an amount equal to the fair value of the underlying asset. Subsequently the liability is reduced as payments are made and an imputed finance charge on the liability is recognised using the Group's incremental borrowing rate.

(x) Income tax

Income tax expense for the year comprises current and deferred tax. Current and deferred tax are recognised in profit or loss except to the extent that they relate to a business combination, or items recognised directly in equity or in other comprehensive income.

Current tax is the expected tax payable or receivable on the taxable income or loss for the year, using tax rates enacted or substantively enacted at the reporting date, and any adjustment to tax payable in respect of previous years.

Deferred tax is recognised in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. Deferred tax is not recognised for the following temporary differences: the initial recognition of goodwill; the initial recognition of assets or liabilities in a transaction that is not a business combination and that affects neither accounting nor taxable profit or loss; and differences relating to investments in subsidiaries to the extent that it is probable that they will not reverse in the foreseeable future.

The measurement of deferred tax reflects the tax consequences that would follow the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities.

Deferred tax is measured at the tax rates that are expected to be applied to the temporary differences when they reverse, using tax rates enacted or substantively enacted at the reporting date.

In determining the amount of current and deferred tax, the Group takes into account the impact of uncertain tax positions and whether additional taxes and interest may be due. The Group believes that its accruals for tax liabilities are adequate for all open tax years based on its assessment of many factors, including interpretations of tax law and prior experience. This assessment relies on estimates and assumptions and may involve a series of judgements about future events. New information may become available that causes the Group to change its judgement regarding the adequacy of existing tax liabilities; such changes to tax liabilities will impact tax expense in the period that such a determination is made.

Deferred tax assets and liabilities are offset if there is a legally enforceable right to offset current tax liabilities and assets, and they relate to income taxes levied by the same tax authority on the same taxable entity, or on different tax entities, but they intend to settle current tax liabilities and assets on a net basis or their tax assets and liabilities will be realised simultaneously.

A deferred tax asset is recognised to the extent that it is probable that future taxable profits will be available against which the temporary differences can be utilised. Future taxable profits are determined based on the reversal of relevant taxable temporary differences. If the amount of taxable temporary differences is insufficient to recognise a deferred tax asset in full, then future taxable profits, adjusted for reversals of existing temporary differences, are considered, based on the business plans for individual subsidiaries in the Group. Deferred tax assets are reviewed at each reporting date and reduced to the extent that it is no longer probable that the related tax benefit will be realised.

(y) *Earnings per share*

The Group presents basic earnings per share (EPS) data for its ordinary shares. Basic EPS is calculated by dividing the profit or loss attributable to ordinary shareholders of the Company by the weighted average number of ordinary shares outstanding during the year, adjusted for own shares held.

(z) *Related parties*

A related party is a person or entity that has direct or indirect control or joint control, or has significant influence over the financial and managerial decision-making of the Group; a person or entity that are under common control or under the same significant influence as the Group; or the Group has direct or indirect control or joint control or has significant influence over the financial and managerial decision-making of a person or entity.

(aa) *Segment reporting*

Segment results that are reported to the Group's CEO (the chief operating decision maker) include items directly attributable to a segment as well as those that can be allocated on a reasonable basis. Unallocated items comprise mainly corporate assets.

4 Related parties

Relationships with subsidiaries and associates are described in notes 10 and 9. Other related parties that the Group had significant transactions with during the year were as follows:

Name of entities	Country of incorporation/nationality	Nature of relationships
Key management personnel	Thailand	Persons having authority and responsibility for planning, directing and controlling the activities of the entity, directly or indirectly, including any director (whether executive or otherwise) of the Group.
Pornchai Enterprise Co., Ltd.	Thailand	Co-director
TPI Holding Co., Ltd.	Thailand	Co-director
Leophairatana Enterprise Co., Ltd.	Thailand	Co-director
Bangkok Union Insurance Public Co., Ltd.	Thailand	Co-director
Lampang Food Products Co., Ltd.	Thailand	Co-director
Hong Yiah Seng Co., Ltd.	Thailand	Co-director
Saraburi Ginning Mill Co., Ltd.	Thailand	Co-director
Thai Petrochemical Industry Co., Ltd.	Thailand	Co-director
Rayong Forest Co., Ltd.	Thailand	Co-director
Hong Yiah Seng Real Estates and Investment Co., Ltd.	Thailand	Co-director
TPI EOE Co., Ltd.	Thailand	Co-director

The pricing policies for transactions with related parties are explained further below:

Transactions	Pricing policies
Sale of goods	Market price
Transportation income	Market price
Energy service for electrical manufacturing income	Agreed price
Shared service income	Agreed price
Waste disposal income	Referred to market price
Purchase of raw materials and spare parts	Referred to market price
Purchase of electricity	Referred to market price
Purchase of steam	Agreed price
Purchase of goods for sales promotion	Market price
Acquisition of investment	Book value
Sale of investment	Book value
Interest income	MLR-1.5% / Agreed price
Interest expense	MLR-1.5%
Insurance premium	Market price
Paper bag production charge	2.0 - 2.6 Baht per bag

Significant transactions for the years ended 31 December with related parties were as follows:

(in thousand Baht)

<i>Year ended 31 December</i>	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Subsidiaries				
Sales of goods	-	-	14,684,117	13,773,109
Transportation income	-	-	226,767	218,173
Purchase of raw materials and spare parts	-	-	2,897,040	6,346,511
Purchase of electricity	-	-	2,131,265	832,109
Purchase of steam	-	-	33,801	31,208
Purchase of goods for sales promotion	-	-	78	1,046
Sale of investment (see note 10)	-	-	105,988	-
Dividend income	-	-	1,995,499	2,556,952
Interest income	-	-	15,785	13,282
Interest expense	-	-	1,475	3,914
Waste disposal income	-	-	230,866	195,671
Other income	-	-	195,587	192,773
Administrative expenses	-	-	91,945	55,734
Associates				
Sale of goods	6,332	8,873	6,153	8,705
Purchase of raw materials	612,923	636,695	574,052	569,010
Other income	13	143	13	143
Insurance premium	24,165	20,466	17,826	14,979
Administrative expenses	2,528	2,457	1,568	1,497
Other related parties				
Sales of goods	5,801	1,308	717	299
Transportation income	20	1	20	1
Acquisition of investment (see note 10)	-	2,078	-	2,078
Other income	240	240	240	240
Insurance premium	211,474	185,601	111,727	110,967
Administrative expenses	113,936	111,107	99,812	97,520
Key management personnel				
Key management personnel compensation				
Short-term employee benefits	393,651	393,254	314,786	317,969
Post-employment benefits	49,991	6,556	44,370	6,085
Total key management personnel compensation	443,642	399,810	359,156	324,054

Balances as at 31 December with related parties were as follows:

(in thousand Baht)

<i>Trade accounts receivable - related parties</i>	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Subsidiaries				
TPI Concrete Co., Ltd.	-	-	1,002,883	747,610
TPI Polene Power Public Co., Ltd.	-	-	196,727	193,165
TPI All Seasons Co., Ltd.	-	-	309,302	249,924
Polene Plastic Co., Ltd.	-	-	1,675,989	1,832,210
TPI Polene Bio Organics Co., Ltd.	-	-	27,335	22,996
TPI Commercial Co., Ltd.	-	-	3,529	3,890
Thai Nitrate Co., Ltd.	-	-	16	333
Associates				
BUI Life Insurance Public Co., Ltd.	12	8	-	-
United Grain Industry Co., Ltd.	42	151	20	140
Thai Plastic Products Co., Ltd.	1,284	3,892	1,284	3,892
Other related parties				
Bangkok Union Insurance Public Co., Ltd.	32	13	23	-
Pornchai Enterprise Co., Ltd.	47	80	6	54
Lampang Food Products Co., Ltd.	6	4	6	4
Rayong Forest Co., Ltd.	1,292	886	-	-
Leophairatana Enterprise Co., Ltd.	57	-	57	-
Total	2,772	5,034	3,217,177	3,054,218

<i>Short-term loans to related parties</i>	<i>Interest rate</i>	<i>Consolidated financial statements</i>		<i>Separate financial statements</i>		
		2019	2018	2019	2018	
		<i>(% per annum)</i>				
Subsidiaries						
TPI Polene Bio Organics Co., Ltd.*	MLR-1.5	MLR-1.5	-	-	245,796	223,411
TPI All Seasons Co., Ltd.*	MLR-1.5	MLR-1.5	-	-	44,153	44,153
TPI Service Co., Ltd.	MLR-1.5	-	-	-	2,000	-
TPI Commercial Co., Ltd.	MLR-1.5	-	-	-	97,993	-
TPI Refinery (1997) Co., Ltd.	MLR-1.5	-	-	-	104,319	-
Master Achieve (Thailand) Co., Ltd.	MLR-1.5	-	-	-	3,000	-
			-	-	497,261	267,564
Accrued interest receivable			-	-	1,910	1,237
Total			-	-	499,171	268,801

* Please see Note 10 impairment assessment for loan to and investment in subsidiaries

As at 31 December 2019, all short-term loans to related parties are promissory notes which have repayment schedules on demand.

Movements during the years ended 31 December of short-term loans to related parties were as follows:

<i>Short-term loans to related parties</i>	<i>Consolidated financial statements</i>		<i>Separate financial statements</i>	
	2019	2018	2019	2018
<i>(in thousand Baht)</i>				
Subsidiaries				
At 1 January	-	-	267,564	273,253
Increase	-	-	251,049	26,800
Decrease	-	-	(21,352)	(32,489)
At 31 December	-	-	497,261	267,564
Receivables and advances to related parties - current				
Subsidiaries				
TPI Concrete Co., Ltd.	-	-	3,098	3,257
TPI Polene Power Public Co., Ltd.	-	-	105,593	85,200
TPI All Seasons Co., Ltd.	-	-	26,632	32,356
TPI Refinery (1997) Co., Ltd.	-	-	65	66
Polene Plastic Co., Ltd.	-	-	4,441	14,002
TPI Polene Bio Organics Co., Ltd.	-	-	87,154	67,827
TPI Commercial Co., Ltd.	-	-	104	137
TPI Service Co., Ltd.	-	-	161	183
Thai Nitrate Co., Ltd.	-	-	173	165
Zenith International Power Co., Ltd.	-	-	64	64
Mondo Thai Co., Ltd.	-	-	504	504
Thai Propoxide Co., Ltd.	-	-	64	64
TPI Healthcare Co., Ltd.	-	-	65	-
TPI Bio Pharmaceuticals Co., Ltd.	-	-	86	-
Master Achieve (Thailand) Co., Ltd.	-	-	4,114	-
TPI Polene Power Investment Co., Ltd.	-	-	34	34
Associates				
BUI Life Insurance Public Co., Ltd.	6,839	6,503	5,875	5,705
United Grain Industry Co., Ltd.	3,488	3,289	4	-
Other related parties				
Bangkok Union Insurance Public Co., Ltd.	67,502	49,856	24,029	28,074
Pornchai Enterprise Co., Ltd.	1,040	983	425	422
Rayong Forest Co., Ltd.	73	74	73	74
TPI Holding Co., Ltd.	64	64	64	64
TPI EOEG Co., Ltd.	64	64	64	64
Total	79,070	60,833	262,886	238,262

<i>Long-term investments in related parties</i>	(in thousand Baht)			
	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Related parties				
Pornchai Enterprise Co., Ltd.	45,653	45,653	45,653	45,653
TPI Holding Co., Ltd.	-	217	-	217
Total	45,653	45,870	45,653	45,870

Receivables and advances to related parties - non-current

Subsidiary

Thai Propoxide Co., Ltd.	-	-	421,984	421,984
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In 1997, the Company entered into an agreement to sell land to Thai Propoxide Co., Ltd. (a subsidiary) at the price of Baht 477 million, in consideration for a loan payable by August 2000, with interest of 16%. No payments of principal or interest were subsequently made by the subsidiary and consequently the Company deferred recording the gain on the sale land of Baht 40 million and interest income of Baht 155 million in income, and ceased accrued interest. The deferred gain and interest income are disclosed as non-current liabilities in the statement of financial position of the separate financial statements.

The subsidiary used the land as collateral for a bank loan, the proceeds of which were subsequently loaned to the Company. In 2000, the subsidiary's bank loan was assigned to the Company. Subsequently, in 2011, the land has been released by the bank as collateral and the subsidiary has sold a part of land to the Company and repaid a part of the land loan to the Company of Baht 68 million.

At 31 December 2019, the outstanding amount of accounts receivable from the subsidiary from the sale of land total Baht 422 million (2018: Baht 422 million) and the deferred gain on the sale of Baht 35 million (2018: Baht 35 million) and deferred interest income of Baht 134 million (2018: Baht 134 million) in the statement of financial position of the separate financial statements.

<i>Trade accounts payable - related parties</i>	(in thousand Baht)			
	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Subsidiaries				
TPI Polene Power Public Co., Ltd.	-	-	4,585	4,759
TPI All Seasons Co., Ltd.	-	-	9,086	9,502
Polene Plastic Co., Ltd.	-	-	251,973	694,699
TPI Polene Bio Organics Co., Ltd.	-	-	16	347
Thai Nitrate Co., Ltd.	-	-	5,393	7,790
TPI Healthcare Co., Ltd.	-	-	7,919	-
TPI Bio Pharmaceuticals Co., Ltd.	-	-	7	-
Associate				
United Grain Industry Co., Ltd.	2,069	2,033	-	-
Thai Plastic Film Co., Ltd.	84,896	71,661	84,452	71,170
Thai Plastic Products Co., Ltd.	152,996	131,610	148,736	126,342
Total	239,961	205,304	512,167	914,609

<i>Short-term loans from related parties</i>	Interest rate		Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018	2019	2018
	(% per annum)					
Subsidiaries						
TPI Refinery (1997) Co., Ltd.	-	MLR-1.5	-	-	-	43,873
			-	-	-	43,873
Accrued interest payable			-	-	-	344
Total			-	-	-	44,217

Movements during the years ended 31 December of short-term loans from related parties were as follows:

(in thousand Baht)

Short-term loans from related parties	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Subsidiaries				
At 1 January	-	-	43,873	375,000
Decrease	-	-	(43,873)	(331,127)
At 31 December	-	-	-	43,873
Payables and advances from related parties				
Subsidiaries				
TPI Concrete Co., Ltd.	-	-	1,478	1,755
TPI Polene Power Public Co., Ltd.	-	-	569,442	249,296
TPI All Seasons Co., Ltd.	-	-	2,140	2,140
Polene Plastic Co., Ltd.	-	-	51	25
TPI Polene Bio Organics Co., Ltd.	-	-	1,488	280
TPI Healthcare Co., Ltd.	-	-	386	-
TPI Bio Pharmaceuticals Co., Ltd.	-	-	455	-
Associates				
BUI Life Insurance Public Co., Ltd.	243	43	243	43
United Grain Industry Co., Ltd.	2,530	2,313	-	-
Thai Plastic Film Co., Ltd.	585	-	547	-
Other related parties				
Pornchai Enterprise Co., Ltd.	760	2,931	401	2,533
Bangkok Union Insurance Public Co., Ltd.	5,560	13,137	4,867	6,842
Hong Yiah Seng Co., Ltd.	149	1,172	106	1,172
Total	9,827	19,596	581,604	264,086

Significant agreements with related parties

(a) Office building lease agreements

The Company and its subsidiary have long-term office building lease agreements with a related company. Previously, the initial lease term for each lease agreement was for 3 years, with the lease being renewable. In July 1999, the Company and a subsidiary entered into a 90 years office building lease agreement with a related company to replace the expired original office building lease agreements in which the Company and a subsidiary made one payment for the whole lease period (*the total rental for the 90 years term of the lease is Baht 40,000 per square meter, equivalent to a monthly rental, before discounting cash flows, of Baht 37 per square meter*). The annual rental is deducted from the prepaid rentals. Subsequently, on 24 July 2001, the Company and its subsidiary agreed to sign the amendments in addition to the existing office building lease agreements with a related company. The initial period of the lease is for 30 years, commencing from the original date on which the rentals of each respective agreement were prepaid. The related party warranted that the lease would be renewable for another 2 subsequent periods of 30 years under the same conditions, including rental fee as set out in the original agreements.

On 25 August 2006, the Company and its subsidiary registered the lease with the Land Department.

Significant details of long-term office building lease agreements with a related company as at 31 December were as follows:

Type of agreement	(in thousand Baht)		
	Prepaid rentals	Remaining prepaid rentals	
		2019	2018
The Company			
30 years lease agreement			
(3 years for original agreement)	143,517	104,213	105,807
30 years lease agreement			
(90 years for original agreement)	29,669	22,746	23,076
	<u>173,186</u>	<u>126,959</u>	<u>128,883</u>
Subsidiary			
30 years lease agreement			
(3 years for original agreement)	47,000	33,800	34,520
30 years lease agreement			
(90 years for original agreement)	11,659	8,939	9,068
	<u>58,659</u>	<u>42,739</u>	<u>43,588</u>
Total	<u>231,845</u>	<u>169,698</u>	<u>172,471</u>

Should either party terminate the lease agreement, the unused prepaid rentals are refundable to the Companies. Both parties agreed in principle to execute a mortgage on the office building as security for the unused prepaid rentals. As at 31 December 2019, there was no mortgage agreement as security for the unused prepaid rentals, so the recoverability of prepaid rentals depends on the ability of the related company to repay.

(b) Electricity supply agreement

The Company entered into an electricity supply contract with a subsidiary company, to provide the waste heat to the subsidiary that will be used in the manufacturing process for electricity. The subsidiary company shall supply the electricity to the Company based on certain percentage as specified in the agreement. The agreement shall remain in full force and effect so long as, unless it is terminated by mutual agreement in writing of both parties.

(c) Land lease agreement

The Company and its subsidiaries entered into several land and office building space lease agreements with related parties for 3 years and 30 years as stated in each agreement. The details as at 31 December were as follows:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Non-cancellable operating lease commitments				
Within one year	104,851	86,669	87,421	67,585
After one year but within five years	120,998	42,246	73,818	20,441
After five years	199,588	133,093	13,920	15,300
Total	<u>425,437</u>	<u>262,008</u>	<u>175,159</u>	<u>103,326</u>

The Company and subsidiaries had made several land rental agreements with its related parties which specified that lessee has to decommission the assets from rental area at the end of contract, causing lessee to set up the decommissioning costs as at 31 December 2019 in amount of Baht 286.1 million (2018: Baht 169.5 million).

5 Cash and cash equivalents

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Cash on hand	16,143	7,439	15,277	4,017
Cash at banks - current accounts	20,151	42,139	6,575	24,148
Cash at banks - savings accounts	2,435,748	3,720,219	939,759	1,844,649
Cash at banks - savings accounts (Private funds)	13,516	66,800	10	11
Highly liquid short-term investments	258,287	529,963	983	305,422
Total	<u>2,743,845</u>	<u>4,366,560</u>	<u>962,604</u>	<u>2,178,247</u>

6 Other investments

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Current investments				
Short-term deposits with financial institutions	-	1,100,000	-	300,000
Equity/Debt securities held for trading	1,329,349	330,638	-	-
Debt securities held for trading (Private funds)	1,321,347	2,530,465	-	-
Other debt securities held to maturity	-	299,549	-	-
	2,650,696	4,260,652	-	300,000
Other long-term investments				
Long-term deposits with financial institutions	4,820	4,820	4,820	4,820
Equity/Debt securities available for sale	1,422	1,533	223	349
Other non-marketable equity securities	1,596	1,596	1,596	1,596
Other debt securities held to maturity	27,132	54,141	11,712	28,675
	34,970	62,090	18,351	35,440
Total	2,685,666	4,322,742	18,351	335,440

Other debt securities held to maturity of the Group and the Company are pledged as collateral of Baht 22 million and Baht 12 million, respectively (2018: Baht 22 million and Baht 12 million, respectively).

7 Trade accounts receivable

	Note	Consolidated financial statements		Separate financial statements	
		2019	2018	2019	2018
Related parties	4	2,772	5,034	3,217,177	3,054,218
Other parties		4,543,294	4,391,769	913,637	934,269
Total		4,546,066	4,396,803	4,130,814	3,988,487
Less allowance for doubtful		(73,610)	(91,234)	(37,242)	(48,574)
Net		4,472,456	4,305,569	4,093,572	3,939,913
Reversal of bad and doubtful debts expense for the year		(5,820)	(31,378)	-	(24,923)

Aging analyses for trade accounts receivable were as follows:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Related parties				
Within credit terms	2,691	4,960	1,383,386	1,768,782
Overdue:				
Less than 3 months	55	20	1,442,710	1,151,684
3 - 6 months	21	35	317,866	67,540
6 - 12 months	-	-	50,463	59,743
Over 12 months	5	19	22,752	6,469
	2,772	5,034	3,217,177	3,054,218
Less allowance for doubtful accounts	-	-	-	-
	2,772	5,034	3,217,177	3,054,218
Other parties				
Within credit terms	4,090,877	4,063,418	782,982	805,853
Overdue:				
Less than 3 months	360,432	230,759	76,201	78,569
3 - 6 months	9,793	2,324	9,062	1,033
6 - 12 months	8,191	309	8,148	237
Over 12 months	74,001	94,959	37,244	48,577
	4,543,294	4,391,769	913,637	934,269
Less allowance for doubtful accounts	(73,610)	(91,234)	(37,242)	(48,574)
	4,469,684	4,300,535	876,395	885,695
Net	4,472,456	4,305,569	4,093,572	3,939,913

The Group requires various customers to provide cash, bank and personal guarantees as collateral.

The normal credit term granted by the Group ranges from 30 days to 360 days.

8 Inventories

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Finished goods	3,116,993	3,342,247	1,935,255	2,176,740
Work in process	4,632,290	4,755,503	4,309,508	4,697,667
Raw materials and chemicals	1,384,478	1,722,746	1,184,596	1,436,056
Packages	450,699	418,607	356,715	326,421
Oil and coal	1,127,884	1,229,890	1,032,484	1,224,016
Spare parts and general supplies	3,589,020	3,179,641	2,728,117	2,520,755
Goods in transit	272,581	116,537	223,802	555
Total	14,573,945	14,765,171	11,770,477	12,382,210
Less allowance for decline in value	(395,887)	(431,261)	(54,773)	(90,147)
Net	14,178,058	14,333,910	11,715,704	12,292,063
Inventories recognised in cost of sales of goods				
- Cost	28,439,441	27,842,232	24,348,038	23,493,433
- (Reversal of) write-down to net realisable value	(35,374)	176,165	(35,374)	90,147
Net	28,404,067	28,018,397	24,312,664	23,583,580

9 Investments in associates

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
At 1 January	772,197	745,865	229,500	229,500
Share of net profit (loss) of investments in associates	(18,704)	31,090	-	-
Share of other comprehensive income (expense) of investments in associates	(935)	(4,758)	-	-
At 31 December	752,558	772,197	229,500	229,500

The Group has not recognised loss relating to an investment in an indirect associate accounted for using the equity method where its share of loss exceeds the carrying amount of its investment. As at 31 December 2019, the Group's cumulative share of unrecognised loss was Baht 985 million (2018: Baht 984 million), of which the Group's share of loss for the year ended 31 December 2019 was Baht 0.6 million (2018: Baht 3 million). The Group has no obligation in respect of this loss.

Investments in associates as at 31 December were as follows:

		Consolidated financial statements							
Type of business		Ownership interest		Paid-up capital		Cost		Equity method	
		2019	2018	2019	2018	2019	2018	2019	2018
		(%)		(in thousand Baht)					
Associates									
BUI Life Insurance Plc.	Life insurance	25.00	25.00	500,000	500,000	125,000	125,000	86,695	131,047
United Grain Industry Co.,Ltd.	Manufacture and sale of packaging	19.00	19.00	550,000	550,000	104,500	104,500	665,863	641,150
						229,500	229,500	752,558	772,197
Indirect associates									
Thai Special Steel Industry Plc.	Manufacture and sale of steel (in the process of registering the dissolution)	29.53	29.53	4,220,000	4,220,000	1,246,200	1,246,200	-	-
Thai Plastic Film Co.,Ltd.	Manufacture and sale of packaging	19.00	19.00	40,000	40,000	-	-	-	-
Thai Plastic Products Co.,Ltd.	Manufacture and sale of packaging	19.00	19.00	60,000	60,000	-	-	-	-
Total						1,475,700	1,475,700	752,558	772,197

		Separate financial statements					
Type of business		Ownership interest		Paid-up capital		Cost	
		2019	2018	2019	2018	2019	2018
		(%)		(in thousand Baht)			
Associates							
BUI Life Insurance Plc.	Life insurance	25.00	25.00	500,000	500,000	125,000	125,000
United Grain Industry Co.,Ltd.	Manufacture and sale of packaging	19.00	19.00	550,000	550,000	104,500	104,500
Total						229,500	229,500

No dividend distribution from investments in associates held by the Group and the Company during years ended 31 December 2019 and 2018.

None of the Group's and the Company's associates are publicly listed and consequently do not have published price quotations.

All associates were incorporated in Thailand.

Immaterial associates

The following is summarised financial information for the Group's interest in immaterial associates based on the amounts reported in the Group's consolidated financial statements:

	(in thousand Baht)	
	2019	2018
Carrying amount of interests in immaterial associates	752,558	772,197
Group's share of:		
- Profit (loss) from continuing operations	(18,704)	31,090
- Other comprehensive income (loss)	(935)	(4,758)
- Total comprehensive income (loss)	(19,639)	26,332

10 Investments in subsidiaries

	(in thousand Baht)	
	Separate financial statements	
	2019	2018
At 1 January	13,214,724	13,203,196
Increase	99,000	11,528
Decrease	(99,712)	-
	13,214,012	13,214,724
Less allowance for impairment of investments	(770,250)	(770,250)
At 31 December	12,443,762	12,444,474
Loss on impairment of investment	-	208,000

2019

Master Achieve (Thailand) Co., Ltd.

On 27 June 2019, the Company's Board of Directors's meeting passed the resolution to approve payment for increasing of share capital in Master Achieve (Thailand) Co., Ltd. with 100% paid up of 990,000 ordinary shares at par value of Baht 100 each, in the amount of Baht 99 million which was paid to the subsidiary in July 2019.

Zenith International Power Co., Ltd.

On 29 August 2019, the Company's Board of Directors's meeting passed the resolution to approve the sale of common share capital in Zenith International Power Co., Ltd. (formerly: Zenith International Trading Co., Ltd.), the main objective is to restructure the shareholding of the Group to support business expansion. Thereafter, on 24 September 2019, the Company sold 999,980 shares or equivalent to 99.99% of the paid-up share capital at the price of Baht 105.99 per share, in the amount of Baht 105.99 million to a subsidiary and recognised gain on sale of investment in the amount of Baht 6.28 million in the separate financial statement, thereby become an indirect subsidiary of the Company.

2018

Master Achieve (Thailand) Co., Ltd.

On 29 March 2018, the Company's Board of Directors' meeting passed the resolution to approve the acquisition of shares in Master Achieve (Thailand) Co., Ltd., the main objective is to restructure the shareholding of the Group to support business expansion. Thereafter, on 30 March 2018, the Company obtained control of that company by acquiring 9,996 shares or equivalent to 99.96% of the paid-up share capital at the price of Baht 93.10 per share, in the amount of Baht 0.93 million from related parties, thereby become a subsidiary of the Company.

TPI Bio Pharmaceutical Co., Ltd.

On 25 June 2018, the Company's Board of Directors' meeting passed the resolution to approve the acquisition of shares in TPI Bio Pharmaceutical Co., Ltd., the main objective is to restructure the shareholding of the Group to support business expansion. Thereafter, on 26 June 2018, the Company obtained control of that company by acquiring 99,995 shares or equivalent to 99.99% of the paid-up share capital at the price of Baht 11.48 per share, in the amount of Baht 1.15 million from related parties, thereby become a subsidiary of the Company.

Subsequently, on 26 July 2018, the Company's Board of Directors' meeting passed the resolution to approve payment for increasing of share capital in TPI Bio Pharmaceutical Co., Ltd. with 50% paid up of 900,000 ordinary shares at par value of Baht 10 each, in the amount of Baht 4.50 million which was paid to the subsidiary in July 2018.

TPI Healthcare Co., Ltd.

On 26 July 2018, the Company's Board of Directors' meeting passed the resolution to approve payment for increasing of share capital in TPI Healthcare Co., Ltd. with 50% paid up of 990,000 ordinary shares at par value of Baht 10 each, in the amount of Baht 4.95 million which was paid to the subsidiary in July 2018. As a result, the Group's equity interest in that company increased from 99.97% to 99.99% of the paid-up share capital.

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TPI Polene Public Company Limited

Direct subsidiaries

	Type of business	Ownership interest		Paid-up capital		Cost		Impairment		At cost - net		Dividend Income for the year	
		2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
		Ownership interest (%)		Paid-up capital		Cost		Impairment		At cost - net		Dividend Income for the year	
		2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
		(in thousand Baht)											
Direct subsidiaries													
TPT Concrete Co., Ltd.	Manufacturing and distributing ready mixed concrete	99.99	99.99	2,000,000	2,000,000	1,999,999	1,999,999	-	-	1,999,999	1,999,999	-	-
TPT Polene Power Public Co., Ltd.	Distributing gasoline, diesel and natural gas/Manufacturing and distributing electricity and refuse derived fuel (RDF) and organics waste	70.24	70.24	8,400,000	8,400,000	5,899,999	5,899,999	-	-	5,899,999	5,899,999	1,770,000	2,006,000
TPT All Seasons Co., Ltd.	Manufacturing and distributing melt sheets	99.99	99.99	450,000	450,000	450,000	450,000	-	-	450,000	450,000	-	-
TPT Polene Bio Organics Co., Ltd.	Manufacturing and distributing organic fertilizer	99.99	99.99	3,300,000	3,300,000	2,654,400	2,654,400	(770,000)	(770,000)	1,884,400	1,884,400	-	-
TPT Refinery (1997) Co., Ltd.	Petroleum exploration	99.99	99.99	1,300,000	1,300,000	1,299,620	1,299,620	-	-	1,299,620	1,299,620	-	-
Thai Propoxide Co., Ltd.	Manufacturing electricity (dormant)	99.99	99.99	250	250	250	250	(250)	(250)	-	-	-	-
Thai Nitrate Co., Ltd.	Manufacturing and distributing nitric acids and ammonium nitrate	99.99	99.99	468,750	468,750	784,409	784,409	-	-	784,409	784,409	187,500	530,952
Zenth International Power Co., Ltd. (Formerly Zenth International Trading Co., Ltd.)	Investing in alternative energy business	-	99.99	-	100,000	-	99,712	-	-	-	99,712	37,999	20,000
TPT Healthcare Co., Ltd.	Manufacturing and distributing products for humans	99.99	99.99	5,050	5,050	4,950	4,950	-	-	4,950	4,950	-	-
TPT Commercial Co., Ltd.	Retailing business	99.94	99.94	100	100	-	-	-	-	-	-	-	-
TPT Service Co., Ltd.	Construction service	95.10	95.10	4,600	4,600	4,457	4,457	-	-	4,457	4,457	-	-
Master Achieve (Thailand) Co., Ltd.	Manufacturing and distributing factory equipment	99.99	99.96	100,000	1,000	99,931	931	-	-	99,931	931	-	-
TPT Bio Pharmaceuticals Co., Ltd.	Manufacturing and distributing products for animals	99.99	99.99	5,500	5,500	5,647	5,647	-	-	5,647	5,647	-	-
Indirect subsidiaries													
Mondo Thai Co., Ltd.	Property developing	83.27	83.27	36,000	36,000	10,350	10,350	-	-	10,350	10,350	-	-
Polene Plastic Co., Ltd.	Export and import business	99.98	99.98	10,000	10,000	-	-	-	-	-	-	-	-
TPT Polene Power Investment Co., Ltd.	Generate and distributing electricity in Cambodia (in the process of registering the dissolution)	70.24	70.24	3,957	3,957	-	-	-	-	-	-	-	-
TPT Polene Power (Omuth) Co., Ltd.	Generate and distributing electricity from refuse derived fuel (RDF) (dormant)	70.23	70.23	187,500	187,500	-	-	-	-	-	-	-	-
Zenth International Power Co., Ltd. (Formerly Zenth International Trading Co., Ltd.)	Investing in alternative energy business (dormant)	70.23	-	100,000	-	-	-	-	-	-	-	-	-
Direct subsidiaries (continue)													
TPT Deep Sea Port Co., Ltd.	Port business operation (dormant)	70.23	-	25,000	-	-	-	-	-	-	-	-	-
TPT Polene Power (Songkhla) Co., Ltd.	Generate electricity from refuse derived fuel and biomass (dormant)	70.22	-	1,000	-	-	-	-	-	-	-	-	-
TPT Solar Power Co., Ltd.	Generate electricity from solar energy (dormant)	70.22	-	1,000	-	-	-	-	-	-	-	-	-
TPT Wind Power Co., Ltd.	Generate electricity from wind energy (dormant)	70.22	-	1,000	-	-	-	-	-	-	-	-	-
Total				13,214,012	13,214,724	(770,250)	(770,250)	(770,250)	(770,250)	12,443,762	12,444,474	1,995,499	2,556,952

All subsidiaries were incorporated and operated in Thailand, except TPI Polene Power Investment Co., Ltd. which was incorporated and operated in Cambodia. As at 31 December 2019, the Company is in the process of dissolution and liquidation.

None of the Company's subsidiaries are publicly listed and consequently do not have published price quotations, except for TPI Polene Power Public Co., Ltd. which is listed on the Stock Exchange of Thailand. Based on the closing price of Baht 4.40 at 31 December 2019 (2018: Baht 5.65), the fair value of the Company's investment in TPI Polene Power Public Co., Ltd. was Baht 25,960 million (2018: Baht 33,335 million) that resulted the Company had the difference between fair value and carrying value of Baht 20,060 million (2018: Baht 27,435 million).

Impairment assessment for loan to and investment in a subsidiaries

The Company has assessed the recoverable amount of investment in TPI Polene Bio Organics Co., Ltd. and TPI All Seasons Co., Ltd. by determining discounted future cash flows. The key assumptions used to determine recoverable amount included sale volume and selling price, long-term growth rate derived from expectations of future outcomes taking into account past experience, adjusted for anticipated revenue growth and discount rate referred to weighted average cost of capital (WACC) of TPI Polene Bio Organics Co., Ltd. and TPI All Seasons Co., Ltd. at 8.10% and 10.05%, respectively (2018: 8.10% and 10.05%, respectively). Base on impairment assessment, the Company recognised loss on impairment of investment in TPI Polene Bio Organics Co., Ltd. amounting to Baht 208 million in 2018 financial statements. As at 31 December 2019, allowance for impairment of investment in TPI Polene Bio Organics Co., Ltd. is Baht 770 million (2018: Baht 770 million).

11 Non-controlling interests

The following table summarises the information relating to each of the Group's subsidiaries that has a material non-controlling interest, before any intra-group eliminations:

As at 31 December	2019		2018	
	TPI Polene Power Public Co.,Ltd.	Total	TPI Polene Power Public Co.,Ltd.	Total
Non-controlling interest percentage	29.76%		29.76%	
Current assets	6,528,212		6,490,791	
Non-current assets	31,329,661		25,050,862	
Current liabilities	(2,334,113)		(2,237,074)	
Non-current liabilities	(8,407,974)		(4,255,656)	
Net assets	27,115,786		25,048,923	
Carrying amount of non-controlling interest	8,069,658	8,069,658	7,454,559	7,454,559
Other individually immaterial subsidiaries		6,676		318
Total		8,076,334		7,454,877
For the year ended 31 December				
Revenue	10,902,779		7,915,303	
Profit	4,611,470		3,699,597	
Other comprehensive income	(24,607)		(8,708)	
Total comprehensive income	4,586,863		3,690,889	
Total comprehensive income allocated to non-controlling interest	1,365,050	1,365,050	1,098,409	1,098,409
Other individually immaterial subsidiaries		5,998		2,485
Total		1,371,048		1,100,894
Cash flows from operating activities	1,361,416		1,170,530	
Cash flows from investing activities	(1,675,716)		(1,569,621)	
Cash flows from financing activities				
(Dividends to non-controlling interest of Baht 750 million (2018: Baht 850 million)).	401,293		340,453	
Net increase (decrease) in cash and cash equivalents	86,993		(58,638)	

12 Long-term investments in related parties

Long-term investments in related parties							(in thousand Baht)	
	Type of business	Relationship	Ownership interest		Paid-up capital		Consolidated and Separate financial statements	
			2019	2018	2019	2018	2019	2018
			(%)			(in thousand Baht)		
Related parties								
Pornchai Enterprise Co., Ltd.	Real estate and service rental	Shareholder	0.65	0.65	4,599,920	4,599,920	45,653	45,653
TPI Holding Co., Ltd.	Holding company	Shareholder	-	0.001	-	4,044,573	-	217
Total							45,653	45,870

13 Investment properties

Investment properties	(in thousand Baht)			
	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
<i>Cost</i>				
At 1 January	390,394	390,394	74,044	74,044
At 31 December	390,394	390,394	74,044	74,044
<i>Depreciation and impairment losses</i>				
At 1 January	16,706	15,706	-	-
Depreciation charge for the year	938	1,000	-	-
At 31 December	17,644	16,706	-	-
<i>Net book value</i>				
At 1 January	373,688	374,688	74,044	74,044
At 31 December	372,750	373,688	74,044	74,044

The fair value of investment properties of the Group and the Company as at 31 December 2019 of Baht 694 million and Baht 75 million, respectively (2018: Baht 694 million and Baht 75 million, respectively) was determined by independent professional valuers, at open market values on an existing use basis. The fair value of measurement for investment property has been categorised as a Level 3 fair value.

Investment properties include land for rent, freehold land and condominiums.

Measurement of fair value

Fair value hierarchy

The fair value of investment property was determined by external, independent property valuers, having appropriate recognised professional qualifications and recent experience in the location and category of the property being valued. The valuers provide the fair value of the Group's investment property portfolio on a regular basis.

The fair value measurement of all investment property has been categorised as level 3 fair value based on the inputs to the valuation technique used.

Valuation technique and significant unobservable inputs

The following table shows the valuation technique used in measuring the fair value of investment property, as well as the significant unobservable inputs used.

Valuation technique

Discounted cash flows; The valuation model considers the present value of net cash flows to be generated from the property, taking into account expected rental growth rate. The expected net cash flows are discounted using risk-adjusted discount rates. Among other factors, the discount rate estimation considers the quality of its location (prime vs secondary), tenant credit quality and lease terms.

Market approach

Significant Unobservable inputs

- Contractually agreed lease income over the remaining period.
- Risk-adjusted discount rates

The adjusted quoted price and the actual selling price of comparable investment properties.

14 Property, plant and equipment

	Consolidated financial statements										(in thousand BnK)	
	Land and land improvement	Buildings and structures	Machinery and equipment for production	Tools and factory equipment	Office furniture, fixture and equipment	Vehicle	Major spare parts	Exploration assets	Assets under construction and installation	Total		
Cost												
At 1 January 2018	3,470,921	15,873,956	65,678,240	7,997,744	637,912	2,443,205	464,238	1,232,121	15,072,692	112,871,029		
Additions	1,492,940	72,835	199,152	498,726	18,697	822	10,640	12,637	3,415,651	5,722,100		
Transfers - net	939	1,146,528	6,741,685	62,831	4,508	-	(2,575)	-	(7,953,916)	-		
Disposals	-	(88,588)	(57,179)	(58,557)	(5,445)	-	-	-	-	(209,769)		
At 31 December 2018 and 1 January 2019	4,964,800	17,004,731	72,561,898	8,500,744	655,672	2,444,027	472,303	1,244,758	10,534,427	118,383,360		
Additions	4,233,450	94,575	364,938	308,200	31,728	17,583	-	119,684	4,809,533	9,979,691		
Transfers - net	-	1,034,708	9,289,814	42,290	8,439	767	(21,002)	-	(10,355,016)	-		
Disposals	-	(18,040)	(127,126)	(23,785)	(1,146)	(30,218)	-	-	-	(200,315)		
At 31 December 2019	9,198,250	18,115,974	82,089,524	8,827,449	694,693	2,432,159	451,301	1,364,442	4,988,944	128,162,736		
Depreciation and impairment losses												
At 1 January 2018	26	5,635,912	23,738,934	4,694,239	451,151	1,795,211	-	-	4,532	36,320,005		
Depreciation charge for the year	114	491,064	1,720,911	426,922	41,092	62,882	-	-	-	2,742,985		
Disposals	-	(56,104)	(32,334)	(41,798)	(5,312)	-	-	-	-	(135,548)		
At 31 December 2018 and 1 January 2019	140	6,070,872	25,427,511	5,079,363	486,931	1,858,093	-	-	4,532	38,927,442		
Depreciation charge for the year	224	532,684	2,071,508	439,223	40,041	63,640	-	-	-	3,147,320		
Disposals	-	(14,662)	(114,298)	(5,834)	(1,114)	(28,419)	-	-	-	(164,327)		
At 31 December 2019	364	6,588,894	27,384,721	5,512,752	525,858	1,893,314	-	-	4,532	41,910,435		
Net book value												
At 1 January 2018	3,470,895	10,238,044	41,939,306	3,303,505	186,761	644,050	464,238	1,232,121	15,068,160	76,547,080		
Owned assets	-	-	-	-	-	3,944	-	-	-	3,944		
Assets under finance lease	3,470,895	10,238,044	41,939,306	3,303,505	186,761	647,994	464,238	1,232,121	15,068,160	76,551,024		
At 31 December 2018 and 1 January 2019	4,964,660	10,933,859	47,134,387	3,421,381	168,741	582,573	472,303	1,244,758	10,529,895	79,452,557		
Owned assets	-	-	-	-	-	3,361	-	-	-	3,361		
Assets under finance lease	4,964,660	10,933,859	47,134,387	3,421,381	168,741	585,934	472,303	1,244,758	10,529,895	79,455,918		
At 31 December 2019	9,197,886	11,527,080	54,704,803	3,314,697	168,835	538,845	451,301	1,364,442	4,984,412	86,252,301		
Owned assets	-	-	-	-	-	-	-	-	-	-		
Assets under finance lease	9,197,886	11,527,080	54,704,803	3,314,697	168,835	538,845	451,301	1,364,442	4,984,412	86,252,301		

Separate financial statements										(in thousand Baht)
	Land and land improvement	Buildings and structures	Machinery and equipment for production	Tools and factory equipment	Office furniture, fixture and equipment	Vehicle	Major spare parts	Assets under construction and installation	Total	
Cost										
At 1 January 2018	2,972,894	14,905,884	49,538,757	7,727,021	536,190	2,407,044	376,077	2,465,779	80,929,646	
Additions	11,600	11,866	2,327	467,807	11,190	676	20,088	1,190,714	1,716,268	
Transfers - net	-	328,087	1,764,146	57,185	2,917	-	-	(2,152,335)	-	
Disposals	-	(49,912)	(31,477)	(56,569)	(2,396)	-	-	-	(140,354)	
At 31 December 2018 and 1 January 2019	2,984,494	15,195,925	51,273,753	8,195,444	547,901	2,407,720	396,165	1,504,158	82,505,560	
Additions	109,263	-	6,771	282,252	17,496	17,645	-	1,928,412	2,361,839	
Transfers - net	-	347,461	691,472	25,905	2,150	767	(44,415)	(1,023,340)	-	
Disposals	-	-	(16,028)	(21,683)	(1,116)	(30,213)	-	-	(69,040)	
At 31 December 2019	3,093,757	15,543,386	51,955,968	8,481,918	566,431	2,395,919	351,750	2,409,230	84,798,359	
Depreciation and impairment losses										
At 1 January 2018	-	5,105,665	18,806,220	4,547,302	368,548	1,763,892	-	-	30,591,627	
Depreciation charge for the year	-	397,954	1,033,856	404,766	34,901	59,387	-	-	1,930,864	
Disposals	-	(26,292)	(9,067)	(39,817)	(2,306)	-	-	-	(77,482)	
At 31 December 2018 and 1 January 2019	-	5,477,327	19,831,009	4,912,251	401,143	1,823,279	-	-	32,445,009	
Depreciation charge for the year	-	412,262	1,081,501	413,596	32,507	60,122	-	-	1,999,988	
Disposals	-	-	(3,721)	(3,934)	(1,100)	(28,414)	-	-	(37,169)	
At 31 December 2019	-	5,889,589	20,908,789	5,321,913	432,550	1,854,987	-	-	34,407,828	
Net book value										
At 1 January 2018	2,972,894	9,800,219	30,732,537	3,179,719	167,642	639,208	376,077	2,465,779	50,334,075	
Owned assets	-	-	-	-	-	3,944	-	-	3,944	
Assets under finance lease	2,972,894	9,800,219	30,732,537	3,179,719	167,642	643,152	376,077	2,465,779	50,338,019	
At 31 December 2018 and 1 January 2019	2,972,894	9,800,219	30,732,537	3,179,719	167,642	643,152	376,077	2,465,779	50,338,019	
Owned assets	2,984,494	9,718,598	31,442,744	3,283,193	146,757	581,081	396,165	1,504,159	50,057,191	
Assets under finance lease	-	-	-	-	-	3,360	-	-	3,360	
At 31 December 2019	2,984,494	9,718,598	31,442,744	3,283,193	146,757	584,441	396,165	1,504,159	50,060,551	
Owned assets	3,093,757	9,653,797	31,047,179	3,160,005	133,881	540,932	351,750	2,409,230	50,390,531	
Assets under finance lease	-	-	-	-	-	-	-	-	-	
At 31 December 2019	3,093,757	9,653,797	31,047,179	3,160,005	133,881	540,932	351,750	2,409,230	50,390,531	

The gross amount of the Group and the Company's fully depreciated plant and equipment that was still in use as at 31 December 2019 amounted to Baht 12,649 million and Baht 9,263 million, respectively (2018: Baht 12,222 million and Baht 8,921 million, respectively).

Security

At 31 December 2019 the Company's land, buildings, machinery and equipment with a net book value of Baht 5,259 million. (2018: Baht 23,807 million) are mortgaged or pledged as collateral for the long-terms loan.

Capitalised borrowing costs relating to the acquisition of the construction of new factory of the Group and the Company as at 31 December 2019 are Baht 108 million and Baht 47 million, respectively (2018: Baht 58 million and Baht 58 million, respectively), with capitalisation in the consolidated and separate financial statements of 2.1% - 5.3% (2018: 2.1% - 5.3%).

Impairment assessment for property plant and equipment

Two subsidiaries of the Company; TPI Polene Bio Organics Co., Ltd. and TPI All Seasons Co., Ltd. has continuous loss in operation which indicated the impairment in property, plant and equipment. The Group has assessed the recoverable amount base on value in use; determined by discounting future cash flows to be generated from the continuing use of assets. The key assumptions used to determine recoverable amount included sale volume and selling price, long-term growth rate derived from expectations of future outcomes taking into account past experience, adjusted for anticipated revenue growth and discount rate referred to weighted average cost of capital (WACC) of TPI Polene Bio Organics Co., Ltd. and TPI All Seasons Co., Ltd. at 8.10% and 10.05%, respectively (2018: 8.10% and 10.05%, respectively). Base on impairment assessment, the recoverable amount was estimated to be higher than its carrying amount and no impairment was required to the Company's financial statements. Increasing in discount rate and decreasing in long-term growth rate could cause the carrying amount to exceed the recoverable amount.

Exploration assets

For the exploration assets which the net book value as at 31 December 2019 of Baht 1,388 million (31 December 2018; Baht 1,245 million). In June 2019, a subsidiary has granted an extension of time until September 2020 for petroleum exploration. Base on the study of the consulting company and the assessment of a subsidiary, the area has high petroleum potential. If a subsidiary continues to explore and drill for the well, it is highly probable to find petroleum.

At present, the subsidiary is studying the potential of petroleum exploration to drill for the well by studying the information of existing well to identify the position of exist well. The management believe that the investment in the petroleum exploration of these two wells is still value according to the gas volumetric calculation in the CCOP Guidelines for Risk Assessment of Petroleum Prospect and the subsidiary is still in the process of exploration above. Hence, the cost associated with the exploration will be recognised as expense to profit or loss in the period when there is no discovery of proved reserves and no future exploration and assessment plan.

15 Intangible assets

(in thousand Baht)

Consolidated and Separate financial statements

	Cost of raw material resources and cost of concessions	Software licenses	Development assets	Total
Cost				
At 1 January 2018	735,687	59,329	38,628	833,644
Additions	500	-	-	500
At 31 December 2018 and 1 January 2019	736,187	59,329	38,628	834,144
Additions	1,000	54	-	1,054
At 31 December 2019	737,187	59,383	38,628	835,198
Amortisation				
At 1 January 2018	561,445	43,657	11,614	616,716
Amortisation for the year	31,803	1,734	7,721	41,258
At 31 December 2018 and 1 January 2019	593,248	45,391	19,335	657,974
Amortisation for the year	31,181	1,772	7,721	40,674
At 31 December 2019	624,429	47,163	27,056	698,648
Net book value				
At 1 January 2018	174,242	15,672	27,014	216,928
At 31 December 2018 and 1 January 2019	142,939	13,938	19,293	176,170
At 31 December 2019	112,758	12,220	11,572	136,550

16 Interest-bearing liabilities

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Current				
Bank overdrafts and short-term loans from financial institutions				
Unsecured	2,939,529	2,643,969	2,607,863	1,685,614
Current portion of long-term loans from financial institutions				
Secured	176,462	719,372	176,462	719,372
Unsecured	1,428,571	857,143	1,428,571	857,143
Current portion of debentures	7,205,000	7,750,000	7,205,000	7,750,000
Current portion of finance lease liabilities	-	775	-	775
Total current interest-bearing liabilities	11,749,562	11,971,259	11,417,896	11,012,904
Non-current				
Long-term loans from financial institutions				
Secured	555,733	4,092,535	555,733	4,092,535
Unsecured	2,428,571	2,142,857	2,428,571	2,142,857
Debentures	38,495,000	32,250,000	30,675,000	28,250,000
Total non-current interest-bearing liabilities	41,479,304	38,485,392	33,659,304	34,485,392
Total	53,228,866	50,456,651	45,077,200	45,498,296

The periods to maturity of interest-bearing liabilities, excluding finance lease liabilities, as at 31 December were as follows:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Within one year	11,749,562	11,970,484	11,417,896	11,012,129
After one year but within five years	38,479,304	37,051,577	30,659,304	33,051,577
After five years	3,000,000	1,433,815	3,000,000	1,433,815
Total	53,228,866	50,455,876	45,077,200	45,497,521

Secured interest-bearing liabilities as at 31 December were secured on the following net book value assets:

	Note	Consolidated and Separate financial statements	
		2018	2017
Land and buildings		1,355,480	6,067,625
Machinery and equipment		3,903,090	17,738,967
Total	14	5,258,570	23,806,592

As at 31 December 2019 the Group and the Company had unutilised credit facilities totalling Baht 153 million and Baht 108 million, respectively (2018: Baht 143 million and Baht 108 million, respectively).

Finance lease liabilities

Finance lease liabilities as at 31 December were payable as follows:

	Consolidated and separate financial statements					
	2019			2018		
	Future minimum lease payments	Interest	Present value of minimum lease payments	Future minimum lease payments	Interest	Present value of minimum lease payments
Within one year	-	-	-	1,716	941	775
Total	-	-	-	1,716	941	775

Loan from financial institutions

On 25 January 2013 and 26 March 2013, the Company had signed 4 facility agreements for investment in the Fourth Cement Plant Project. As at 31 December 2018, 3 facility agreements remained and total amount was equivalent to Baht 6,608 million. The Company fulfilled the condition precedent of the Facility Agreements which enable the Company to disburse the loan from such Facility Agreements since 27 March 2013, as following financial institutions:

1. Foreign financial institutions in the total amount of Euro 114.5 million covered by Euler Hermes Deutschland AG (German Export Credit Agency of the German Ministry of Finance);
2. Foreign financial institution in the total amount of Euro 26.4 million covered by the Office of National Du Ducroire or ONDD (Belgian Export Credit Agency); and
3. Foreign financial institution in the total amount of Euro 13.0 million covered by the Office of National Du Ducroire or ONDD (Belgian Export Credit Agency)

As at 31 December 2018, the Company had long-term loans from financial institutions of Baht 4,301 million for the project. Principal repayment shall be made in 6-12 years by half year repayment commencing the earlier of; 6 months from receiving of plant acceptance certificates or 3.5 years from the effective date of facility agreement. Interest rates for project is according to agreement rate (See note 35).

Long-term borrowings as mentioned above are secured by related land, buildings and equipment of each project. The credit utilisation agreements contain covenants with which the Group has to comply, pertaining to matters such as maintaining of certain financial ratios, maintaining of percentage of shares held by the major shareholder, and remaining as a public company listed on the Stock Exchange of Thailand.

As at 25 July 2019, the Company had fully repayment the above long-term loans from financial institutions.

On 22 November 2018, the Company entered into a loan agreement with a local financial institution for working capital and / or to repay the debt of the Company without collateral of Baht 3,000 million for a period of 3.5 years with equal repayment every 6 months from the first drawdown date. Interest rate is as specified in the contract. The loan agreement stipulates certain conditions that the Company must comply with, such as maintaining certain financial ratios, maintaining of percentage of shares held in a subsidiary and certain claims. As at 31 December 2019, loans from the said financial institution amounted of Baht 2,142 million (*2018: Baht 3,000 million*).

On 26 June 2019, the Company entered into a loan agreement with a local financial institution for working capital and / or to repay the debt of the Company without collateral of Baht 2,000 million for a period of 3.5 years with equal repayment every 6 months from the first drawdown date. Interest rate is as specified in the contract. The loan agreement stipulates certain conditions that the Company must comply with, such as maintaining certain financial ratios, maintaining of percentage of shares held in a subsidiary and certain claims. As at 31 December 2019, loans from the said financial institution amounted of Baht 1,714 million.

In addition, on 27 August 2019, the Company entered into a loan agreement with a local financial institution to repay the debt of the Company with collateral of Baht 728 million for a period of 5 years with equal repayment every 6 months from the first drawdown date. The first installment is due from August 2019. Interest rate is as specified in the contract. The loan agreement stipulates certain conditions that the Company must comply with, such as maintaining certain financial ratios, maintaining of percentage of shares held in a subsidiary and certain claims. As at 31 December 2019, loans from the said financial institution amounted of Baht 655 million.

Debentures

As at 31 December 2019, the Group and the Company had the unsecured, unsubordinated debentures in registered form with debentures holders' representative, payable quarterly totalling Baht 45,700 million and Baht 37,880 million, respectively (2018: Baht 40,000 million and Baht 36,000 million, respectively) as follows:

Issued Date	Consolidated financial statements							Term
	The period to maturity within one year		The period to maturity over one year		Total		Interest Rate	
	2019	2018	2019	2018	2019	2018		
	(in thousand Baht)							
22 January 2015	-	3,000,000	-	-	-	3,000,000	4.85	4 years
22 January 2015	3,000,000	-	-	3,000,000	3,000,000	3,000,000	5.20	5 years
5 August 2015	-	2,750,000	-	-	-	2,750,000	4.40	4 years
5 August 2015	2,205,000	-	-	2,205,000	2,205,000	2,205,000	4.65	5 years
5 August 2015	-	-	3,600,000	3,600,000	3,600,000	3,600,000	4.90	6 years
5 August 2015	-	-	4,000,000	4,000,000	4,000,000	4,000,000	5.20	7 years
1 April 2016	-	-	1,600,000	1,600,000	1,600,000	1,600,000	4.35	5 years
1 April 2016	-	-	1,200,000	1,200,000	1,200,000	1,200,000	4.60	6 years
1 April 2016	-	-	2,645,000	2,645,000	2,645,000	2,645,000	4.80	7 years
7 July 2017	-	2,000,000	-	-	-	2,000,000	3.20	2 years
7 July 2017	2,000,000	-	-	2,000,000	2,000,000	2,000,000	3.50	3 years
26 April 2018	-	-	8,000,000	8,000,000	8,000,000	8,000,000	3.30	3 years
28 November 2018	-	-	4,000,000	4,000,000	4,000,000	4,000,000	3.90	3 years
11 January 2019	-	-	3,530,000	-	3,530,000	-	4.10	3 years
1 March 2019	-	-	100,000	-	100,000	-	3.80	2 years
								10 months 30 days
11 July 2019	-	-	2,820,000	-	2,820,000	-	3.90	3 years 6 months
11 July 2019	-	-	3,000,000	-	3,000,000	-	4.90	5 years 6 months
9 August 2019	-	-	4,000,000	-	4,000,000	-	3.50	3 years 3 months
Total	7,205,000	7,750,000	38,495,000	32,250,000	45,700,000	40,000,000		

Issued Date	Separate financial statements						Interest Rate	Term
	The period to maturity within one year		The period to maturity over one year		Total			
	2019	2018	2019	2018	2019	2018		
	(in thousand Baht)							
22 January 2015	-	3,000,000	-	-	-	3,000,000	4.85	4 years
22 January 2015	3,000,000	-	-	3,000,000	3,000,000	3,000,000	5.20	5 years
5 August 2015	-	2,750,000	-	-	-	2,750,000	4.40	4 years
5 August 2015	2,205,000	-	-	2,205,000	2,205,000	2,205,000	4.65	5 years
5 August 2015	-	-	3,600,000	3,600,000	3,600,000	3,600,000	4.90	6 years
5 August 2015	-	-	4,000,000	4,000,000	4,000,000	4,000,000	5.20	7 years
1 April 2016	-	-	1,600,000	1,600,000	1,600,000	1,600,000	4.35	5 years
1 April 2016	-	-	1,200,000	1,200,000	1,200,000	1,200,000	4.60	6 years
1 April 2016	-	-	2,645,000	2,645,000	2,645,000	2,645,000	4.80	7 years
7 July 2017	-	2,000,000	-	-	-	2,000,000	3.20	2 years
7 July 2017	2,000,000	-	-	2,000,000	2,000,000	2,000,000	3.50	3 years
26 April 2018	-	-	8,000,000	8,000,000	8,000,000	8,000,000	3.30	3 years
11 January 2019	-	-	3,530,000	-	3,530,000	-	4.10	3 years
1 March 2019	-	-	100,000	-	100,000	-	3.80	2 years
								10 months 30 days
11 July 2019	-	-	2,820,000	-	2,820,000	-	3.90	3 years 6 months
11 July 2019	-	-	3,000,000	-	3,000,000	-	4.90	5 years 6 months
Total	7,205,000	7,750,000	30,675,000	28,250,000	37,880,000	36,000,000		

17 Trade accounts payable

	Note	Consolidated financial statements		Separate financial statements	
		2019	2018	2019	2018
Related parties	4	239,961	205,304	512,167	914,609
Other parties		2,295,649	2,796,494	1,795,315	1,995,610
Total		2,535,610	3,001,798	2,307,482	2,910,219

18 Other payables

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Accrued expenses	949,142	730,156	719,179	567,426
Deposit from sales	358,135	371,662	289,550	306,285
Guarantee and deposits	296,554	293,255	286,754	285,640
Retention payable	1,116,450	111,550	51,057	51,844
Machine Payable	386,971	1,503,525	22,158	72,565
Others	627,524	664,013	434,197	490,431
Total	3,734,776	3,674,161	1,802,895	1,774,191

19 Non-current provisions for employee benefits

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Non-current provision for:				
Post-employment benefits				
Defined benefit plan	2,337,557	1,541,170	1,970,539	1,298,077

Defined benefit plan

The Group and the Company operate a defined benefit plan based on the requirement of Thai Labour Protection Act B.E. 2541 (1998) to provide retirement benefits to employees based on pensionable remuneration and length of service. The defined benefit plans expose the Group to actuarial risks, such as longevity risk, interest rate risk and market (investment) risk.

Present value of the defined benefit obligations	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
At 1 January	1,541,170	1,443,775	1,298,077	1,228,884
Include in profit or loss:				
Current service cost and interest on obligation	108,906	83,955	83,125	66,693
Past service cost	502,617	-	428,925	-
Included in other comprehensive income				
Actuarial losses	245,792	40,542	207,436	29,323
Other				
Benefit paid	(60,928)	(27,102)	(47,024)	(26,823)
At 31 December	2,337,557	1,541,170	1,970,539	1,298,077

Actuarial losses recognised in other comprehensive income were mainly arose from the change of discount rate and future salary growth.

On 5 April 2019, the Labor Protection Act was amended to include a requirement that an employee, who is terminated after having been employed by the same employer for an uninterrupted period of twenty years or more, receives severance payment of 400 days of wages at the most recent rate. The Group has therefore amended its retirement plan in accordance with the changes in the Labor Protection Act in 2019. As a result of this change, the provision for retirement benefits as well as past service cost recognised increased.

Principal actuarial assumptions	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Discount rate	1.88 - 2.05	3.00 - 3.36	1.88 - 2.01	3.12 - 3.26
Future salary growth	4.17 - 7.64	3.50 - 7.68	5.15 - 7.64	5.20 - 7.68

Assumptions regarding future mortality have been based on published statistics and mortality tables.

At 31 December 2019, the weighted-average duration of the defined benefit obligation was 22 years (2018: 23 years).

Sensitivity analysis

Reasonably possible changes at the reporting date to one of the relevant actuarial assumptions, holding other assumptions constant, would have affected the defined benefit obligation by the amounts shown below.

	Consolidated financial statements		Separate financial statements	
	2019 Increase	2018 Decrease	2019 Increase	2018 Decrease
31 December 2019				
Discount rate (1% movement)	(245,820)	293,809	(204,195)	243,999
Future salary growth (1% movement)	253,303	(218,331)	210,559	(181,483)
31 December 2018				
Discount rate (1% movement)	(147,821)	175,527	(123,771)	146,867
Future salary growth (1% movement)	153,021	(132,393)	127,831	(110,620)

20 Share capital

	<i>Par value per share (in Baht)</i>	2019		2018	
		Number	Amount	Number	Amount
Authorised					
At 31 December					
- ordinary shares	1	<u>23,805,500</u>	<u>23,805,500</u>	<u>24,815,000</u>	<u>24,815,000</u>
Issued and paid-up					
At 1 January		20,190,000	20,190,000	20,190,000	20,190,000
- ordinary shares					
Reduction of shares	1	<u>(1,009,500)</u>	<u>(1,009,500)</u>	-	-
At 31 December					
- ordinary shares	1	<u>19,180,500</u>	<u>19,180,500</u>	<u>20,190,000</u>	<u>20,190,000</u>

21 Treasury shares

At the Board of Directors meeting held on 27 April 2018, it approved the Company's share repurchase for financial management purposes scheme, the maximum amount for the share repurchase is not greater than Baht 2,500 million, number of shares repurchased 1,009.50 million shares, at par value Baht 1 per share, or representing 5% of the total paid-up capital. The repurchase period has started from 16 July 2018 to 15 January 2019. The Company has completely repurchased the treasury shares of 1,009.50 million shares (2018: 857.81 million shares) at the total cost of Baht 1,983.89 million (2018: Baht 1,682.63 million).

And, on 24 July 2019, the Company registered to decrease capital totalling 1,009.50 million shares, at par value Baht 1 per share, by writing off the treasury shares that could not be sold through the Securities Exchange of Thailand on 17 July 2019 with the Ministry of Commerce and write-off all treasury shares and treasury shares reserve from equity.

22 Reserves

Reserves comprise:

Appropriations of profit and retained earnings

Legal reserve

Section 116 of the Public Companies Act B.E. 2535 requires that a public company shall allocate not less than 5% of its annual net profit, less any accumulated losses brought forward, to a reserve account ("legal reserve"), until this account reaches an amount not less than 10% of the registered authorised capital. The legal reserve is not available for dividend distribution.

Treasury shares reserve

The treasury shares reserve represents the amount appropriated from retained earnings equal to the cost of the Company's own shares held by the Company. The treasury shares reserve is not available for dividend distribution.

Other components of equity

Currency translation differences

The currency translation differences account within equity comprises all foreign currency differences arising from the translation of the financial statements of foreign operations.

Fair value changes in available-for-sale investments

The fair value changes in available-for-sale investments account within equity comprises the cumulative net change in the fair value of available-for-sale investments until the investments are derecognised or impaired.

Movements in reserves

Movements in reserves are shown in the statement of changes in equity.

23 Segment information and disaggregation of revenue

Management determined that the Group has four reportable segments which are the Group's strategic divisions for different products and services, and are managed separately because they require different technology and marketing strategies. The following summary describes the operations in each of the Group's reportable segments.

- Construction Materials
- Petrochemical & Chemicals
- Energy & Utilities
- Agriculture

Each segment's performance is measured based on segment profit before tax, as included in the internal management reports that are reviewed by the Group's CODM. Segment profit before tax is used to measure performance as management believes that such information is the most relevant in evaluating the results of certain segments relative to other entities that operate within these industries.

(a) Reportable segment results

	Consolidated Financial Statements						Reportable segment profit (loss) before income tax	
	Revenue from external customers		Inter-segment revenue		Total segment revenue			
	2019	2018	2019	2018	2019	2018	2019	2018
Construction Materials	20,670,418	19,993,749	10,667,876	13,088,749	31,338,294	33,082,498	(3,095,678)	(3,125,904)
Petrochemical & Chemicals	7,901,438	8,176,511	7,020,702	7,560,894	14,922,140	15,737,405	1,304,341	1,098,480
Energy & Utilities	8,364,041	6,698,253	2,207,160	921,554	10,571,201	7,619,807	4,708,789	3,859,628
Agriculture	104,666	124,648	135,302	14,116	239,968	138,764	(98,014)	(239,694)
Total	37,040,563	34,993,161	20,031,040	21,585,313	57,071,603	56,578,474	2,819,438	1,592,510
Other gain (loss)							(43,430)	4,577
							2,776,008	1,597,087
Elimination of inter-segment (gain) loss							(32,965)	46,096
Profit (loss) before income tax expense for the year							2,743,043	1,643,183

Timing of reportable segment revenue recognition of the Group is at a point in time.

(b) Reportable segment financial position

(in thousand Baht)

	Segment assets	
	2019	2018
Construction Materials	68,670,061	69,828,342
Petrochemical & Chemicals	8,154,426	8,529,204
Energy & Utilities	35,647,510	28,361,759
Agriculture	2,224,484	2,233,346
Others	565,995	463,552
	115,262,476	109,416,203
Unallocated assets	4,531,242	6,010,239
Total	119,793,718	115,426,442
Elimination of inter-segment assets	(5,425,573)	(4,938,518)
Total assets	114,368,145	110,487,924

(c) Disaggregation of revenue

(in thousand Baht)

	Separate financial statement Revenue from sale of goods	
	2019	2018
Construction Materials	19,968,216	18,838,743
Petrochemical & Chemicals	6,933,345	6,925,557
Total	26,901,561	25,764,300

Geographical segments

In presenting information on the basis of geographical segments, segment revenue is based on the geographical location of customers. Segment assets are based on the geographical location of the assets.

Geographical information

(in thousand Baht)

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Thailand	25,398,658	23,460,136	26,019,712	25,324,183
China	4,882,551	4,548,913	-	-
Bangladesh	845,823	1,155,077	-	-
Others	5,913,531	5,829,035	881,849	440,117
Total	37,040,563	34,993,161	26,901,561	25,764,300

The Group generates revenue from current assets located principally in Thailand.

24 Investment income

(in thousand Baht)

		Consolidated financial statements		Separate financial statements	
	Note	2019	2018	2019	2018
Dividend income					
Subsidiaries	4	-	-	1,995,499	2,556,952
Other parties		5	24	5	24
		5	24	1,995,504	2,556,976
Interest income					
Subsidiaries	4	-	-	15,785	13,282
Other parties		90,640	78,055	20,585	28,053
		90,640	78,055	36,370	41,335
Others					
Other investment income		15,480	3,118	23,753	18,486
		15,480	3,118	23,753	18,486
Total		106,125	81,197	2,055,627	2,616,797

25 Other income

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Rental trucks income	27,911	54,683	32,284	57,795
Income from sale of spare parts	19,012	74,710	30,492	86,590
Sale steam	65,312	8,556	8,274	8,556
Share services income	240	240	120,395	126,799
Waste disposal income	35,989	32,316	266,837	227,987
Others	402,018	403,234	241,535	166,997
Total	550,482	573,739	699,817	674,724

26 Cost of distributions and transportations

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Delivery expenses	2,307,914	2,504,187	2,120,418	2,280,103
Personnel expenses	885,081	745,267	763,680	611,948
Depreciation and amortisation	203,598	190,532	200,356	183,903
Maintenance expenses	56,169	65,772	52,889	60,486
Others	579,624	661,854	451,898	529,553
Total	4,032,386	4,167,612	3,589,241	3,665,993

27 Administrative expenses

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Personnel expenses	1,177,394	953,965	938,801	742,239
Depreciation and amortisation	41,671	28,356	17,561	15,731
Maintenance expenses	25,503	30,831	20,877	29,179
Others	866,683	784,028	421,196	612,435
Total	2,111,251	1,797,180	1,398,435	1,399,584

28 Employee benefit expenses

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Management				
Wages and salaries	346,889	346,944	288,530	290,308
Defined benefit plan	49,991	6,556	44,370	6,085
Others	46,762	46,310	26,256	27,661
	443,642	399,810	359,156	324,054
Other employees				
Wages and salaries	5,645,698	5,081,565	4,386,919	3,951,203
Defined benefit plan	561,532	77,399	467,680	60,608
Others	408,378	383,843	303,579	284,844
	6,615,608	5,542,807	5,158,178	4,296,655
Total	7,059,250	5,942,617	5,517,334	4,620,709

Defined contribution plans

The defined contribution plans comprise provident funds established by some companies of the Group for its employees. Membership to the funds is on a voluntary basis. Contributions are made monthly by the employees at rates ranging from 3% to 10% of their basic salaries and by the Company at rates ranging from 3% to 10% of the employees' basic salaries. The provident funds are registered with the Ministry of Finance as juristic entities and are managed by a licensed Fund Manager.

29 Expenses by nature

The statements of comprehensive income include an analysis of expenses by function. Expenses by nature disclosed in accordance with the requirements of various TFRS were as follows:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
<i>(in thousand Baht)</i>				
Included in cost of sales of goods:				
Changes in inventories of finished goods and work in progress	348,467	(530,431)	629,644	(620,956)
Raw materials and consumables used	13,467,106	13,922,624	7,423,332	7,999,823
Loss on decline in value of inventories	(35,374)	176,165	(35,374)	90,147
Depreciation of plant and equipment	2,915,350	2,538,724	1,795,369	1,745,859
Amortisation of intangible assets	27,376	26,631	27,376	26,631
Included in distribution costs:				
Depreciation of plant and equipment	195,876	182,811	192,635	176,181
Amortisation of intangible assets	7,721	7,721	7,721	7,721
Included in administrative expenses:				
Depreciation of plant and equipment	36,094	21,450	11,984	8,824
Amortisation of intangible assets	5,577	6,906	5,577	6,906

30 Finance costs

Finance costs		(in thousand Baht)			
		Consolidated financial statements		Separate financial statements	
	Note	2019	2018	2019	2018
Interest expense :					
Related party	4	-	-	1,475	3,914
Bank loans and overdrafts		236,171	152,568	232,259	130,248
Debentures		1,822,036	1,620,209	1,611,436	1,605,677
Total interest expense		2,058,207	1,772,777	1,845,170	1,739,839
Others		8,785	4,886	-	-
		2,066,992	1,777,663	1,845,170	1,739,839
Less: amounts included in the cost of qualifying assets:					
- Construction contracts work in progress	14	(107,969)	(58,305)	(47,456)	(58,305)
Net		1,959,023	1,719,358	1,797,714	1,681,534

31 Income tax

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
<i>(in thousand Baht)</i>				
Income tax recognised in profit or loss				
Current tax expense				
Current year	160,183	224,884	-	-
Adjustment for over provided in prior years	(41,536)	(26)	(48,717)	-
	118,647	224,858	(48,717)	-
Deferred tax expense				
Movements in temporary differences	(140,175)	(6,349)	(117,264)	(12,783)
	(140,175)	(6,349)	(117,264)	(12,783)
Total tax (income) expense	(21,528)	218,509	(165,981)	(12,783)

Income tax recognised in other comprehensive income

	Consolidated financial statements (in thousand Baht)					
	2019			2018		
	Before tax	Tax (expense) benefit	Net of tax	Before tax	Tax (expense) benefit	Net of tax
Net change in fair value of available-for-sale investment	(111)	25	(86)	(72)	16	(56)
Share of other comprehensive income (expense) of associates	(935)	-	(935)	(4,758)	-	(4,758)
Defined benefit plan actuarial losses	(245,792)	49,235	(196,557)	(40,542)	8,109	(32,433)
Total	(246,838)	49,260	(197,578)	(45,372)	8,125	(37,247)

	Separate financial statements (in thousand Baht)					
	2019			2018		
	Before tax	Tax (expense) benefit	Net of tax	Before tax	Tax (expense) benefit	Net of tax
Net change in fair value of available-for-sale investment	(126)	25	(101)	(80)	16	(64)
Defined benefit plan actuarial losses	(207,436)	41,487	(165,949)	(29,323)	5,864	(23,459)
Total	(207,562)	41,512	(166,050)	(29,403)	5,880	(23,523)

Reconciliation of effective tax rate

	Consolidated financial statements			
	2019		2018	
	Rate (%)	(in thousand Baht)	Rate (%)	(in thousand Baht)
Profit before income tax expense		2,743,043		1,643,183
Income tax using the Thai corporation tax rate	20	548,609	20	328,637
Income not subject to tax		(74,413)		(52,527)
Profit was derived from promoted activities		(826,049)		(621,313)
Expenses not deductible for tax purposes		61,544		93,813
Current year losses for which no deferred tax asset was recognised		310,317		469,925
Over provided in prior years		(41,536)		(26)
Total	(1)	(21,528)	13	218,509

	Separate financial statements			
	2019		2018	
	Rate (%)	(in thousand Baht)	Rate (%)	(in thousand Baht)
Profit before income tax expense		112,771		239,627
Income tax using the Thai corporation tax rate	20	22,554	20	47,925
Income not subject to tax		(442,711)		(540,233)
Profit was derived from promoted activities		(14,037)		(18,120)
Expenses not deductible for tax purposes		32,541		113,465
Current year losses for which no deferred tax asset was recognised		284,389		384,180
Over provided in prior years		(48,717)		-
Total	(147)	(165,981)	(5)	(12,783)

Deferred tax assets and liabilities At 31 December	Consolidated financial statements (in thousand Baht)			
	Assets		Liabilities	
	2019	2018	2019	2018
Total	1,287,865	1,122,445	(675,590)	(699,605)
Set off of tax	(616,012)	(630,373)	616,012	630,373
Net deferred tax assets (liabilities)	671,853	492,072	(59,578)	(69,232)

Deferred tax assets and liabilities**At 31 December****Separate financial statements***(in thousand Baht)*

	Assets		Liabilities	
	2019	2018	2019	2018
Total	1,129,127	991,975	(622,506)	(644,130)
Set off of tax	(622,506)	(644,130)	622,506	644,130
Net deferred tax assets	506,621	347,845	-	-

Movements in total deferred tax assets and liabilities during the year were as follows:

Consolidated financial statements*(in thousand Baht)*

	(Charged) / Credited to		
	At 1	Profit or	Other comprehensive
	January 2019	loss	income
			At 31
			December 2019
Deferred tax assets			
Allowance for doubtful account receivables	24,702	(3,507)	-
Allowance for decline in value of inventories	5,401	-	-
Allowance for impairment of assets	1,806	-	-
Provision for sales discount and sales promotional	8,100	5,271	-
Provision for employee benefit	300,248	109,310	49,235
Loss carry forward	778,644	9,880	-
Others	3,544	(4,794)	25
Total	1,122,445	116,160	49,260
Deferred tax liabilities			
Amortisation gap of concessions	(4,724)	601	-
Financial lease	(146,733)	4,795	-
Depreciation gap of assets	(466,207)	9,948	-
Property, plant and equipment	(81,941)	8,671	-
Total	(699,605)	24,015	-
Net	422,840	140,175	49,260

Consolidated financial statements*(in thousand Baht)*

	(Charged) / Credited to		
	At 1	Profit or	Other comprehensive
	January 2018	loss	income
			At 31
			December 2018
Deferred tax assets			
Allowance for doubtful account receivables	31,185	(6,483)	-
Allowance for decline in value of inventories	6,197	(796)	-
Allowance for impairment of assets	1,806	-	-
Provision for sales discount and sales promotional	7,059	1,041	-
Provision for employee benefit	281,016	11,123	8,109
Loss carry forward	794,424	(15,780)	-
Others	273	3,255	16
Total	1,121,960	(7,640)	8,125
Deferred tax liabilities			
Amortisation gap of concessions	(5,325)	601	-
Financial lease	(151,167)	4,434	-
Depreciation gap of assets	(466,492)	285	-
Property, plant and equipment	(90,610)	8,669	-
Total	(713,594)	13,989	-
Net	408,366	6,349	8,125

	Separate financial statements			(in thousand Baht)
	(Charged) / Credited to			
	At 1 January 2019	Profit or loss	Other comprehensive income	At 31 December 2019
Deferred tax assets				
Allowance for doubtful account receivables	16,386	(2,266)	-	14,120
Allowance for impairment of assets	900	-	-	900
Provision for sales discount and sales promotional	7,515	4,901	-	12,416
Provision for employee benefit	259,614	93,005	41,487	394,106
Loss carry forward	707,432	-	-	707,432
Others	128	-	25	153
Total	991,975	95,640	41,512	1,129,127
Deferred tax liabilities				
Amortisation gap of concessions	(4,724)	601	-	(4,123)
Financial lease	(86,259)	(86)	-	(86,345)
Depreciation gap of assets	(553,147)	21,109	-	(532,038)
Total	(644,130)	21,624	-	(622,506)
Net	347,845	117,264	41,512	506,621

	Separate financial statements			(in thousand Baht)
	(Charged) / Credited to			
	At 1 January 2018	Profit or loss	Other comprehensive income	At 31 December 2018
Deferred tax assets				
Allowance for doubtful account receivables	21,371	(4,985)	-	16,386
Allowance for impairment of assets	900	-	-	900
Provision for sales discount and sales promotional	6,657	858	-	7,515
Provision for employee benefit	245,776	7,974	5,864	259,614
Loss carry forward	707,432	-	-	707,432
Others	112	-	16	128
Total	982,248	3,847	5,880	991,975
Deferred tax liabilities				
Amortisation gap of concessions	(5,325)	601	-	(4,724)
Financial lease	(85,900)	(359)	-	(86,259)
Depreciation gap of assets	(561,841)	8,694	-	(553,147)
Total	(653,066)	8,936	-	(644,130)
Net	329,182	12,783	5,880	347,845

Deferred tax assets arising from unused tax losses allowance for impairment of investment that has not been recognised in the separate financial statements as at 31 December 2019 amounting to Baht 154 million (2018: Baht 154 million).

Deferred tax assets arising from unused tax losses that has not been recognised in the consolidated and separate financial statements as at 31 December 2019 amounting to Baht 1,253.1 million and Baht 953.1 million, respectively (2018: Baht 909.8 million and Baht 645.2 million, respectively).

The tax losses expire in 2020 to 2024. The deductible temporary differences do not expire under current tax legislation. Deferred tax assets have not been recognised in respect of these items because it is not probable that future taxable profit will be available against which the Group can utilise the benefits therefrom.

Recognition of deferred tax asset from tax loss

In 2019 and 2018, the Group has entered into several agreements for many projects. As a result, management estimates future taxable profits and, as at 31 December 2019, the Group recognised deferred tax assets from tax losses in the consolidated and separate financial statements amounting to Baht 779 million and Baht 707 million, respectively (2018: Baht 779 million and Baht 707 million, respectively) because management considered it probable that future taxable profits would be available against which such losses can be used.

32 Promotional privileges

By virtue of the provisions of the Industrial Investment Promotion Act of B.E. 2520, the Group has been granted privileges by the Board of Investment relating to petrochemical products, plastic film products, masterbatch, compound plastic, compound rubber, organic fertilizer, natural gas stations, power plants and fuel production from garbage and waste. The privileges granted include:

- exemption from payment of import duty on machinery and equipment approved by the Board;
- exemption from payment of corporate income tax for certain operations for a period of 3 - 8 years from the dates on which the income is first derived from such operations;
- a 50% reduction in the normal income tax rate on the net profit derived from certain operations for a period of 5 years, commencing from the expiry date in (b) above;
- a deduction of twice the actual transportation, electrical and water supply expenses for a period of 10 years from the respective revenues and a 25% reduction of the capital expenditure for the installation or the construction of the facilities in addition to the normal depreciation; and
- losses occur during the period could be carried forward 5 years commencing from the expiry date of the privileges to deducted from the profit that occur after the period of exemption of corporate income tax.

As a promoted company, the Group must comply with certain terms and conditions prescribed in the promotional certificates.

Summary of revenue from promoted and non-promoted businesses:

(in thousand Baht)

	Consolidated financial statements					
	2019			2018		
	Promoted business	Non-promote business	Total	Promoted business	Non-promote business	Total
Export sales	-	11,643,083	11,643,083	18,466	11,514,559	11,533,025
Local sales	9,004,205	36,424,315	45,428,520	5,737,955	39,307,496	45,045,451
Eliminations	(2,049,965)	(17,981,075)	(20,031,040)	(300,016)	(21,285,299)	(21,585,315)
Total	6,954,240	30,086,323	37,040,563	5,456,405	29,536,756	34,993,161

(in thousand Baht)

	Separate financial statements					
	2019			2018		
	Promoted business	Non-promote business	Total	Promoted business	Non-promote business	Total
Export sales	-	917,056	917,056	-	864,828	864,828
Local sales	152,460	25,832,045	25,984,505	336,185	24,563,287	24,899,472
Total	152,460	26,749,101	26,901,561	336,185	25,428,115	25,764,300

33 Basic earnings per share

The calculations of basic earnings per share for the years ended 31 December 2019 and 2018 were based on the profit for the years attributable to ordinary shareholders of the Company and the number of ordinary shares outstanding during the years, after adjusting the own shares held by subsidiaries. The calculations are as follows:

(in thousand Baht/thousand shares)

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Profit attributable to ordinary shareholders of the Company (basic)	1,393,525	323,781	278,752	252,410
Number of ordinary shares outstanding at 1 January	20,190,000	20,190,000	20,190,000	20,190,000
Effect of own shares held by subsidiaries	-	(172,861)	-	-
Effect of treasury shares	(1,008,278)	(53,774)	(1,008,278)	(53,774)
Weighted average number of ordinary shares outstanding (basic)	19,181,722	19,963,365	19,181,722	20,136,226
Earnings per share (basic) (in Baht)	0.073	0.016	0.015	0.013

34 Dividends

At the Board of Directors' meeting of the Company held on 28 November 2019, the Board of Directors' meeting passed a resolution to declare the interim dividend payment from the Company's retained earnings of Baht 0.03 per share, amounting to Baht 575.42 million. The dividend was paid to the shareholders in December 2019.

At the annual general meeting of the shareholders of the Company held on 29 April 2019, the shareholders approved the appropriation of dividend from the Company's retained earnings of Baht 0.02 per share, amounting to Baht 383.61 million. The dividend was paid to the shareholders in May 2019.

At the annual general meeting of the shareholders of the Company held on 25 April 2018, the shareholders approved the appropriation of dividend from the Company's retained earnings of Baht 0.02 per share, amounting to Baht 403.80 million. The dividend was paid to the shareholders in May 2018.

35 Financial instruments

Financial risk management policies

The Group is exposed to normal business risks from changes in market interest rates and currency exchange rates and from non-performance of contractual obligations by counterparties. The Group does not hold or issue derivatives for speculative or trading purposes.

Risk management is integral to the whole business of the Group. The Group has a system of controls in place to create an acceptable balance between the cost of risks occurring and the cost of managing the risks. The management continually monitors the Group's risk management process to ensure that an appropriate balance between risk and control is achieved.

Capital management

The Board of Directors' policy is to maintain a strong capital base so as to maintain investor, creditor and market confidence and to sustain future development of the business. The Board monitors the return on capital, which the Group defines as result from operating activities divided by total shareholders' equity, excluding non-controlling interests and also monitors the level of dividends to ordinary shareholders.

Interest rate risk

Interest rate risk is the risk that future movements in market interest rates will affect the results of the Group's operations and its cash flows because loan interest rates are mainly floating. The Group is primarily exposed to interest rate risk from its borrowings.

The effective interest rates of interest-bearing financial liabilities as at 31 December and the periods in which those liabilities mature or re-price were as follows:

		Consolidated financial statements			
	Effective Interest rate	Within 1 year	After 1 year but within 5 years	After 5 years	Total
2019	(% per annum)	(in thousand Baht)			
Current					
Bank overdrafts and short-term loans from financial institutions	1.09 to 3.61	2,939,529	-	-	2,939,529
Current portion of long-term loans from financial institutions	3.85, 3.875, MLR - 1.75, 3M EURIBOR+1.65	1,605,033	-	-	1,605,033
Current portion of debentures	3.30 to 5.20	7,205,000	-	-	7,205,000
Non-current					
Long-term loans from financial institutions	3.85, 3.875, MLR - 1.75, 3M EURIBOR+1.65	-	2,984,304	-	2,984,304
Debentures	3.30 to 5.20	-	35,495,000	3,000,000	38,495,000
Total		11,749,562	38,479,304	3,000,000	53,228,866
2018					
Current					
Bank overdrafts and short-term loans from financial institutions	2.10 to 3.15	2,643,969	-	-	2,643,969
Current portion of long-term loans from financial institutions	3.85, 3M EURIBOR+1.65, 6M EURIBOR+1.10, 6M USD LIBOR+2.20	1,576,515	-	-	1,576,515
Current portion of debentures	3.20 to 4.85	7,750,000	-	-	7,750,000
Non-current					
Long-term loans from financial institutions	3.85, 3M EURIBOR+1.65, 6M EURIBOR+1.10, 6M USD LIBOR+2.20	-	4,801,577	1,433,815	6,235,392
Debentures	3.30 to 5.20	-	32,250,000	-	32,250,000
Total		11,970,484	37,051,577	1,433,815	50,455,876
		Separate financial statements			
	Effective Interest rate	Within 1 year	After 1 year but within 5 years	After 5 years	Total
2019	(% per annum)	(in thousand Baht)			
Current					
Bank overdrafts and short-term loans from financial institutions	1.11 to 3.61	2,607,863	-	-	2,607,863
Current portion of long-term loans from financial institutions	3.85, 3.875, MLR - 1.75, 3M EURIBOR+1.65	1,605,033	-	-	1,605,033
Current portion of debentures	4.65 to 5.20	7,205,000	-	-	7,205,000
Non-current					
Long-term loans from financial institutions	3.85, 3.875, MLR - 1.75, 3M EURIBOR+1.65	-	2,984,304	-	2,984,304
Debentures	3.30 to 5.20	-	27,675,000	3,000,000	30,675,000
Total		11,417,896	30,659,304	3,000,000	45,077,200
2018					
Current					
Bank overdrafts and short-term loans from financial institutions	2.10 to 3.15	1,685,614	-	-	1,685,614
Current portion of long-term loans from financial institutions	3.85, 3M EURIBOR+1.65, 6M EURIBOR+1.10, 6M USD LIBOR+2.20	1,576,515	-	-	1,576,515
Current portion of debentures	3.20 to 4.85	7,750,000	-	-	7,750,000
Non-current					
Long-term loans from financial institutions	3.85, 3M EURIBOR+1.65, 6M EURIBOR+1.10, 6M USD LIBOR+2.20	-	4,801,577	1,433,815	6,235,392
Debentures	3.30 to 5.20	-	28,250,000	-	28,250,000
Total		11,012,129	33,051,577	1,433,815	45,497,521

Foreign currency risk

The Group is exposed to foreign currency risk relating to purchases and sales of goods, purchases of machine and equipment and loans which are denominated in foreign currencies.

At 31 December, the Group and the Company were exposed to foreign currency risk in respect of financial assets and liabilities denominated in the following currencies:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
<i>(in thousand Baht)</i>				
United States Dollars				
Cash and cash equivalents	542,416	1,238,379	38,932	48,694
Trade accounts receivable	1,054,706	1,062,718	1,649	37,343
Interest-bearing liabilities	(620,621)	(1,339,273)	(334,177)	(391,350)
Trade accounts payable	(235,545)	(423,766)	(205,938)	-
Other payables - machines	(364,235)	(1,452,649)	(1,010)	(33,006)
	376,721	(914,591)	(500,544)	(338,319)
EURO				
Cash and cash equivalents	1,500	305,935	601	305,030
Trade accounts receivable	16,828	14,651	-	-
Interest-bearing liabilities	(184,776)	(4,430,989)	(139,555)	(4,420,557)
Trade accounts payable	(50,284)	(7,860)	(8,698)	-
Other payables - machines	(21,148)	(52,835)	(21,148)	(39,559)
	(237,880)	(4,171,098)	(168,800)	(4,155,086)
Others				
Cash and cash equivalents	942	972	516	802
Trade accounts receivable	-	110,520	-	-
Trade accounts payable	(33,214)	(775)	(32,857)	-
Other payables - machines	-	(633)	-	-
	(32,272)	110,084	(32,341)	802
Gross financial position exposure	106,569	(4,975,605)	(701,685)	(4,492,603)
Currency forwards purchase				
-United States Dollar	-	876,062	-	-
-EURO	-	308,418	-	308,418
	-	1,184,480	-	308,418
Net exposure	106,569	(3,791,125)	(701,685)	(4,184,185)

Credit risk

Credit risk is the potential financial loss resulting from the failure of a customer or counterparty to settle its financial and contractual obligations to the Group as and when they fall due.

Management has a credit policy in place and the exposure to credit risk is monitored on an ongoing basis. Credit evaluations are performed on obtaining sufficient collateral from customers before commencing trading. The collateral include bank guarantees, bill of exchange aval by banks, cash guarantees, or the personal guarantee by a creditworthy person. At the reporting date there were no significant concentrations of credit risk. The maximum exposure to credit risk is represented by the carrying amount of each financial asset in the statement of financial position. However, due to the large number of parties comprising the Group's customer base, Management does not anticipate material losses from its debt collection.

Liquidity risk

The Group monitors its liquidity risk and maintains a level of cash and cash equivalents deemed adequate by management to finance the Group's operations and to mitigate the effects of fluctuations in cash flows.

Fair values of financial assets and liabilities

The following table shows the carrying amounts and fair values of financial assets and financial liabilities, including their levels in the fair value hierarchy for financial instruments measured at fair value. It does not include fair value information for financial assets and financial liabilities not measured at fair value if the carrying amount is a reasonable approximation of fair value.

Consolidated financial statements					
		Fair value			
	Carrying value	Level 1	Level 2	Level 3	Total
		(in thousand Baht)			
31 December 2019					
<i>Financial assets measured at fair value</i>					
Equity/debt securities held for trading	1,329,349	-	1,329,349	-	1,329,349
Debt securities held for trading (Private funds)	1,321,347	-	1,321,347	-	1,321,347
Equity/debt securities available-for-sale	1,422	223	1,199	-	1,422
<i>Financial liabilities not measured at fair value</i>					
Debt securities held to maturity	27,132	-	31,308	-	31,308
Current portion of debentures	7,205,000	-	7,242,318	-	7,242,318
Debentures	38,495,000	-	39,161,359	-	39,161,359
31 December 2018					
<i>Financial assets measured at fair value</i>					
Equity/debt securities held for trading	330,638	-	330,638	-	330,638
Debt securities held for trading (Private funds)	2,530,465	-	2,530,465	-	2,530,465
Equity/debt securities available-for-sale	1,533	349	1,184	-	1,533
Purchase foreign currency forward contracts	(14,442)	-	(14,442)	-	(14,442)
<i>Financial liabilities not measured at fair value</i>					
Debt securities held to maturity	353,690	-	356,237	-	356,237
Current portion of debentures	7,750,000	-	7,777,075	-	7,777,075
Debentures	32,250,000	-	32,490,049	-	32,490,049

		Separate financial statements			
		Fair value			
	Carrying value	Level 1	Level 2	Level 3	Total
(in thousand Baht)					
31 December 2019					
<i>Financial assets and financial liabilities measured at fair value</i>					
Equity securities available-for-sale	223	223	-	-	223
<i>Financial assets and financial liabilities not measured at fair value</i>					
Debt securities held to maturity	11,712	-	12,621	-	12,621
Current portion of debentures	7,205,000	-	7,242,318	-	7,242,318
Debentures	30,675,000	-	31,251,051	-	31,251,051
31 December 2018					
<i>Financial assets and financial liabilities measured at fair value</i>					
Equity securities available-for-sale	349	349	-	-	349
Purchase foreign currency forward contracts	(551)	-	(551)	-	(551)
<i>Financial assets and financial liabilities not measured at fair value</i>					
Debt securities held to maturity	28,675	-	28,820	-	28,820
Current portion of debentures	7,750,000	-	7,777,075	-	7,777,075
Debentures	28,250,000	-	28,473,301	-	28,473,301

Measurement of fair values

Valuation techniques

The following tables show the valuation techniques used in measuring Level 2 fair values.

Type	Valuation technique
Investments in marketable unit trusts classified as trading investments and available-for-sale investments	The net asset value as of the reporting date.
Debt securities held for trading/ Debt securities held to maturity	Thai Bond Market Association Government Bond Yield Curve as of the reporting date.
Debt securities held for trading (private fund)	<i>Market comparison/discounted cash flow:</i> The fair value is estimated considering (i) current or recent quoted prices for identical securities in markets that are not active and (ii) a net present value calculated using discount rates derived from quoted prices of securities with similar maturity and credit rating that are traded in active markets, adjusted by an illiquidity factor.

Type	Valuation technique
Debentures	A valuation technique incorporating observable market data which is adjusted with counterparty credit risk (excluding own credit risk) and other risks to reflect true economic value.
Forward exchange contracts	Forward pricing: The fair value is determined using quoted forward exchange rates at the reporting date and present value calculations based on high credit quality yield curves in the respective currencies.

36 Commitments with non-related parties

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
<i>(in thousand Baht)</i>				
Capital commitments				
<i>Contracted but not provided for</i>				
Agreements for construction, machine and equipment	<u>1,362,431</u>	<u>3,398,180</u>	<u>1,044,689</u>	<u>1,268,534</u>
Non-cancellable operating lease commitments				
Within one year	87,575	73,669	43,687	37,235
After one year but within five years	<u>110,196</u>	<u>92,088</u>	<u>58,111</u>	<u>49,494</u>
Total	<u>197,771</u>	<u>165,757</u>	<u>101,798</u>	<u>86,729</u>
Other commitments				
Unused letters of credit	1,117,349	787,187	578,349	181,900
Purchase agreement for raw material	287,600	263,446	287,600	-
Bank guarantees	<u>227,678</u>	<u>356,323</u>	<u>173,013</u>	<u>259,934</u>
Total	<u>1,632,627</u>	<u>1,406,956</u>	<u>1,038,962</u>	<u>441,834</u>

In addition, as at 31 December 2019, the Company has a commitment to transfer money to the Village Development Fund around the mining area of Baht 0.5 million per year (2018: Baht 0.5 million) according to the request for a concession in the totalling of Baht 11 million (2018: Baht 11.5 million).

37 Contingent liabilities

As at 31 December 2019, the Company had the major lawsuits as follows:

- 1) On 8 July 2015, Department of Primary Industries and Mines, Ministry of Industry, by the public prosecutor from Saraburi province, filed a lawsuit against the Company the Black Case No. SorWor.4/2559 of the Civil Court for violation in relation to its operation of mining outside its concession areas with damage claimed in the total amount of Baht 4,067 million (the public prosecutor amendment damage claim to amount of Baht 4,339 million). The Company opines that it has not committed any offence as accused by the public prosecutor. The above problem land, which has access to public way, is owned by other person, not by the Company. Later, the public prosecutor filed a motion to the Court requesting for the transfer of the case to the Civil Court. And the Court issued the order of joinder directing the said case and other related cases to be tried together with the Black Case No. SorWor.6/2559.

On 13 December 2019, the Civil Court issued a judgment on the Black Case No. SorWor.4/2559 (the Red Case No. SorWor.7/2562), the violation in relation to its operation of mining outside its concession area, that the Defendant has to either make a restitution of 31,522,374.26 tons of limestone and a specific performance of soil rehabilitation or pay damages of Baht 4,047 million with interest at 7.5% per year from the discovery date of the unlawful mining activity (24 July 2014) to the date that payment is made in full. The Court further held that the Defendant has to pay the Plaintiff their court fees and attorney fees.

The Company required the legal advisors to examine of the Claim Form, witness statements, exhibit list, testimonies of prosecution and defense witnesses in the trial. The legal advisors have the opinion that the Company should not be liable under the judgment because the Company has a right to appeal against the judgment of that Court with no liability in the suggestion of witnesses. The Company is in process to appeal against and stay the enforcement of the judgment within the period that allowed by the Court to extend the appeal (13 March 2020). The Company and the legal advisors are confident in the ratio and strength of factual and legal defences. The Company should not make a restitution of 31,522,374.26 tons of limestone and a specific performance of soil rehabilitation or pay damages of Baht 4,047 million with interest. The Company is confident that the Company's mining operation that there was no dishonest or unlawful reason for the Company

to do mining outside its concession area because the Company still has a stock of hundred million tons of limestone reserves in the Permitted Zone and must be use all of them within Permitted period. As at 31 December 2019, the Company is in process to appeal against the judgment and the outcome of lawsuit is not yet final, the Company has not recorded a provision for liability of lawsuit in the financial statements.

In addition on 24 March 2016, Department of Primary Industries and Mines, the Ministry of Industry, by the public prosecutor from Saraburi province, filed 2 lawsuits against the Company the Black Case No. SorWor.6/2559 for the violation in relation to its operation of mining outside its concession areas claiming for the damages having the additional claimed amount at Baht 328 million and SorWor.5/2559 for the breach of the terms and conditions of the Company's concession area claiming for the damages having the claimed amount at Baht 1,671 million. The Company opines that it is not guilty as claimed by the public prosecutor.

On 2 August 2019, the Civil Court issued a judgment on the Black Case No. SorWor.5/2559 (the Red Case No. SorWor.5/2562), the breach of the terms and conditions of the Company's concession area, that the Defendant has to either make a restitution of 12,484,023.50 tons of limestone and a specific performance of soil rehabilitation or pay damages of Baht 1,603 million with interest at 7.5% per year from the date of notification of cadastral survey report (31 August 2015) to the date that payment is made in full. The Court further held that the Defendant has to pay the Plaintiff their court fees and attorney fees.

The Company required the legal advisors to examine of the Claim Form, witness statements, exhibit list, testimonies of prosecution and defense witnesses in the trial. The legal advisors have the opinion that the Company should not be liable under the judgment because the Company has a right to appeal against the judgment of that Court with no liability in the suggestion of witnesses. The Company has appealed against and stayed the enforcement of the judgment on 3 December 2019. The Company and the legal advisors are confident in the ratio and strength of factual and legal defences. The Company should not make a restitution of 12,484,023.50 tons of limestone and a specific performance of soil rehabilitation or pay damages of Baht 1,603 million with interest. The Company is confident that the Company's mining operation that there was no dishonest or unlawful reason for the Company to do mining in the Buffer Zone because the Company still has a stock of hundred million tons of limestone reserves in the Permitted Zone and must be use all of them within Permitted period. The buffer zone is located within the premise designated in its concession area which the Company has already compensated for. Therefore, the right over the resources in the concession area shall be rightfully owned by the Company. As at 31 December 2019, the Company is in process to appeal against the judgment and the outcome of lawsuit is not yet final, the Company has not recorded a provision for liability of lawsuit in the financial statements.

In addition, on 13 December 2019, the Civil Court issued a judgment on the Black Case No. SorWor.6/2559 (the Red Case No. SorWor.8/2562), the violation in relation to its operation of mining outside its concession area, that the Defendant has to either make a restitution of 2,447,906.76 tons of limestone and a specific performance of soil rehabilitation or pay damages of Baht 314 million with interest at 7.5% per year from the discovery date of the unlawful mining activity (31 August 2015) to the date that payment is made in full. The Court further held that the Defendant has to pay the Plaintiff their court fees and attorney fees.

The Company required the legal advisors to examine of the Claim Form, witness statements, exhibit list, testimonies of prosecution and defense witnesses in the trial. The legal advisors have the opinion that the Company should not be liable under the judgment because the Company has a right to appeal against the judgment of that Court with no liability in the suggestion of witnesses. The Company is in process to appeal against and stay the enforcement of the judgment within the period that allowed by the Court to extend the appeal (13 March 2020). The Company and the legal advisors are confident in the ratio and strength of factual and legal defences. The Company should not make a restitution of 2,447,906.76 tons of limestone and a specific performance of soil rehabilitation or pay damages of Baht 314 million with interest. The Company is confident that the Company's mining operation that there was no dishonest or unlawful reason for the Company to do mining outside its concession area because the Company still has a stock of hundred million tons of limestone reserves in the Permitted Zone and must be use all of them within Permitted period. As at 31 December 2019, the Company is in process to appeal against the judgment and the outcome of lawsuit is not yet final, the Company has not recorded a provision for liability of lawsuit in the financial statements.

In addition on 2 March 2017, Department of Primary Industries and Mines, Ministry of Industry, by the public prosecutor from Office of the Attorney General, filed a lawsuit against the Company the Black Case No. SorWor.1/2560 of the Civil Court for the breach of the terms and conditions of the Company's concession area and the violation in relation to its operation of mining outside its concession areas claiming for the damages having the claimed amount at Baht 345 million. The Company opines that it has not committed any offence as accused by the public prosecutor.

In addition, on 13 December 2019, the Civil Court issued a judgment on the Black Case No. SorWor.1/2560 (the Red Case No. SorWor.6/2562), the breach of the terms and conditions of the Company's concession area and the violation in relation to its operation of mining outside its concession area, that the Defendant has to either make a restitution of 1,220,559.82 tons of shale and a specific performance of soil rehabilitation or pay damages of Baht 326 million with interest at 7.5% per year from the date of violation of mining (2 June 2016) to the date that payment is made in full. The Court further held that the Defendant has to pay the Plaintiff their court fees and attorney fees.

The Company required the legal advisors to examine of the Claim Form, witness statements, exhibit list, testimonies of prosecution and defense witnesses in the trial. The legal advisors have the opinion that the Company should not be liable under the judgment because the Company has a right to appeal against the judgment of that Court with no liability in the suggestion of witnesses. The Company is in process to appeal against and stay the enforcement of the judgment within the period that allowed by the Court to extend the appeal (13 March 2020). The Company and the legal advisors are confident in the ratio and strength of factual and legal defences. The Company should not make a restitution of 1,220,559.82 tons of shale and a specific performance of soil rehabilitation or pay damages of Baht 326 million with interest. The Company is confident that the Company's mining operation that there was no dishonest or unlawful reason for the Company to do mining in the Buffer Zone and outside its concession area because the Company still has a stock of hundred million tons of shale reserves in the Permitted Zone and must be use all of them within Permitted period. The buffer zone is located within the premise designated in its concession area which the Company has already compensated for. Therefore, the right over the resources in the concession area shall be rightfully owned by the Company. As at 31 December 2019, the Company is in process to appeal against the judgment and the outcome of lawsuit is not yet final, the Company has not recorded a provision for liability of lawsuit in the financial statements.

In addition on 21 June 2018, Department of Primary Industries and Mines, Ministry of Industry, by the public prosecutor from Office of the Attorney General, filed a lawsuit against the Company the Black Case No. SorWor.2/2561 of the Civil Court for the violation in relation to its operation of mining that the connection areas with the Black Case No. SorWor.1/2560; whereby, in this case, the Company has already been granted with permission from relevant responsible authority to dig well in the ground within area of land in which Certificate of Utilization (Nor. Sor. 3 Kor.) was issued, and used the soil obtained from digging of said well, to fill the road. The Plaintiff, however, brought the lawsuit against the Company and accused the Company of conducting mining operation over said land without permission and demanded that the Company fill the said land restore the land to its original condition to preserve the environment or else, the Company is demanded to pay damage claim in the total amount of Baht 72 million. The Company opines that it has not committed any offence as accused by the public prosecutor. The court specified a hearing date for settlement of issue to be taken on 18 March 2019. On the above date, the Court settled issues and specified the Plaintiff's witness and Defendant's. At present, the witness hearing procedure has already completed. The Court has scheduled to announce the Court decision on 24 March 2020. The outcome of lawsuit is uncertain because this case is in process of consideration by the Court.

- 2) On 2 June 2017, The Central Administrative Court summoned the Company to be an interpleader of the case where a temple has filed a lawsuit against the government authorities. It has been claimed that the issuance of a mining concession certificates to the Company is not legitimate, therefore, it has requested for the revocation of such mining concession certificates. The Company has filed the answer to the plaint on 6 October 2017. The Central Administrative Court accepted the interpleader's answer and delivered the same to the Plaintiff in order for the Plaintiff to prepare objection statement to the interpleader's answer and submitted the same to the Court within a specified period of time. The Central Administrative Court delivered the objection statement to the interpleader's answer to the Company as the interpleader and the Company submit the additional answer to the objection statement to the interpleader's answer to the Central Administrative Court on 2 March 2018. This case is thus pending a view by the Central Administrative Court.
- 3) On 20 June 2019, A temple sued the government agency, government official, the Company and other relevant to revoke the motion for the permission of a mining concession which had been submitted by the Company and the process is pending consideration of the government agency. The temple has an accuse for the revocation of such motion that the submission of such motion is illegal. The temple also requested for a temporary protection during the trial. On 18 September 2019, the Court had a written order to accept the case for some of the accused including the Company. The Court also ordered that the request for a temporary protection during the trial has not approved. The Court's order shall be informed to the Company in order that the Company will prepare the answer to the Court within the prescribed time period. At present, the Company is preparing the answer against the charge which the Court accepted. The legal advisor has an opinion that the Company has submitted the motion for permission legally and such motion is pending consideration of the government agency.

- 4) On 16 December 2019, individuals in total of 222 people sued Energy Regulatory Commission (ERC) et al to the Central Administrative Court which a subsidiary was listed as the 5th Defendant. The Plaintiffs requested that the approval of Environmental and Health Impact Assessment (EHIA) report for the project of 150 megawatts thermal power plant, the license to operate electricity generating business and the construction approval of the subsidiary be revoked. The Plaintiffs also requested that the Court take evidence out of Court and issued an interim measure and ordering that the electricity generating system be temporarily stopped until the final decision is reached.

On 25 December 2019, the Court inquired both Parties in considering the request for interim measure and rendered its decision on 28 January 2020 denied the request for interim measure.

Subsequently, on 31 January 2020, the Court ordered to accept the complaint and request the subsidiary to file the answers within the time limit. The case is under the preparation of answers.

The subsidiary's legal consultant considered the complaint and its appendixes and hereby opines that the subsidiary lawfully received the license to operate the electricity generating business and the construction approval from the competent authorities. The complaint of the Plaintiffs is untrue. As the case is in the preparation for answer, the subsidiary has causes to relieve itself of any liability generated from the complaint depending on the Central Administrative Court Decision. Moreover, the subsidiary has pressed charges against the 222 Plaintiffs to the Muak Lek police station, Saraburi, for taking the false information to charge the person in the Court. The case is under the investigation of the police.

For all above lawsuit, the Group's legal consultant opines that, based on the Company's evidences and information, the Company has a chance to defend itself in the court trial depending on the consideration of each courts.

38 Events after the reporting period

- 1) On 16 January 2020, the Company issued the unsecured, unsubordinated debentures in registered form with debenture holders' representatives with the maturity term of 3 years together with a fixed interest rate at 3.50% per annum, payable quarterly in the amount of Baht 4,400 million.
- 2) At the Board of Directors meeting held on 30 January 2020, it approved the Company's share repurchase for financial management purposes scheme, the maximum amount for the share repurchase is not greater than Baht 800 million, number of shares repurchased 383.61 million shares, at par value Baht 1 per share, or representing 2% of the total paid-up capital. The repurchase period has started from 14 February 2020 to 13 August 2020. The Company has repurchased the shares under the program until 25 February 2020 of 24.54 million shares at a total cost of Baht 38.14 million.

39 Thai Financial Reporting Standards (TFRS) not yet adopted

New and revised TFRS, which are relevant to the Group's operations, expected to have material impact on the consolidated and separate financial statements when initially adopted, and will become effective for the financial statements in annual reporting periods beginning on or after 1 January 2020, are as follows:

TFRS	Topic
TFRS 7*	Financial Instruments: Disclosures
TFRS 9*	Financial Instruments
TFRS 16	Leases
TAS 32*	Financial Instruments: Presentation
TFRIC 16*	Hedges of a Net Investment in a Foreign Operation
TFRIC 19*	Extinguishing Financial Liabilities with Equity Instruments

* TFRS - Financial instruments standards

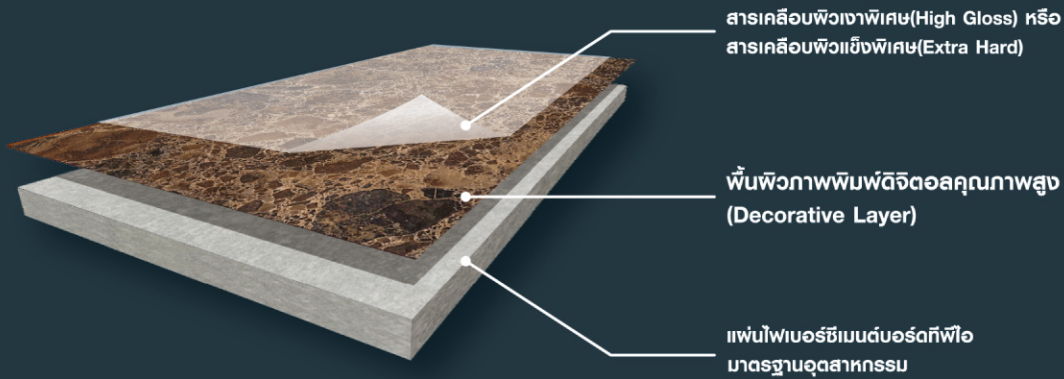
(a) TFRS - Financial instruments standards

These TFRS - Financial instruments standards establish requirements related to definition, recognition, measurement, impairment and derecognition of financial assets and financial liabilities, including accounting for derivatives and hedge accounting. When these TFRS are effective, some accounting standards, interpretations and guidance which are currently effective will be cancelled.

(b) TFRS 16 Leases

TFRS 16 introduces a single lessee accounting model for lessees. A lessee recognises a right-of-use asset and a lease liability, with recognition exemptions for short-term leases and leases of low-value items. As a result, the Group will recognise new assets and liabilities for its operating leases. As at 31 December 2019, the Group's and the Company's future minimum lease payments under non-cancellable operating leases amounted to Baht 541.61 million and Baht 217.47 million, respectively, on an undiscounted basis. Lease accounting for lessor remains similar to the current standard, i.e. lessors continue to classify leases as finance or operating leases. When this TFRS is effective, some accounting standards and interpretations which are currently effective will be cancelled.

Management is currently considering the potential impact from these TFRS on the financial statements in the initial period adopted.



นวัตกรรมใหม่ล่าสุดผสานความแข็งแรงของผลิตภัณฑ์ Fiber Cement กับระบบการพิมพ์สี Digital ทำให้เกิดลวดลายเสมือนหินอ่อน สร้างมิติใหม่ให้กับวงการตกแต่งบ้าน ช่วยให้บ้านของคุณ สวยงาม เลือค่า ดูการตกแต่งด้วยวัสดุจากธรรมชาตินอกจากนี้ แผ่นตกแต่งลายหินอ่อน สามารถลดรอยต่อระหว่างแผ่น ทำให้ลวดลายมีความต่อเนื่องไร้จุดสะดุด



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