

ANNUAL REPORT 2018



**TO BE A WORLD CLASS CHEMICAL COMPANY
MAKING GREAT PRODUCTS FOR SOCIETY**

Industry Leading R&D

Our world-class research facilities are led by the best teams in the industry, enabling IVL to continuously innovate to provide solutions today to tomorrow's questions.



Vision Mission Value

Vision

To be a world-class chemical company making great products for society.

Mission

We commit to be a responsible industry leader leveraging on the excellence of our people, processes, and technologies to create value for our stakeholders.

Values

The customer is why we exist.

We measure ourselves by our customers' success. Through unparalleled innovation and attention to quality we aim to exceed their expectations.

Our people make the difference.

A company is its people and people provide the competitive advantage. We respect every voice and rely on one another to grow.

We see change as an opportunity.

The business landscape is constantly evolving. We embrace the challenges of change to be world-class and maintain our differentiation.

Diversity is our strength.

As a global company we value the variety of knowledge, perspectives and experiences in our organization, and draw strength from these to fuel our competitiveness.

We are responsible.

In our pursuit of business growth and profitability we do things the right way- economically, socially, and environmentally.



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PERFORMANCE HIGHLIGHTS



PERFORMANCE HIGHLIGHTS

	USD Million		
	2016	2017	2018
Production Volume (kt)	8,729	9,103	10,419
Consolidated Revenue ^{1,2}	7,215	8,438	10,741
Core EBITDA³	775	1,004	1,441
PET	286	296	588
Fibers	205	208	240
Feedstock	271	501	613
<i>New Segments</i>			
Integrated PET	384	414	791
Olefins	65	145	232
Fibers	176	181	211
Packaging	29	37	48
Specialty Chemicals	108	229	158
Core EBIT	462	647	1,000
Core Net Profit after Tax and NCI⁴	274	459	789
Core Net Profit after Tax and NCI (THBm)	9,653	15,576	25,488
Reported EPS after PERP Interest (THB)	3.15	3.98	4.61
Core EBITDA/ton (\$)	89	110	138
Operating Cash Flow⁵	707	852	989
Net Debt to Equity (times)	1.06	0.75	0.87

¹ Consolidated financials are based upon elimination of intra-company (or intra-business segment) transactions

² Total of each segment may not always tally with consolidated financials due to holding segment

³ Core EBITDA is Reported EBITDA less Inventory gains/(losses)

⁴ Core Net Profit is Reported Net Profit less Inventory gains/(losses) one-time extraordinary items

⁵ Operating Cash Flow is after change in net working capital and cash tax, before maintenance capex

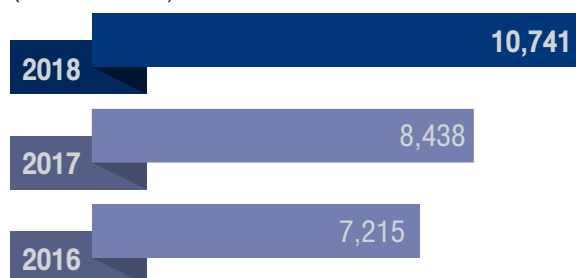
	USD Million		
	2016	2017	2018
Core Net Profit after Tax and NCI	274	459	789
Inventory gain (loss)	7	37	17
Total tax on Inventory gain/(loss)	(2)	(5)	(8)
Net profit, before extraordinary items	279	491	798
Add: Non Operational/Extraordinary income/(expense)	180	124	21
Acquisition cost & pre-operative expense	(5)	(16)	(35)
Gain on Bargain Purchases, impairments and feasibility study (Net)*	171	41	58
Other Extraordinary Income/(Expense)	14	99	(2)
= Net profit after tax and NCI	459	615	819

* A gain on bargain purchase needs to be accounted for on completion of any acquisition under Thai Accounting Standards.

PERFORMANCE CHARTS

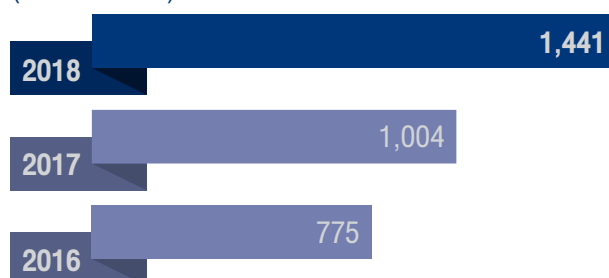
Net Sales

(USD Million)



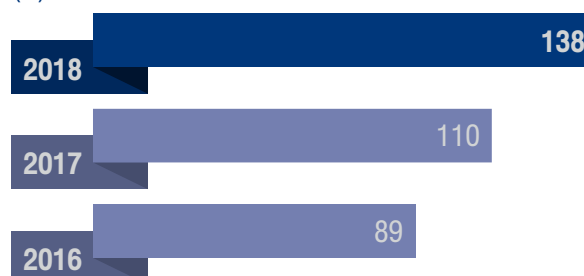
CORE EBITDA

(USD Million)



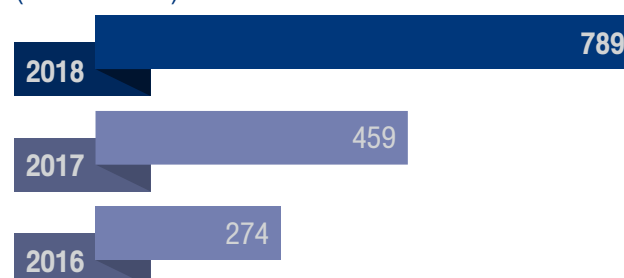
CORE EBITDA/ton

(\$)



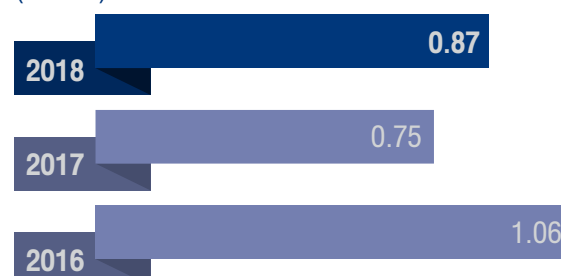
Core Net Profit after Tax and NCI

(USD Million)



Net Debt to Equity

(Times)



FINANCIAL HIGHLIGHTS

The following table sets forth summary of the consolidated financial statements of Indorama Ventures Public Company Limited from 2016 to 2018

Statements of Financial Position (Consolidated Financial Statements)

Unit: Baht million	As of December 31					
	2016	%	2017	%	2018	%
Assets						
Current assets						
Cash and cash equivalents	4,025.6	1.6	6,877.0	2.4	5,578.4	1.5
Current investments	114.7	0.0	138.0	0.0	134.3	0.0
Trade accounts receivable	31,085.5	12.0	32,098.2	11.4	37,636.6	9.9
Other receivables	861.4	0.3	1,056.8	0.4	1,324.6	0.3
Short-term loans to related parties	434.2	0.2	155.6	0.1	170.9	0.0
Inventories	40,458.9	15.7	46,036.5	16.3	70,085.3	18.5
Other current assets	7,515.0	2.9	6,590.8	2.3	9,354.1	2.5
Total current assets	84,495.3	32.7	92,953.0	32.9	124,284.2	32.8
Non-current assets						
Investments in joint ventures	5,529.8	2.1	6,247.1	2.2	5,294.0	1.4
Other long-term investments	90.0	0.0	14.9	0.0	15.2	0.0
Long-term loans to related parties	127.0	0.0	53.1	0.0	42.6	0.0
Property, plant and equipment	136,860.3	53.0	151,202.0	53.5	205,182.4	54.1
Goodwill	9,654.8	3.7	9,837.7	3.5	15,210.0	4.0
Other intangible assets	17,602.2	6.8	18,027.2	6.4	25,139.3	6.6
Deferred tax assets	2,233.5	0.9	2,620.5	0.9	2,713.9	0.7
Other non-current assets	1,787.5	0.7	1,402.8	0.5	1,313.2	0.3
Total non-current assets	173,885.1	67.3	189,405.4	67.1	254,910.6	67.2
Total assets	258,380.5	100.0	282,358.4	100.0	379,194.8	100.0
Liabilities and equity						
Current liabilities						
Bank overdrafts and short-term loans from financial institutions	9,205.6	3.6	6,115.1	2.2	31,272.0	8.2
Trade accounts payable	37,316.1	14.4	39,301.4	13.9	54,564.8	14.4
Current portion of long-term loans from financial institutions	4,403.6	1.7	6,167.8	2.2	8,626.7	2.3
Current portion of debentures	5,499.3	2.1	2,728.8	1.0	3,013.1	0.8
Current portion of finance lease liabilities	7.6	0.0	48.5	0.0	110.2	0.0
Income tax payable	1,189.9	0.5	1,327.3	0.5	2,974.1	0.8
Other current liabilities	8,239.4	3.2	9,932.5	3.5	13,139.1	3.5
Total current liabilities	65,861.5	25.5	65,621.6	23.2	113,700.1	30.0

Unit: Baht million	As of December 31					
	2016	%	2017	%	2018	%
Non-current liabilities						
Long-term loans from financial institutions	51,167.9	19.8	42,329.1	15.0	34,640.0	9.1
Debentures	31,789.8	12.3	38,116.8	13.5	58,604.3	15.5
Finance lease liabilities	12.4	0.0	278.9	0.1	498.1	0.1
Deferred tax liabilities	14,796.0	5.7	13,138.6	4.7	15,788.5	4.2
Employee benefit obligations	2,027.8	0.8	2,209.6	0.8	2,327.2	0.6
Other non-current liabilities	910.0	0.4	1,677.1	0.6	1,781.3	0.5
Total non-current liabilities	100,704.0	39.0	97,750.1	34.6	113,639.4	30.0
Total liabilities	166,565.5	64.5	163,371.7	57.9	227,339.5	60.0
Equity						
Share capital						
Authorised share capital	5,666.0	2.2	5,666.0	2.0	5,666.0	1.5
Issued and paid-up share capital	4,814.3	1.9	5,245.4	1.9	5,614.6	1.5
Additional paid in capital:						
Share premium	29,775.1	11.5	44,848.2	15.9	60,331.4	15.9
Unrealised surpluses (deficits)						
Hedging reserve	(52.4)	(0.0)	305.1	0.1	(157.2)	(0.0)
Currency translation differences	1,491.2	0.6	(2,639.6)	(0.9)	(6,638.2)	(1.8)
Excess of cost over book value of acquired subsidiaries	(3,290.8)	(1.3)	(2,862.3)	(1.0)	(2,973.7)	(0.8)
Differences arising from common control transactions	(1,235.6)	(0.5)	(1,235.6)	(0.4)	(1,235.6)	(0.3)
Retained earnings						
Appropriated						
Legal reserve	2,327.1	0.9	2,956.8	1.0	3,207.1	0.8
Unappropriated	40,352.4	15.6	55,569.5	19.7	71,815.3	18.9
Equity attributable to shareholders	74,181.3	28.7	102,187.6	36.2	129,963.7	34.3
Subordinated perpetual debentures	14,874.1	5.8	14,874.1	5.3	14,874.1	3.9
Equity attributable to equity holders	89,055.4	34.5	117,061.7	41.5	144,837.8	38.2
Non-controlling interests	2,759.6	1.1	1,925.0	0.7	7,017.6	1.9
Total equity	91,814.9	35.5	118,986.7	42.1	151,855.4	40.0
Total liabilities and equity	258,380.5	100.0	282,358.4	100.0	379,194.8	100.0

Statements of Income (Consolidated Financial Statements)

Unit: Baht million	For the year ended December 31					
	2016	%	2017	%	2018	%
Income						
Revenue from sale of goods	254,619.5	100.0	286,332.3	100.0	347,170.9	100.0
Net foreign exchange gain	543.1	0.2	0.0	0.0	586.2	0.2
Interest income	124.4	0.0	102.4	0.0	247.2	0.1
Gain on a bargain purchase	6,698.6	2.6	3,672.7	1.3	1,928.5	0.6
Other income	1,459.5	0.6	1,160.2	0.4	1,952.6	0.6
Total income	263,445.1	103.5	291,267.7	101.7	351,885.4	101.4
Expenses						
Cost of sale of goods	218,197.7	85.7	240,888.6	84.1	289,232.0	83.3
Selling and administrative expenses	21,679.0	8.5	25,766.7	9.0	28,593.1	8.2
Management benefit expenses	143.7	0.0	136.9	0.0	190.8	0.1

Unit: Baht million	For the year ended December 31					
	2016	%	2017	%	2018	%
Impairment losses	607.9	0.2	899.4	0.3	78.0	0.0
Net foreign exchange loss	-	0.0	61.9	0.0	0.0	0.0
Total expenses	240,628.4	94.5	267,753.5	93.5	318,093.8	91.6
Share of losses of investments in joint ventures, net	(173.1)	(0.1)	28.4	0.0	585.9	0.2
Profit before finance costs and income tax expense	22,643.7	8.9	23,542.6	8.2	34,377.4	9.9
Finance costs	4,222.3	1.7	3,864.5	1.3	4,227.4	1.2
Profit before income tax expense	18,421.3	7.2	19,678.1	6.9	30,150.0	8.7
Income tax expense	2,062.1	0.8	(1,400.2)	(0.5)	3,812.4	1.1
Profit for the year	16,359.2	6.4	21,078.3	7.4	26,337.6	7.6
Attributable to:						
Owners of the Company	16,197.1	6.4	20,882.9	7.3	26,465.4	7.6
Non-controlling interests	162.1	0.1	195.4	0.1	(127.8)	(0.0)
Profit for the year	16,359.2	6.4	21,078.3	7.4	26,337.6	7.6
Earnings per share (in Baht)	3.15		3.98		4.61	
Core earnings per share (in Baht)*	1.79		2.91		4.43	

*Core financials are calculated as reported financials less Inventory gain/ (loss) and less extraordinary items, if any to reflect operations before any extraordinary items.

Cash Flow Statement (Consolidated Financial Statements)

Unit: Baht million	For the year ended December 31		
	2016	2017	2018
Cash flows from operation activities			
Profit for the year	16,359.2	21,078.3	26,337.6
<i>Adjustment for</i>			
Depreciation	9,626.6	10,678.8	12,161.2
Amortisation of intangible assets and other assets	1,438.8	1,560.0	2,112.1
Interest income	(124.4)	(102.4)	(247.2)
Gain on bargain purchases	(6,698.6)	(3,672.7)	(1,928.5)
Gain on partial disposal of interest in subsidiary with a change in control	(30.2)	-	(1.4)
Share of net (profit) Losses of joint ventures	173.1	(28.4)	(585.9)
Finance costs	4,222.3	3,864.5	4,227.4
Unrealised foreign exchange (gain) loss	(311.9)	45.1	39.7
Provision for bad and doubtful debts expenses, net	30.4	1,978.6	23.9
Reversal of losses on inventories devaluation	(67.1)	(37.4)	345.9
Provision for impairment on property, plant and equipment	501.3	427.6	49.8
Provision for impairment on intangible assets	106.6	-	-
Reversal of unrecoverable advances payment for project	(432.9)	-	-
Employee benefits expense	294.8	268.2	397.0
Reversal of decommissioning liabilities	(221.2)	-	-
Loss on disposal of property, plant and equipment, net	9.3	6.0	(6.5)
Loss on written-off of property, plant and equipment	-	471.8	28.1
Income tax expense	2,062.2	(1,400.2)	3,812.4
	26,938.3	35,137.8	46,765.7
<i>Changes in operating assets and liabilities</i>			
Trade accounts receivable	(236.1)	(895.5)	(596.3)
Inventories	(2,633.0)	(3,672.2)	(18,054.9)

Unit: Baht million	For the year ended December 31		
	2016	2017	2018
Other current assets	(547.4)	693.9	(818.0)
Other non-current assets	(17.9)	732.1	1,269.4
Trade accounts payable	3,613.7	35.8	8,149.8
Other current liabilities	(217.6)	(897.3)	(1,354.3)
Other non-current liabilities	(504.1)	198.7	20.6
Employee benefits obligation	(186.9)	(178.9)	(215.9)
Income taxes paid	(1,262.8)	(2,247.4)	(3,185.5)
Net cash from (used in) operating activities	24,946.2	28,906.8	31,980.6
Cash flows from investing activities			
Interest received	134.4	122.5	250.6
Acquisition of property, plant and equipment	(13,411.4)	(19,773.6)	(16,353.0)
Proceeds from sale of property, plant and equipment	87.1	336.6	78.4
Proceeds from sale (purchase) of other investment, net	361.8	51.3	2.3
Acquisition of intangible assets	(107.8)	(281.9)	(190.2)
Proceeds from sale of intangible assets	-	0.1	0.2
Net cash outflow on acquisitions of businesses	(22,239.0)	(8,453.0)	(26,191.2)
Net cash outflow on investment in joint operation	-	-	(11,535.3)
Additional investments in subsidiaries and joint ventures	(2,198.9)	(558.3)	(2,289.0)
Advance payment on additional investments in subsidiary and a joint venture	(687.4)	(229.3)	-
Net cash inflow on partial disposal of interest in a subsidiary with a change in control	552.4	-	-
Reimbursement for project	1,126.5	-	-
Net cash from (used in) investing activities	(36,382.2)	(28,785.7)	(56,227.3)
Cash flow from financing activities			
Interest paid	(4,340.9)	(4,425.8)	(5,141.6)
Deferred financing cost paid	(224.6)	(32.8)	(73.4)
Dividends paid to owners of the Company	(2,599.5)	(4,048.7)	(8,925.2)
Dividends paid to non-controlling interests	(383.5)	(134.5)	(67.3)
Proceeds from short and long-term borrowings	27,322.7	13,726.4	28,434.9
Repayment of short and long-term borrowings	(8,477.1)	(21,038.6)	(20,310.3)
Repayment of debenture	(2,900.0)	(5,500.0)	(3,551.4)
Repayment of finance leases	(8.6)	(25.8)	(63.6)
Proceeds from issue of ordinary shares due to warrants exercised	-	15,504.1	15,852.4
Proceeds from issue of debenture, net of debenture issuance costs	4,991.6	9,477.6	17,471.7
Coupon payment on subordinated perpetual debentures	(1,052.9)	(1,050.0)	(1,050.0)
Loans to joint ventures	(104.4)	277.9	(9.3)
Net cash from (used in) financing activities	12,222.7	2,729.9	22,566.7
Net increases (decreases) in cash and cash equivalents	786.7	2,851.0	(1,680.0)
Cash and cash equivalents at beginning of year	3,232.5	4,025.6	6,877.0
Effect of exchange rate changes on balances held in foreign currencies	6.5	0.4	381.4
Cash and cash equivalents at end of year	4,025.6	6,877.0	5,578.4

INSIDE EVERY PRODUCT, THE POTENTIAL TO IMPROVE THE WORLD.

At IVL, we never stop asking
just how far chemicals can take us.

Because as a global force in sustainable
materials, we believe that inside the
products that touch our lives every day,
there's an even greater potential to make our
lives safer. More comfortable. More fulfilling.
And kinder to the world we all share.



INDORAMA
VENTURES

> *Empowering potential.*

CHEMICALS | POLYMERS | FIBERS



Mr. Sri Prakash Lohia

MESSAGE FROM THE CHAIRMAN

Dear Stakeholders,

2018 was a great year for IVL. We not only delivered milestone revenues and earnings in every segment, and we also made strategic progress, which is necessary for long-term growth. We achieved a year-on-year EBITDA growth of 44%, and managed to increase our EBITDA by more than 250% in the last four years. This is not a coincidence, but a true testament to the effectiveness of our winning strategy of multiple engines of growth, our resilient business model, and the passion, hard work and professionalism of IVL's people.

Building On a Proven Strategy

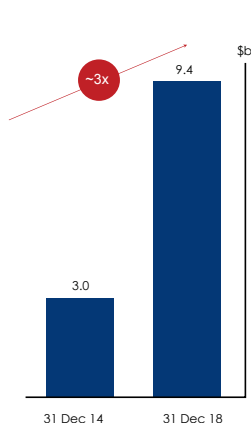
We continue to invest in our existing businesses, while acquiring unique businesses that come with high-quality assets, talent and technology. These acquisitions will help us add new customers, grow our earnings, achieve greater scale and increase our

presence in key markets. IVL now possesses capabilities that are unparalleled in our industry. All these actions will be accretive to the Company, and benefit our shareholders and our customers for years to come.

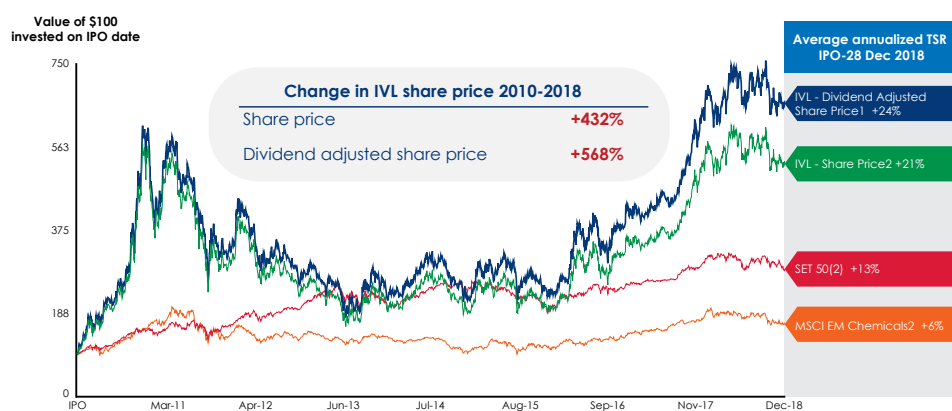
Proud Of Our Progress

We continue on the journey to deliver our strategic plan, transforming ourselves from an Asian commodity player into a global, diversified, chemical company. We continue to refresh our business model through global scale, integration, and diversification into high value-added products, with a focus on creating long-term value and maximizing total shareholder return. I look back on this journey with a sense of pride at what we have achieved and a heightened sense of anticipation at what lies ahead.

Market Capitalization



Share Price Evolution since IPO



Continued Focus on Governance

IVL continues to strive towards strong ethics and corporate governance, and the Board has been a key catalyst on all that we have accomplished. We are indeed fortunate to have diverse and engaged board leadership, with complementary strengths and experiences. They have been a solid supporter in fostering vision, values and integrity, and continue to work with the management to excel in corporate governance.

The Company's effort to maintain the highest level of transparency and corporate governance were duly recognized by Thailand Institute of Directors (IOD) in conjunction with the Stock Exchange and Security Exchange Commission of Thailand. In 2018, IVL received an "Excellent – 5 Star" for its Corporate Governance Report for the sixth consecutive year.

During the year, the Company renewed its certification of Thailand's Private Sector Collective Action against Corruption. This shows our ongoing commitment to operate our business with ethics and transparency.

The Board recognizes the importance of good corporate governance to ensure that IVL is managed in an efficient and effective manner for the benefit of all shareholders over the longer term. We invited the IOD to administer a Corporate Governance Assessment to advise us on areas for further strengthening corporate governance. The results and recommendation of the assessment were presented to the Board of Directors in November 2018.

As one of the global leaders in the chemical industry, not only do we pursue stable growth in our core businesses, but we also uphold the highest standard in sustainability practices to better realize our vision of being a world-class chemical company. In recognition of our demonstrated commitment to sustainability goals and ethical behavior, as well as the value IVL has generated for stakeholders, IVL has been included in the DJSI Index for the second consecutive year. Meanwhile, the Company has been listed as a constituent of the FTSE4Good Index Series and received the best Environmental, Social and Governance (ESG) score, at the top of the group.

We are part of the Ellen MacArthur Foundation's New Plastic Economy initiative, and are working together with other entities towards enhancing the circular economy for plastics. IVL is committed to further increasing the use of post-consumer PET and polyester waste materials as feedstock for the future. In addition, we also play a leading role in the global shift to the circular economy

by announcing a joint venture with Loop Industries to introduce chemical recycling in PET. IVL also signed an agreement with Ionika and Unilever for chemical recycling of PET waste in Europe. These actions are a key step to steer further our aspiration of being a world-class chemical company making great products for society.

Building an Even Stronger IVL

While we look back with pride at our achievements, we also look forward to building on our track record as a catalyst for more value creation.

We continued progress in building a competitive platform and strong organization. We have a comprehensive series of efforts underway such as leveraging Industry 4.0 opportunities, investing significantly in our talent and leadership, and transforming our IT systems.

We have made significant progress in building and reshaping our leadership teams, with formation of the Indorama Management Council, and have completed the recruitment of a Chief Human Resources Officer and Chief Strategy Officer. These changes are aimed at reinforcing implementation of IVL's strategy by better aligning senior-level resources, enhancing focus on strategic and operational priorities and achieving more synergies, as well as building a high-performing team and culture.

We have long recognized the importance of diversity and inclusion, reflecting in IVL's values. Our commitment to bringing together people of various backgrounds, experiences and unique perspectives helps drive our business globally and meet the needs of our customers around the world. We place a high priority on developing a new generation of global leaders by providing ongoing learning and development opportunities. This includes launching of i-Lead, v-Lead, Shadow and Talent Development Programs. These initiatives help us to ensure we have the necessary pipeline and bench of capable and experienced leaders to meet the challenges ahead.

Extending Our Appreciation

I would like to take this opportunity to thank my fellow directors for their strong support in helping to position IVL for its long-term success. I would like to also thank our management team and senior colleagues for their leadership, as well as each member of the IVL family and to all our stakeholders, who have shared our dreams and achievements and accompanied our journey to the top.



Sri Prakash Lohia
Chairman

INDORAMA VENTURES PUBLIC COMPANY LIMITED (IVL)

IS PROUD TO ANNOUNCE OUR CONTINUED INCLUSION IN
**THE DOW JONES SUSTAINABILITY
INDEX (DJSI) FOR 2018**

We are committed to building a better society
through our sustainable business operations
and fulfil our responsibility as a global chemical leader based in Thailand..

INDORAMA
VENTURES

MEMBER OF

**Dow Jones
Sustainability Indices**

In Collaboration with RobecoSAM



To learn more about us, see our website www.indoramaventures.com





Mr. Alope Lohia

MESSAGE FROM THE GROUP CEO

Dear Stakeholders,

It gives me great pleasure to present to you my report for 2018, and more importantly, discuss with you on how I believe our company, our industry, and the broader ecosystem are taking shape. Yes, we have achieved spectacular growth, through managing internal objectives and supported by positive external factors, but only because of the ongoing performance of our talented teams and their hard and persistent work ethics around a well-articulated strategy supported by execution.

"I can't change the direction of the wind, but
I can adjust my sails to always reach my destination."

-- Jimmy Dean

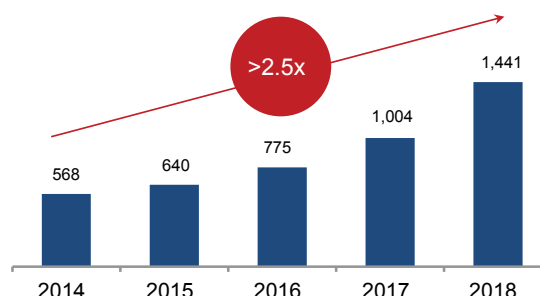
Delivering On Our Transformation

We continue to accomplish what we have set out to do on our transformational journey – striving year-by-year towards achieving our vision "To be a world-class chemical company making great products for society." We have clearly defined our goals over the last several years, and we continue to meticulously execute on them, which helps to propel us forward. Our values have helped us all along, knowing we wish to operate our business with integrity and in a sustainable manner, for which I believe we have a widespread recognition.

We remain consistent in delivering on our strategy to achieve responsible, sustainable, and profitable growth. We are building durable competitive advantages through a diversified portfolio of businesses that we have created, and are continually optimizing as we reinvent our business model through global scale, integration, and diversification into high-value ("HVA") products. All of which underpins our transformative growth through "win and scale up" model, M&A, and innovation. These are supported by our responsible approach to sustainable business, our people and culture, risk management, governance so that we create value for society and for stakeholders.

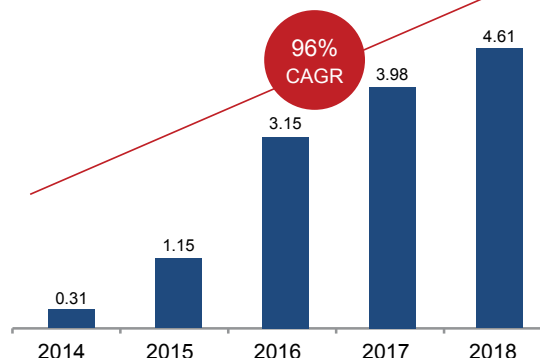
Delivering on Our Financial Plan

Core EBITDA (US\$M)



Creating Superior Shareholder Returns

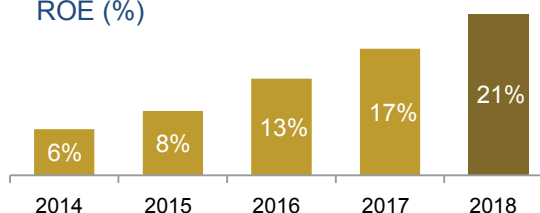
Earning per share (THB/Share)



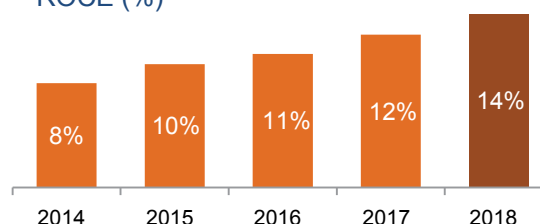
Solid Financial Performance

Strong Earning Momentum Continues

ROE (%)



ROCE (%)



Our Board as a Catalyst for Where IVL Stands Today

Long-term value begins at the Board. I believe effective, independent, and diverse board leadership is precognition for ensuring that companies are focusing on the long-term results. Our Board has been a key catalyst on where IVL stands today. They have been a solid supporter of the transformation that the company has gone through over the past years, moving from an Asian commodity player into a global diversified chemical company. They are the ones supporting the evolution of our business, assessing management's performance, and nurturing our culture and values, all of which are critical for long-term growth and success. The reinforcement of corporate governance and sustainability commitments are also a testament to the effectiveness of the Board. I firmly believe that an organization is as good as its Board.

We Are Building an Even Stronger IVL

The internally driven highlights for 2018 is the ability of our management to lead the following growth objectives.

Strengthening our Necessities Portfolio

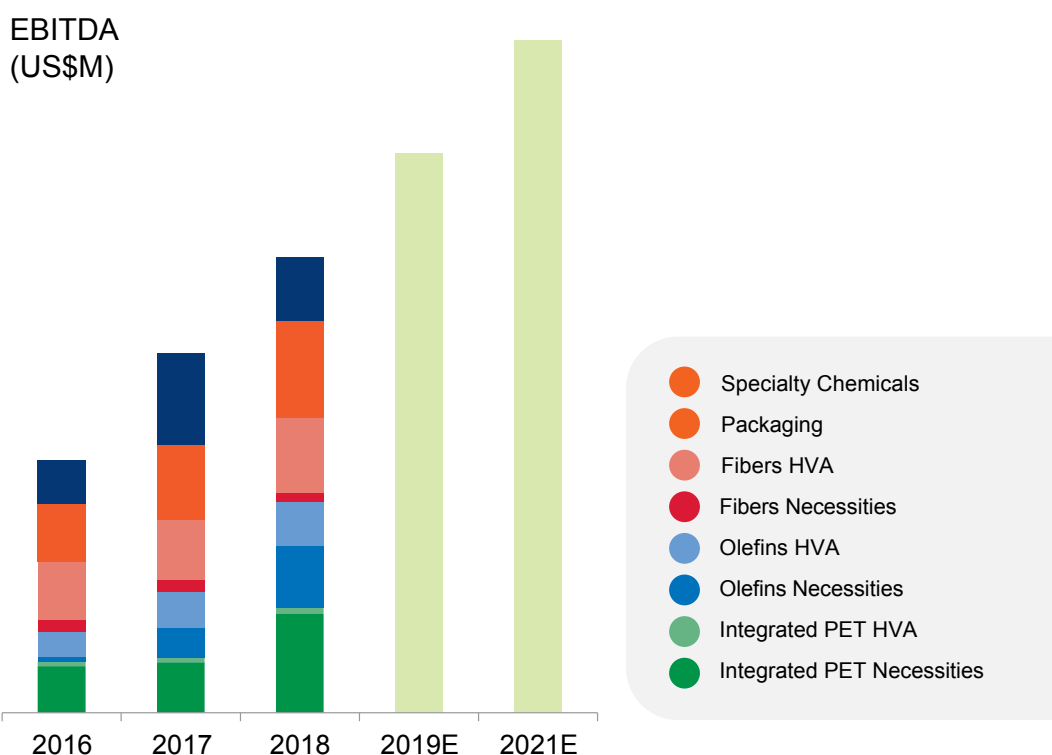
- We partnered with two other industry peers to take over a partially built PTA-PET plant in Corpus Christi, the US, due for completion in 2020 and 2021. This facility will be North America's most cost-competitive asset and will add 800 KTA to IVL's existing capacity.

- We commissioned an IPA plant with a capacity of 220 KTA in Decatur, Alabama. The Decatur site, I believe, has the first quartile cost position in IVL's portfolio and probably in North America, capturing the entire value chain from Paraxylene to PET. IVL has become the only IPA producer in Europe and North America, in a business which is driven by our own technology and in which we have a global leadership.
- We entered the South American market with the acquisition of Brazil's largest PET asset. Brazil is a region which we manage as part of our Americas team. We made an acquisition of Brazil's largest polyester fibers plant, which we hope to complete soon, and thereby gain from operating synergies between these two businesses.
- Within the EMEA region, we commenced production at our 700 KTA PTA facility in Portugal and started our 540 KTA PET facility in Egypt, which has advantaged trade benefits domestically and supply chain advantages in the region. Together with IPA business in Spain IVL is now a fully integrated platform in the EMEA region. For our European business, we believe it is vital to be very keen on cost competitiveness to counter higher energy costs and threats of imports from countries with a surplus like South Korea and China.

Scaling our HVA portfolio

- We made two acquisitions in the automotive fibers business to grow this vertical into a \$1.1+ billion franchise serving tire

Financials and Outlook



reinforcements and airbags. Kordarna and UTT is an excellent strategic fit with our existing PHP and Performance Fibers businesses, and supplements our acquisition of Glanzstoff completed in 2017.

- We acquired Avgol, a global leading producer of hygiene fibers based in Israel. This was our second acquisition in the hygiene fibers vertical, a business which we have been scaling organically since our acquisition of FiberVisions in 2012.
- We formed a 50:50 JV with Huvis, South Korea for the development, construction, and operation of a low melt fiber plant in the US with an annual capacity of 60,000 tons per annum. The project will further expand our HVA portfolio for automotive and industrial composites as well as provide synergy potential with our feedstock business.
- We acquired Medco, Egypt's largest PET packaging company, as part of our strategy to selectively invest in packaging solutions in emerging markets, to meet the growing needs of customers. This acquisition is an excellent strategic fit for our PET plant in Egypt.
- 2018 was a landmark year for our Wool business with a cross-continent expansion in Europe for the first time. We acquired Schoeller Group, a leading European producer of premium wool yarns. This acquisition adds a feather to IVL's HVA portfolio and enlarges Wool business's geographical footprint.

Leading the Way in Sustainability

Sustainability has always been a critical element of our strategy. We recognize that, as a chemical company, we have to demonstrate our willingness to develop a sustainable strategy. More than that, we recognize that the move towards a more sustainable economy is creating a lot of opportunities for us.

In the world of plastics, we have been very active in working with our industry associations and trade partners to fully understand and help appreciate the importance of recycling and life-cycle assessment of PET. Our sustainable development continues to be driven by our vision to make PET the material of choice for the low carbon, circular and fair economy.

We are stepping up our investment in PET recycling globally, and we are happy that key leading beverage and FMCG companies are supporting this endeavor.

- We acquired Sorepla, a leading mechanical recycler in France to supplement our existing footprint in Europe. More recently, we announced the acquisition of our first recycling plant in the US, Custom Polymers. These businesses are located close to our assets wherein we transform recycled flakes or pellets into recycled PET or high value polyester fibers. We believe that all means of improving the ecological footprint of our industry and value chain partners will enhance the acceptability and use of recyclable PET.
- We partnered with two startups, Ioniqa and Loop Industries to develop chemical recycling, a process which will recover most

of the PET waste, differently from the traditional, mechanical recycling. We will help both startups commercialize their technologies, and we will, in turn, invest in our PET facilities to process the waste into fully recycled PET.

The recognitions we have received globally as the sustainability leader in our industry reflect our success in operating an efficient, profitable business that is also responsible and trusted by stakeholders. This trust allows us to be even more ambitious in creating shared value and serves to position our company as fit for purpose in a changing world.

- IVL has been included in the DJSI Index for the second consecutive year in recognition of our demonstrated commitment to sustainability goals and ethical behavior, as well as the value IVL has generated for stakeholders. The DJSI has become the essential reference point in sustainability investing for investors and companies globally.
- Meanwhile, London's FTSE Russell also once again ranked us in its index series of companies demonstrating firm Environmental, Social and Governance (ESG) practices, called FTSE4Good, which provides investors with a transparent and independent benchmark to measure the company's performance.
- We were elated to see our ranking in the MSCI ESG ratings report rise to BB from B last year, indicating a steady development of our activities in lowering greenhouse gas emissions, carbon footprint, and recycling of water and chemicals.
- IVL, already a leading global recycling business, has committed to further increase its use of post-consumer PET and polyester waste materials as feedstock as part of global agreement to combat plastic waste, being led by the Ellen MacArthur Foundation

The total dedication of our people is behind this success by minimizing our businesses' impact on our communities and the world through their work, and I am pleased to recognize everyone's contribution to reaching our shared goals.

Staying Agile In an Ever-Changing World

The world we operate in is changing faster than ever before. The external environment continues to be demanding, and the following themes could have a significant impact and, potentially, they also present an opportunity:

- The focus on plastic waste has been at the forefront of the society, the regulators and our industry groups. China took a bold step to ban imports of waste plastics in a move to protect its environment. Not only this helped to boost demand for virgin PET and feedstock materials locally, but it also acted as a catalyst for companies across the world to seek better alternatives, change consumer behavior, and give rise to more effective recycling. With China no longer importing plastics

waste and other countries unable to absorb the high level of supply, exporters are likely to be forced to expand on domestic recycling infrastructure as well as cut on the level of waste being produced.

- In 2018, the global GDP grew by 3.2% driven by gains in the USA and Europe. Historically, polyester demand grows at a multiple of GDP (and grew faster in China due to the ban on waste plastics). As a result, capacity utilization across the value chain has increased. During the period of poor margins in the polyester industry (2012 to 2016), there has been less build-up of new capacities, and there were also victims of managed assets which have altogether helped the sector to recover most of the declining margins.
- The beverages and the FMCG brands have made renewed commitments to their stakeholders to improve their packaging mix. The entire supply chain is working with regulators, and they together expect to dramatically improve PET bottle collection and increase the content in their packaging needs.

The life-cycle benefit of PET is well established, and improved waste collection rates will mean an increase in recycling rates across the world. The demand for recyclable plastic is expected to create a preference for PET and further enhance consumption.
- There is much talk about tension from geopolitical risks especially the trade war as many terms it with China. This concern is high in the boardrooms of every company, and there is a move by every country and company to secure their supply chain. In markets where there is the availability of competitively-priced domestic supply, it is natural for procurement departments to maximize this channel and therefore we see a higher activity towards on-shoring. Global companies, including IVL, with large on-shore supply chain, perhaps will be advantaged.
- The US took a bold step in 2018 to reduce their corporate tax from 35% to 21%. This move has seen visible job creation domestically and put competitive pressure on other countries to review their policies. On the one hand, this policy improved returns and therefore valuations of US-based companies, and on the other side, it has created more disposable income for its citizens leading to higher consumption.
- The US Federal Reserve is on track to increase rates which have led to a strong dollar, and, in turn, has improved the manufacturing cost-competitiveness of many countries such as Mexico, Canada, Europe, China, and Indonesia, to name just a few. However, although the cost of debt is still low, there is potential that higher cost of borrowing could impact M&A activities and valuations.

Building on Our Strengths and Executing With Excellence

Leveraging our acquisition and turnaround capabilities

Each wave of M&A changes our competitive environment. We believe that we have to grow in a holistic manner where we can absorb the shocks and the volatility which we often experience, be it crude oil prices or currency rates, for example. Our Corporate office teams are doing a great job of managing these volatilities while our Operating teams have done well in achieving operational excellence to support our cost excellence and at least offset the inflation-led increase in costs.

As an incumbent player with legacy assets, we keep a close eye on competitive state-of-the-art, large scale assets and defend our market share as appropriate. By acquiring strategically located assets, we believe we can place ourselves in an advantageous position to better serve our customers reliably and even grow our market share while protecting our stakeholder returns. I am confident that our portfolio of Necessities assets is in the top quartile position due to the excellence of our people.

Our management team has a long history of success in acquiring and transforming assets that would otherwise be on the verge of having their last breath. A great example of a success story that immediately comes to my mind is our acquisition and turnaround of Tuntex polyester fiber plant in Thailand in 2008 (now IPI Rayong).

The team delivered rapid, visible performance improvements: first, by improving quality, energy use, and plant reliability; second, by leveraging integration into PTA and captive power plant; and finally, by optimizing product mix while gradually transforming IPI Rayong from mainly a commodity plant into an asset with an optimum blend of Necessities and HVA fibers.

Overall, the turnaround led to a sustained improvement in plant profitability and returns. This turnaround is a great example of our global operational excellence expertise, and I believe there will be many more such success stories for me to reflect upon in my future letters to stakeholders.

Enhancing our capital project execution skills

While we do well in integrating newly acquired businesses into the folds of IVL, we have been "behind the curve," and something we intend to address is our greenfield and brownfield project execution capability. Our large projects, Louisiana Cracker, and Rotterdam PTA have been behind schedule and above budget. Fortunately, both these projects had huge buffers, mainly due to their locational advantages and supply chain fitment to serve IVL's captive needs so that the long-term benefits remain accretive.

Investing In Key Priorities to Stay Ahead

- **Human capital** - The foundation of IVL is built around strong leadership qualities of our people and has grown, since 2010, from 6,000 individuals to more than 18,000 today. I believe that people drive every success and our limitations will also be people-driven if we do not continuously develop our talent. I know our people have the burning ambition to "stay ahead." There is a drive within IVL where we are spending twice the time we did in the past on talent development while building a performance-driven culture.
- **digital@IVL** - IVL today is still in an Industry 3.0 framework, and we are exploring many parts of Industry 4.0 which could enable us to drive complementary opportunities in Machine Learning and Mathematical Optimization. We are closely scrutinizing our first set of projects, and their potential implementation is being led by a passionate team of internal and external consultants. Together, we have identified 250+ digital value creation opportunities across 12 sites. There is tremendous excitement in the group on what lies ahead. The internal Industry 4.0 team will be supplemented and tasked to scale up our learnings and implement them across our manufacturing sites. There is a growing recognition internally that investments made in this development will not only provide an attractive return, but also drive us towards the journey of world class in both technology and talent, which ultimately drives the intrinsic value of the firm. "Data is the new oil" as it is often heard today.
- **Portfolio optimization** - An area of potential improvement could be when we start evaluating the potential to renew our portfolio amongst the scattered HVA assets in fibers. I see an opportunity to streamline the number of assets we own today and consolidating them under a few scaled up sites which have the workforce advantage and the benefits in total cost including supply chain optimization.

Creating More Potential, More Value, More Future

We are continuously investing in our people and our assets. Said in another way, we are investing in developing a sustainable future and creating the aspiration for our next generation of leaders to be in the league of world-class companies globally.

Satisfaction to us means continuous improvement, and while we have made considerable advances in our ESG footprint since inception, we do not intend to sit on our laurels. We will continue to involve prioritizing good governance and maintaining organizational agility to take advantage of opportunities as they arise – both internally, as our companies leverage each other's strengths, and externally, for any strategic acquisitions that are accretive to our bottom line.

We have set ambitious but achievable targets. These include doubling IVL's EBITDA again over the next five years. We will continue to seek the right opportunities to fulfill gaps which are

intrinsic to our sustainable and profitable future by deploying our resources to support the circular economy. We believe our focus will allow us to continue to provide above industry returns across cycles.

We are indeed fortunate to have a team of over 18,000 dedicated employees in 31 countries that are firmly committed to our success and who have an abundance of talent and ability to lead IVL to greater heights.

In 2018, we saw the emergence of structural changes in the polyester value chain after several years of often irrational capacity build up which adversely impacted the very fabric of reasonable margins and disrupted an otherwise healthy industry, which is driven by consumer demand and the demographic trends. This resulted in disruption for several industry participants which is a meaningful lesson for all of us in the industry. This elongated period of disruption also gave IVL an opportunity for earnings growth through earnings diversification, geographical expansion, and backward integration.

I expect encouraging changes in our industry, and I hold a positive outlook for IVL due to a number of factors including megatrends, and the increased focus on sustainability and the circular economy; all of which should drive continued demand for our products. Long-term global polyester demand is expected to expand at around 5 to 6% annually, while demand for high-value fibers is expected to grow at a healthy rate of 6 to 7%.

We enter 2019 from a position of strength, and we remain committed to building on the growth momentum. We will continue to develop new markets and enter into markets where we do not have a presence. We will further look at what is missing in our business model, where we can improve, and unlock the untapped potential and synergies of our businesses and subsidiaries.

We will work harder to move closer to our customers by understanding their needs, investing more in developing innovative products and provide truly differentiating propositions. Our assets, infrastructure, footprint, and teams will aim to deliver long-term value to our shareholders and the sustainability of our business.

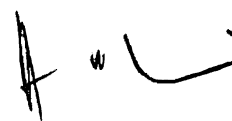
I wish to thank all our stakeholders, shareholders, partners, customers, bankers, employees and above all, my fellow members of the Board for their ongoing support and dedication, which made this past year an unqualified success.

"Learning and innovation go hand in hand.

The arrogance of success is to think that what you did yesterday will be sufficient for tomorrow."

-- William Pollard.

Sincerely,



Aloke Lohia
Group Chief Executive Officer

MESSAGE FROM THE CEO OF FEEDSTOCK AND PET BUSINESS



Dear Stakeholders,

It gives me immense pleasure to announce that 2018 was one of the strongest years in delivering operating and financial performance supported by high capacity utilization, better market conditions, and procurement and operational efficiency. The PET and Feedstock segment achieved record EBITDA of almost US\$1.2 million in 2018, a significant 47% increase from 2017. The return on capital employed increased from 14.5% in 2017 to 20.3% in 2018 which significantly improved the earnings per share of the Company. We expect to further improve our EBITDA to US\$1.8 billion in 2021 due to an increase in capacity after the startup of the Ethylene cracker at our Corpus Christi PTA & PET Facility and full-year operations of Brazil and EIPET.

Three Pronged Growth strategy

We are able to drive sustainable and profitable growth in both our high volume necessities and high margin HVA business due to the continuous focus and adoption of our three pronged growth strategy:

1. **Geographic Diversification:** In 2018, we expanded our global footprint in South America in Brazil by acquiring a highly cost competitive PET plant with a capacity of 550 KTA. The operational learnings of this plant will also help us with our Corpus Christi PET assets and operations as they will operate on the same technology. Our acquisition in Brazil was perfectly timed as the Brazilian economy began to recover in 2018 with inflation dropping to an all-time low and a pick-up in foreign direct investment following three years of devastating recession. The performance of Brazil has been good since the acquisition. I wish to thank our new members and American teams for achieving a ROCE of 18% in Brazil. We will achieve further benefits from the synergies from the acquisitions of our Brazilian fiber assets.

We entered the Egyptian PET market with our joint venture partner, Dhunseri, by way of the strategic acquisition of EIPET, a 550 KTA PET plant, which established us as a leading PET producer in the African market as well as providing duty free access to the European and US market. This acquisition is helping to consume PTA from our Portuguese PTA acquisition.

Yet another three-way joint venture, with Mexico-based Alpek and Taiwan-based Far Eastern Group, recently received approval from the US Federal Trade Commission to acquire the Corpus Christi plant project in Texas, which when completed, will have a nominal capacity of 1.1 MMt of PET and a further 1.3 MMt of PTA, making it one of the largest integrated and most cost competitive plants in the US. We expect the PET plant to start in the second quarter of 2020 with PTA beginning in the middle of 2021.

2. **Value Chain Integration:** From June 2018, we started production in our PTA facility in Portugal which has made us the largest PTA producer in Europe. The acquisition of the Portuguese PTA plant was done at significantly lower than replacement cost. This plant is also supplying PTA to our Mexico plant due to duty free access to the market. The plant's full capacity has already been sold for 2019. We have now created a fully integrated PET business model in Europe and Turkey with our PIA business in Spain.

We have strengthened our downstream packaging business by acquiring Medco in Egypt and created a packaging footprint in the attractive and growing African market with strong potential for synergies through integration across the value chain.

In the US, we started production of PIA in December 2018 at our Decatur, Alabama site by converting PTA capacity to PIA. This has made the site the largest PET value chain location with a combined capacity of two million tons of integrated production of Paraxylene (PX), PTA, PET, PIA and NDC with MEG coming from IVL's olefin plant in Clear Lake, Texas by barges.

After the start-up of commercial operations of our US gas cracker project, our EOEG facility will be fully integrated with our own ethylene. The integration economics with olefins will provide us with a significant long term cost advantage across our North American polyester value chain (from ethane and MX to PET resins).

3. **HVA Strategy:** We focused on strengthening our product portfolios to continuously exploring new applications for PET resins in the HVA segment as well as new product developments such as PETN, aluminum catalysts, and barrier resins. We have signed a definitive agreement to acquire 100% of Invista's Gersthofen facility in Germany for specialty PET and certain intellectual property rights of its barrier technology. Once completed, we will own the intellectual property rights of POLYSHIELD® PET and OXYCLEAR® Barrier PET, which are

based on Invista's barrier technology, in all markets globally. This facility, together with IVL's high value polymer business in the US, will open new opportunities in attractive, global segments.

Overall, our growth strategy in 2018 in further expanding our PET manufacturing capabilities, enhancing our domestic footprint in key markets, growing our investments in product innovations and recycling, and our customer-centric policies have helped us achieve a 24% market share globally.

Capturing the Entire Value Chain Margin

Our polyester value chain business is integrated regionally as well as globally with our own upstream manufacturing facilities in PX, PTA, MEG and Cracker or by virtually co-location to our suppliers. A significant proportion of our feedstock requirements (PX, PTA, MEG, PIA) are sourced internally. Through integration, our key benefits are:

1. Security of feedstock supply for our PET and polyester operations.
2. Higher capacity utilizations of our assets at a lower cost as compared to merchant suppliers of raw materials.
3. Enhancing our potential to capture more value chain margins.
4. Cost benefits due to freight savings, shared utilities, and manufacturing costs.

As our level of integration of PTA is very high (75% including co-located sites), we are better equipped to handle market shocks and volatility in value chain margin as compared to a standalone PET plant. The integration enhances our operating efficiency, competitiveness as well as stability in earnings. A high level of integration is the source for our superior performance.

Our People Make the Difference

Over the years, we have acquired 36 assets around the world and turned them into successful acquisitions.

We believe that the key drivers of our success are:

1. Continuous technical and commercial benchmarking.
2. Participative management with great teamwork rather than silo management.
3. The passion of our people to outperform and learn best practices.
4. A strong MIS system and strict monitoring of monthly financial results.
5. Robust risk management (currencies, commodities, and insurance).
6. Debottlenecking and operational excellence.

We have been able to continuously demonstrate our capacity for acquisitions and integration which would not be possible without the right people, processes and management. We always believe that “Our employees are our greatest and most important assets. They are our competitive advantage. We want to attract and retain the best team, provide them with encouragement, incentives, and make them continuously feel that they are an integral part of IVL’s mission.” I would like to thank my global team for continuously striving towards our mission and vision.

We are committed to building a talented and diverse workforce by way of continuous training, coaching and nurturing of our employees. IVL’s Global Leadership Development Programs began in 2015 and advanced programs including i-Lead and Shadow Development are an important step towards creating a pool of talented and dedicated staff with leadership potential.

The Preferred Material for Beverages

PET is the preferred material for packaging as it is safe, convenient and a 100% recyclable material. PET is non-toxic since the PET polymer is very stable and inert, prolonging the shelf-life and quality of products.

The environmental impact of PET is very favorable in comparison to glass, aluminum and other recyclable container materials. Being lightweight, PET saves resources and also cuts costs and environmental impacts during transportation. PET also reduces carbon footprints by using less energy, creates fewer GHG emissions, and generates less solid waste. PET has become the world’s choice in the packaging sector.

PET packaging is set for further growth as it is increasingly being used as a replacement for glass and metal containers. The driving growth for use of PET containers in developing countries is due to its increased convenience amid an increase in disposable incomes and changing lifestyles. The trend is shifting to PET bottles as millennials are demanding packaging that is more lightweight, easy to use, and in reduced portions.

The many beneficial qualities of PET continues to fuel a growth rate of around 6% annually. The major growth of PET in the future will be in emerging markets where per capita consumption is very low. However, future PET capacity additions will be limited. Capacity additions are predominantly in China as global trade is declining amid business activity becoming more regionalized.

Continued Industry Consolidation

We saw a significant addition of new PTA/PET capacity in China over the years which put pressure on margins. Continuously low margins of PTA and PET resulted in the shutdown of non-competitive assets in China with further industry consolidation. Currently, seven major players control 86% of total PET capacity and 68% of total PTA capacity. Nevertheless, China’s polyester industry continues to grow and large PX capacities with huge

investments are being constructed to integrate upstream including large scale refineries. This will result in Chinese integrated players being burdened with huge debt obligations. They will therefore be keen to maintain healthy reinvestment margins so they can generate regular cash flow to repay their huge debts. This should help the industry to have better value additions in the chain.

Chinese integrated players will become more cost competitive which might be a threat to the global polyester value chain. However, legacy assets will be protected by trade barriers, logistics costs, regional market presence, and lower capital outlays. We are better equipped to handle this risk due to our strong regional presence by way of better geographical diversification.

Structural Change Upstream

A new wave of large-scale integrated petrochemical plants is poised to come online in China from 2019 to 2021, predominantly developed by private sector players such as Hengli, Rongsheng and Tongkhun. These new entrants have an opportunity to leverage the Chinese central government’s preference towards large scale, integrated and centralized petrochemical hubs. With a combined new PX capacity representing 60% of existing Chinese capacity (17% of global capacity), we expect the new plants to disrupt global PX supply and demand. While China’s polyester industry dominates global production, accounting for 70% of PTA volumes, it is import-dependent for PX. This new PX capacity in China is likely to reduce PX imports to 25% of its requirements by 2022. This should strategically benefit IVL as a net buyer of PX in the region. IVL buys 2.2 MMt of PX globally.

This will provide IVL an opportunity to create partnerships and build a strategically fit business model with large and integrated regional PX players during a downturn.

Global MEG capacity is expected to increase by 8.2 MMt from 2019 to 2021 of which an additional 3.9 MMt is in China (2.2 MMt syngas-based capacity) and 4.27 MMt is outside China, mainly in the US based on cheap shale gas. Thus, the MEG market will be oversupplied in 2020 due to rapid capacity expansion in both China and the US. As we are a net MEG buyer globally, huge MEG capacity additions will provide us an opportunity to realize better discounts from MEG suppliers. This might affect our glycol profitability in IVOG, which represents only 50% of our integrated EOEG business. However, we have the flexibility to increase the sale of PEO, which is at a fixed margin, instead of glycols and will also explore the option of building a facility to produce other value-added PEO derivatives.

The recent ban on single use plastics including plastic straws, cotton swabs, and disposable plastic plates and cutlery has created an opportunity for PET since it is the most recycled among all polymers. PET constitutes nearly 50% of total recycled polymers including PE and PP.

Focusing On Recycling for Sustainability

The EU parliament backed a wide ranging ban on single use plastics in an effort to tackle pollution in the seas, fields and waterways. PET beverage bottles should contain at least 25% of recycled plastics by 2025. The ban on single use plastics, it should be noted, has created an opportunity for PET as a replacement due to its environmentally friendly and 100% recyclable feature.

As a global leader, IVL demonstrated its leadership by further enhancing its PET recycling capacity. In addition to supplying recycled PET (rPET) in North America, Europe and Asia, IVL formed strategic alliances with Loop Industries in North America and Ionika in Europe with a target of offering 100% rPET which is manufactured using their respective unique chemical recycling technologies. This, along with our most recent acquisition of Custom Polymers PET, LLC in the US, will go a long way to enhance IVL's global rPET offering to leading brand owners worldwide. We are proud to be part of the Ellen MacArthur Foundation's New Plastics Economy initiative with our pledge to recycle 750,000 Mt of PET, and to work together with key players towards the vision of a circular economy for plastics.

HVA Product Strategy

We have significantly expanded our HVA portfolio. Our acquisition of Invista's assets in Gersthofen, Germany, is an important step to enhance production of high value PET specialty polymers and barrier resins.

We are also the only producer of NDC internationally. We have mapped out a long-term strategic plan to increase the production of NDC and its application by way of:

1. Production of PNDA and PEN within the group to increase captive consumption of NDC.
2. Creating partnerships with current and potential users, and customers to develop new applications for NDC.

By converting our existing PTA line at our Decatur site to PIA (a High Value product), we have now become the only PIA producer with dual facilities in the two large consuming regions of EMEA and the Americas.

We are the largest merchant seller of PEO in the US and plan to sell more PEO in the future in IVOG at a fixed adder to mitigate the volatility in our glycols profitability.

Focusing on Improvements

1. Project execution: We failed in the timely execution of our large projects such as our ethylene cracker, Rotterdam PTA expansion, in terms of the substantial delay in the project's completion as well as project cost overruns. We are creating a project cell with clearly defined SOPs including stage gate

clearances before making any final investment decisions. This will be implemented in the Corpus Christi project with other partners.

2. Plant Reliability: With ageing plants of more than 20 to 40 years, the reliability of consistent operations are becoming a challenge. We need to create robust and preventive maintenance practices for the reliability of plant operations. Smart factories with more sensors, automation, and data analytics can also be helpful in enhancing reliability.
3. Sustainability: As plastic waste is being strongly perceived as a serious threat to the global environment, there is growing emphasis throughout the world to recycle waste and reuse plastic materials. Although we have built up considerable recycling assets internationally and will keep continue on this journey, we need to create a focused team who will effectively encourage governments to increase the use of rPET domestically with the adoption of regulations allowing for its use in food grade packaging in countries such as Thailand and India, in addition to increasing customer awareness.
4. Marketing: We are predominantly a sales organization and do not emphasize the marketing of PET polymers. We want to create a dedicated marketing group that is focused on the development and growth of PET resins. R&D will be further reinforced to look for innovations and new product development.

Targets and Challenges (2019 - 2021)

We have increased our PET production target to 5.5 MMt in 2019 and to reach 6 MMt in 2021. The increased production will be mainly from the full operations of Brazil and EIPET, the start-up in Corpus Christi, the addition of the Invista assets and debottlenecking of the Chinese plant. The timely start-up of the Corpus Christi project will be an important milestone. We will use our in-house processing knowledge from Rotterdam and Brazil as Corpus Christi utilizes identical technology.

Challenges from large Chinese integrated and cost-competitive players need to be tackled through non-tariff measures such as REACH and regulatory barriers, regional trade protections by way of anti-dumping measures on imports, mandatory requirements for domestically recycled content, and improved customer relationship management. We need to create a focused team to coordinate with local authorities to enforce the tools of trade barriers.

Margins in the polyester chain will remain volatile due to crude oil and capacity additions. We plan on managing margin volatility risks through fixed price risk management tools and margin hedging.

Following start-up in Corpus Christi, we plan to convert the high-cost Auriga site to 100% production of specialty resins, value-added fibers and recycled chemical products.

PIA margins are currently low due to lower demand growth and substitution of PIA by MPO in low-melt fibers. We are working with customers on converting back into PIA which should normalize demand and margins.

On the Right Path

Technology is rapidly evolving and business are gaining the benefits from adopting the latest technological advances. One specific area that has been providing companies with a boost in productivity is Artificial Intelligence (AI) and Machine Learning. Significant investments are being made by organizations in AI technologies.

We have initiated a program called “Harnessing Data Analytics & Industry 4.0” in collaboration with Boston Consulting Group which aims to focus on digitalization in manufacturing, marketing, finance, sales and customer satisfaction. We have initiated four projects under this program on a trial basis:

1. S&OP: Optimizing freight costs and maximizing margins in the value chain.
2. Production planning in North America at our Auriga site.
3. PTA reactor optimization in Thailand mainly focusing on improving production and RM consumption efficiency.
4. NDC optimization at our Decatur site.

The main objective of these projects is to replicate any lessons learned in other units and building a focused Industry 4.0 organization.

Our continued focus is to use the newest technologies such as Artificial Intelligence, Machine Learning, the Internet of Things, big data, advanced analytics and blockchain, in our mainstream businesses which can improve our operations and achieve game changing outcomes.

The world is witnessing a period of tremendous uncertainty due to geopolitical reasons; the trade war between the US and China, Brexit, and concern about a possible global recession. This will create increased volatility in commodities, currencies, stock markets and liquidity in the system.

A widely respected CEO of a prominent technology company once said, “*Weak companies are destroyed by crisis, good companies survive them. But great companies are improved by them and transform crises into unique business opportunities.*” We have successfully overcome all sorts of financial and economic crises over the years. Now we can proudly say that we are on the right path to achieve our vision of becoming **a great company**.

I would like to express my sincere appreciation to everyone at IVL for their hard work and tremendous efforts which are allowing us to achieve our vision, mission and values.



Dilip Kumar Agarwal
Chief Executive Officer of Feedstock and PET Business

MESSAGE FROM THE CEO OF FIBERS BUSINESS



Dear Stakeholders,

I would usually start by providing an update on the achievements of our business. However, sustainable materials and environmentally responsible behavior are increasingly being debated in the industry and awareness is exponentially growing in the public domain. I am therefore beginning by sharing our initiatives on this front.

The Fiber division has been continuously focusing on sustainable business practices through our innovation and operational excellence platforms. We have been partnering with pioneering technologies and global brands to share collaborative platforms and develop sustainable solutions. In 2018 alone, we increased our recycling capacity by 13% to 193 KTA, which represents 11% of our fiber manufacturing capacity.

Year	2017	2018	Change
Recycling Capacity in KT	170	193	+13%
Total Capacity in KT	1,545	1,711	+11%
Total Capacity	11%	11%	

To connect with the new consumer class which values sustainability, we have launched “DEJA,” Indorama’s recycled fibers brand.

As a result of our continued efforts on sustainable materials, we have commercialized bio-fibers for industrial applications and for use in teabags.

In addition, during the year, we reduced our energy intensity by 4% in the Fiber division which is equivalent to a reduction of 95 kilo tons in CO₂ emissions.

Year	2017	2018	Change
Energy Intensity in Kwh/MT	2,327	2,239	-4%

Revisiting the main events of the year, 2018 brought to a head the principal forces of globalization and protectionism which have been shaping the global economic landscape. Global supply chains are also realigning to proximity sourcing due to the diminishing value of wage arbitrage and faster response times required by online retail. The traditional ‘offshoring’ model is consequently being challenged by these events

and 're-shoring of manufacturing,' closer to consumption centers, is becoming increasingly relevant. This aligns perfectly with IVL's strategy of an enhanced global footprint with a focus on domestic markets.

Over the past decade, we have been localizing our business focus by increasing our manufacturing footprint from a single site to 39 sites in 18 countries spread across four continents. Our proximity to customers promotes closeness and business continuity besides minimizing the potential impact of tariff actions by nations.

Fiber Division Performance – On a Sustainable Growth Journey

The Fiber division has consistently grown revenues at a CAGR of 41% in the last ten years to US\$3.1 billion in 2018.

Year	2009	2018	CAGR
Revenue in US\$ bn	0.1	3.1	41%

To achieve these numbers, within the US\$2 trillion global textile market, IVL has been targeting a greater share in high growth and high margin segments that demand high performance. The Fiber segment generated 68% of volumes from these high value-added segments in 2018, significantly higher than the industry average of 25%.

Year	2017	2018	Change
HVA Volume in KT	889	1,049	+18%
Total Volume in KT	1,370	1,548	+13%
Total Capacity	65%	68%	

In 2018, while our Asian business units performed exceptionally well delivering 20% YoY growth in revenue to US\$1.3 billion and 28% growth in EBITDA to US\$126 million, some of our sites in the western hemisphere were impacted due to a lengthy force majeure by a leading feedstock supplier, resulting in a steep increase in raw material prices. This had some adverse impacts on margins and production but we expect normal supply conditions in 2019.

Year	2017	2018	Change
Asia Revenue in US\$ bn	1,060	1,271	+20%
Asia EBITDA in US\$ mn	98	126	+28%

The Fiber division delivered a healthy return on capital employed (ROCE) of 12% from 2015 to 2017. In order to serve our global customers effectively and efficiently, we have been investing in brown field expansions in new product lines to extend the range of our value added offerings. These require relatively longer qualification and approval cycles. In addition, to further expand our presence in strategically important segments and regions, we have consciously invested in some stressed assets with high potential and strategic synergies but these need some capital infusions.

Such strategic investments leading to diversification and new revenue streams, and having high growth and margin potential provide us with a long-term opportunity to grow. However, the increase in capital employed as a consequence temporarily suppresses ROCE, which declined to 8% in 2018.

We have a proven track record of turning around stressed assets and also rapidly ramping up new product lines. As these stressed assets are turned around, and fully leverage IVL's group synergies, I am confident the Fiber division's ROCE in the coming years will return to double digits and generate additional earnings contributions in 2019 and beyond.

Overall, 2018 was a strong year for IVL's fiber business with profitable growth in our high value-added businesses, driven by strategic acquisitions in the Mobility and Hygiene segments, successful commissioning of brownfield expansions, and new product launches. Backed by strong demand across all regions our year-on-year core EBITDA grew at a healthy rate of 12% with HVA products constituting 68% of production and 83% of total EBITDA.

We have targeted a doubling in Fibers EBITDA from US\$235 million in 2018 to US\$502 million in 2021 based on the projected investments and by realizing the full potential impact of acquisitions.

Year	2017	2018	Change	2021
HVA EBITDA in US\$ mn	177	197	+11%	439
Total EBITDA in US\$ mn	208	236	+13%	502
HVA Share	85%	83%		87%

Indorama Mobility Segment – Providing Thrills and Safety

IVL's focus in the automotive sector has been primarily in growing the airbag and tire segments while expanding our presence in automotive interiors.

The tire business is attractive as demand for automobiles typically moves in sync with economic growth, whereas demand for tires is more stable. This is because over 80% of consumption is for replacement tires, which is linked with the total number of existing vehicles that is several times the sale of new vehicles.

The airbag segment is also very attractive, as the number of airbags per automobile has increased steeply from one or two airbags to 12 to 14 airbags in higher-end vehicles. Furthermore, there is growing demand for acoustic fibers in new electric cars to reduce cabin and under-carriage ambient noise. IVL is putting a greater focus on light-weighting and noise reduction technologies, and we have 27 active joint innovation programs that will help in developing common intellectual property with our customers.

These trends are expected to enhance total consumption for fibers in this segment, which is currently 30 kg. per car, to around 35 kg. within two to three years.

Continuing with our automotive growth strategy following our acquisitions of valuable tire-cord and air bag yarn companies, we have further enhanced our high-value portfolio in 2018 by completing the acquisition of Kordarna, and by concluding the purchase agreement of UTT, a leading airbag fabric producer in Europe and Mexico. We have also expanded our Performance Fibers capacity in China making IVL the second largest producer of tire cord fabric with a global market share of 21%. I am proud to share that IVL is the only tire cord fabric producer with a comprehensive range of polyester, rayon, aramid, nylon 6 and nylon 6.6 fabric manufacturing capabilities, in addition to being the world's largest single-end tire cord manufacturer for use in ultra-high performance tires.

The Mobility segment grew at a CAGR of 10.5% globally from 2013 to 2018. I am pleased to inform you that, with the fiber team's efforts, during the same period IVL grew at a CAGR of 29.8% in this segment, which contributed roughly US\$1.3 billion to IVL's revenue in 2018.

With our aggressive focus on volume growth in the Mobility segment, EBITDA is projected to triple from US\$71 million in 2018 to US\$234 million in 2021.

Indorama Hygiene Segment – Providing Safety and Comfort

Another area of focus for the Fiber Division is the Hygiene segment which provides us with sustainable growth opportunities within a relatively stable business. IVL is maintaining its lead in this segment by focusing on improving skincare and the soft feel experience supported by our bi-component 'air-through' solutions, and by introducing fibers that are free of heavy metal compounds.

IVL has built an important position in premium baby care products providing comfort and improved fluid management solutions, with every second premium diaper containing IVL fibers. Emerging markets will continue to provide growth in the Baby Care and Feminine Care segments, driven primarily by rising income levels, higher per capita consumption, and under-penetration relative to developed markets. Changing demographics in some parts of the world is creating demand for adult incontinence products, which is the fastest growing sub-segment due to increasing product adoption rates across the mass-affluent consumer base.

Following on our hygiene growth strategy, post-acquisition of leading fiber brands and our organic growth of bi-component fibers, we took a major step to consolidate our position in this segment in 2018 by acquiring Avgol, providing IVL with a leading position in downstream non-woven fabrics. Avgol is the third largest global producer of spunmelt non-woven fabrics with manufacturing capacities in Israel, the US, Russia, India and China.

Global demand for the Hygiene and Healthcare fiber industry increased at a CAGR of 8.7% from 2013 to 2018. IVL continued

to outpace the industry by expanding at a CAGR of 11.5% during the same period which included 2017 to 2018 growth of 29%. This segment contributed around US\$700 million to IVL's revenue in 2018 and is expected to reach around US\$1 billion in 2019.

The Hygiene segment continues to grow and delivered EBITDA of US\$69 million in 2018 which is projected to double to US\$133 million in 2021.

Indorama Lifestyle Segment – Converging Fashion with Performance

In the larger Lifestyle segment which targets applications for Home and Apparel, IVL is focusing on premium recycled and active-wear applications, and protective textiles which also require superior manufacturing capabilities and allows for more sustainable business. The growing preference among the younger population for casual wear and less formal fashion styles has given impetus to a new apparel subcategory – 'Athleisure.' Over the years, sports-inspired apparel with convergence of performance and fashion has gained a 30% share of the apparel business.

In 2018, IVL's Fiber division entered into an agreement to acquire assets from M&G Fibras Brasil to enter the large and emerging Latin American region.

Continuing our strategy of moving into better value products, we converted 80 KTA of low value-added polymer capacity to staple fiber in the fourth quarter of 2018, the full benefit of which will accrue in fiscal year 2019.

Global demand for Home and Apparel had a CAGR of 4.5% from 2013 to 2018 while IVL expanded at a CAGR of 5.9% during the same period. This segment contributed around US\$1.1 billion to IVL's revenue in 2018.

The Lifestyle segment delivered EBITDA of US\$94 million in 2018 which is projected to increase by 40% to US\$135 million in 2021.

Operational Excellence

IVL also attaches great importance to operational excellence in order to control costs as well as to retain our edge over the competition. Dedicated teams are focused on energy savings initiatives and other cost optimization programs across the network and sharing best practices on an ongoing basis.

Taking advantage of the advances in automation and online data analytics technologies, the Fiber division is actively working towards transforming our manufacturing processes in-line with Industry 4.0 and has identified several projects for testing smart technologies. We have successfully tested and launched the Energy Management Information System at Rayong and it is currently progressing at other sites. Besides automation, we are making our workforce smarter by equipping them with smart tools to increase productivity and enhance operational efficiencies.

Consequently, the division achieved a cost-savings of US\$23 million through various operational excellence projects. We are targeting a further savings of US\$25 million in 2019 through our operational excellence efforts.

Year	2017	2018	Change	2019
Operational Excellence Savings in US\$ mn	18	23	+29%	25

In 2018, we reduced our loss time injury frequency rate (IFR) to 1.8 per million man hours from 2.8 in 2017.

Year	2017	2018	Change
IFR per million man hour	2.8	1.8	-36%

We continue to focus on simplifying supply chain complexities, business continuity and enhancing the process capabilities of our customers.

In 2018, the Fibers division completed capital projects worth US\$113 million within approved budgets and timelines.

Innovation

As a global, high-growth chemical company with a proven track record, our strategy and operations are shaped by megatrends including collaborative ecosystems, waste as an asset, innovating to zero, renewable energy, smart automation and applying AI for operations efficiency. These trends, together with changing societal needs for clean air, comfort, and safety, are forcing the industry to push the innovation agenda and commercialize new solutions for shifting consumer demand. This in turn, will drive improved customer experience and require continued focus on performance and sustainability. The Fibers strategy is aimed at capturing these mega-trends and creating a business model that leverages IVL's synergies to deliver high performance solutions. It is our firm belief that the real potential for synthetic fibers is yet to be fully exploited by the world.

Rapid dissemination of news through social media has made brands extremely sensitive to any adverse comments concerning quality. As a result, qualifications have become even more arduous and the approval cycles lengthier, so brand owners prefer to stick with approved suppliers who continuously invest in innovation and technology.

Innovation and customization remain at the core of what we do and we lead by continuing to feed our pipeline of new products and technologies. As a result, 23% of revenue in the fibers business comes from products that were introduced in the last five years, which compares favorably with other innovative companies in the world.

Year	2017	2018	Change
Vitality Index	21%	23%	+10%

In 2018, the Fibers division filed 12 patents for 10 products and was involved in 48 technical alliances covering 69 revenue streams.

People Power

The Fiber division's success relies on its people and their ability to understand and anticipate future trends. Global expansion, successful integration and unparalleled execution capabilities are all reflective of the diversity and quality of talented people who call IVL their home. Our demonstrated growth could not have happened without a great team of people behind us and a clear vision that makes Indorama Ventures unique in the context of industrial organizations globally.

The Fiber division is fortunate in having an excellent and growing team as we have largely acquired fully operating companies with excellent management capabilities.

Our principal focus is to integrate new teams, learn from their best practices, and also preserve the uniqueness of their culture. In addition, we have a strong focus on talent development and empowering our human capital that helps in creating:

- Seamless functioning that provides multiplier effects for operational excellence and innovation.
- Highly engaged employees that develop lasting relationships and enhance customer intimacy.
- Collective knowledge and collaborative working relationships that help internalize best practices.

To further develop our management depth in 2018, the Fibers segment launched the v-Lead program from diverse functional domains across the US, Europe and Asia. The teams have been provided with a training and development tool that will help in analyzing and evaluating the segments and projects they choose. We will keep refreshing this program to ensure we have a rich pool of talented managers to address our human capital aspects as we continue to grow the business. Our employee engagement score of 76% is reflective of a very high customer satisfaction index of 84% in 2018.

Outlook for 2019

As we look forward to positive performance and results in 2019, we have identified key areas of long-term strategic focus that will further improve our performance. We will continue to:

- Remain committed to sustainability by further increasing use of post-consumer PET and polyester waste materials as feedstock for fibers.

- Develop and enable a high-performance organization culture through leadership development, deeper employee engagement and an improved customer experience.
- Focus on maintaining our competitive advantage through innovation.
- Drive localization through geographic expansion and integration.

To manage the increased complexity, we also plan to streamline our operation and reorganize the Fiber segment into three focused verticals: the “Indorama Mobility,” “Indorama Hygiene,” and “Indorama Lifestyle” divisions.

Synthetic fiber demand continues to grow at healthy rates backed by population growth, affluence and innovation into diverse applications. The world fiber market is expected to reach 107.7 million tons in 2019 against 105.2 million tons in 2018, and over 90% of this additional demand, amounting to 2.2 million tons, will come from synthetic fibers. Within synthetic fibers, half of the growth will come from high value-added opportunities, which offer us substantial room for organic growth.

Year	2018	2019	Change	Synthetic Fiber Share
World Fiber Market in mn tons	105.2	107.7	+2.5	2.3

I am confident that IVL's Fiber division is well-positioned to benefit from evolving sector fundamentals and our well-researched strategies. I am grateful to our shareholders, to our customers, and our business partners worldwide for their continued support and to Team Indorama.

Thank you,



Udey Paul Singh Gill
Chief Executive Officer of Fibers Business

MESSAGE FROM THE CFO



Dear Stakeholders,

IVL posted strong operating and financial results in 2018. Our businesses have been able to capitalize on the favorable industry environment in 2018 mainly because of their focused pursuit of IVL's proven strategy and also from leveraging on our competitive strength.

The strong positive undercurrent coming from our first half 2018 performance led us to revise upwards the earlier EBITDA guidance given for 2019. We have now delivered another six months of excellent performance and having also completed our business plan process for 2019, we stay confident of meeting the last guidance of US\$ 1.75 billion EBITDA.

For its Shareholders, IVL delivered a Return on Equity of 21% in 2018. While our peers in the Industry would have been happy to replicate the return of 2017, our businesses in 2018 bettered each quarter of 2017. The 21% Return on Equity in 2018 is on an enlarged equity base after the warrants exercise. Similarly, another key performance indicator, Return on Operating Capital Employed (ROCE) was 14% in 2018, steadily growing from the level of 8% in 2014

Operating Cash Flows & Working Capital Optimization

Over the last five years our operating cash flows grew by 48%. The strong visibility of operating cash flows has helped us to deploy it in an accretive manner, whether it was for growth, return to the shareholders or debt management. Announcing a quarterly payment of dividend in 2018 and our intention to maintain it in future was therefore a natural decision for the board.

The last two years, through November 2018, saw a constant rise in crude prices which results in higher product prices. In the year 2017 & 2018 we also bought non-operating assets in Egypt and Portugal as well as partial operating assets in Brazil where we had to invest in working capital to bring them to normalized levels. Notwithstanding, I believe there is a potential to optimize working capital and generate incremental operating cash flows. I and my colleagues will make this a focused initiative in 2019 to optimize inventories and study & implement additional supply chain financing initiatives which additionally helps in improving our risk management related to receivables from our customers.

Balance Sheet and Capital Allocation Policy

The total operating assets size has grown by 80% in the last five years while the EBITDA growth in the same period has been approximately 200%. Returns from the operating assets have far exceeded the cost of financing of these assets. The EVA, Economic Value Addition, delivered by IVL has increased by around 7% during the period 2014 to 2018 period.

We have also positioned ourselves for further success in 2019 & beyond with a stronger balance sheet, with the shareholders equity boosted not only from higher retained earnings but also from fresh equity (through warrants exercise) of US\$ 0.9 billion in 2017 & 2018. We started the year 2018 with a net operating debt to equity of 0.54, the strong earnings and the record 99.8% exercise of Warrants 2 (after the successful exercise of Warrants 1 in 2017) enabled us to do acquisition of certain assets fitting our portfolio strategy with a purchase value of approximately US\$ 2.2 billion and still end the year with the net operating debt to equity at 0.62. Effective balance sheet management remains core to sustaining our accretive growth. The net operating debt over last 5 years has grown by 60% whereas the increase in Equity attributable to Shareholders in the corresponding period has gone up by 110% after rewarding the shareholders with regular dividends in line with the market.

The improvement in quality of earnings, increase in cash flows from operations and strengthening of financial position has been acknowledged by TRIS rating agency who upgraded our rating from A+ Stable Outlook to A+ Positive Outlook in 2017 and AA- Stable Outlook in 2018. The higher credit rating is expected to shave off around 15-20 bps on our future financing from the debt capital markets. Our transparency and continuous communication to our stakeholders on the stronger business profile, strengthening financial profile and focus on control & governance has helped us in achieving the objectives.

The Company's capital allocation policy aims to support our strategic priorities. The investments identified and executed in 2018 are well aligned with long term growth aspirations of company. The acquisitions in PET segment (M&G's Brazil assets, Investment in Egypt, Corpus Christi Integrated assets, Invista's Germany assets) will go a long way in enhancing product life cycle of traditional core business of company. Substantial capital allocation was also made for investments aimed at rebalancing the portfolio in HVA segments e.g. Hygiene (Avgol industries), Auto Fiber (Kordarna, UTT) and Recycled PET assets (Sorepla and Custom Polymers).

The Board of Directors are committed to harness full potential for both organic and inorganic growth. We will continue to optimize shareholder value by striking a right balance between objectives of growth, dividends and leverage.

Financing Strategy

In 2018 we took an important step in our financing strategy. We took advantage of favorable market conditions in the domestic debt capital markets which provided for relatively lower benchmark rates and lower spreads due to high liquidity. This coupled with favorable swap markets enabled us to raise long term money at historical low rates for IVL. The Swap from Thai Baht to Euro also improves our natural hedge in Euro currency

Going forward, the near term strategy will be to stick to local debt markets where financing rates are expected to lag international debt markets. As we approach our overall approved limit for Bonds financing by Shareholders of Baht 75 billion, we will look to seek shareholders' approval for doubling this limit so that we can continue taking advantage of the debt market dynamics.

By having adequate diversification in financing through local bonds, overseas bonds, local and international banks (a total of more than 75 banks), our additional financing needs (other than from local debt markets) will be met by large local and multinational relationship banks who have appreciated our business model over the long run and supported our growth.

With the increase in weightage of longer dated bonds (with bullet repayments) in our debt portfolio, the amortization % has reduced over years. More importantly the amortizations in the coming years are not more than 25% of the projected EBITDA for each year. Our fixed rate financing proportion is 62% which has helped us keep overall borrowing costs low in a rising interest rate environment in 2018.

Supply Chain financing solutions will be the way forward for meeting the short term financing needs with its apparent advantages of lower rates as compared to traditional working capital financing and also the ability to transfer risk to counter parties.

Tax Policy & Effective Tax Rates

We have policies to comply with the letter as well as the spirit of applicable tax laws. Adequate internal and external resources are engaged to ensure that tax obligations are properly understood & complied. Our tax policy encourages advance rulings from tax authorities and/or opinions from reputable advisors on all important issues to mitigate uncertainty. The 2018 RobecoSAM's report concluded that we met DJSI's transparency expectations and qualified as one of the Corporates with leading practices in Tax Strategy.

As globalization accelerates, tax issues are becoming more relevant to an organization's strategy, both in terms of tax-specific concerns, overall challenges and also opportunities for any new investment. We are moving beyond the traditional responsibilities of compliance, reporting, and management to address issues such as risk mitigation and tax-aware decision-making.

We are committed to an open and principles-based approach towards taxation, being transparent in our economic contributions, and providing clarity in our reporting.

Our contribution in the form of current taxation in the economy where we operate has consistently increased year on year.

Tax rates have varied over the years due to diversity of earnings in various regions with different tax rates. We expect to keep the tax rates optimized by working transparently with the various tax authorities.

Risk Management

Macroeconomic overview

We operate in a VUCA world with its ever changing and evolving risk environment; through a well-designed Risk Management approach, our businesses ensure sustainability and business continuity. In 2018 we resiliently withered several storms specific to our operations like Turkey crisis, US China trade tension and the oil shock.

Recent market volatility though and softening in macroeconomic data suggest that the recovery has plateaued. The global economy is still set to expand, however growth is expected to level off in the US and receding elsewhere. China has also reported lower numbers for 2018. The challenge for various central banks will be to thread the needle between slowing global growth on the one hand, but less accommodative policy on the other. Volatility is inevitable with a disorderly Brexit, continuing US China trade tension, uncertainty in Europe, election year in Asia, media on plastics, digitization disruption. We cannot be complacent because of our past achievements. In fact in this era of VUCA, we need to continuously strengthen our efforts on the various risk management areas.

Forex Risk Management

We mostly carry natural hedges as revenues from customer and raw material cost are dollar denominated. Almost 80-85% of the working capital is naturally hedged. The open exposure we carry is relatively insignificant but with prudent management over the last few years it has resulted in realizing foreign exchange gain in the income statement.

The translation of earnings from foreign subsidiaries into Thai Baht has, however, been adversely impacted over last few years with Thai Baht strengthening.

Long term capital needs have been funded through a) long term debt in matching currency b) Thai Baht Equity/Thai Baht Debentures c) Internal accruals in matching currency. Funding through Thai Baht Equity/Debentures results in open forex exposure with translation gain loss on balance sheet with no impact on Income statement. Thai Baht Equity/Debenture funding have been covered partially through cross currency swaps opportunistically.

Insurance

At IVL, we take Insurance as a critical tool for risk transfer to protect our assets. We take property cover, construction all risk cover, business interruption cover, public & product liability cover, marine policies, D&O covers etc.

IVL has a total insured value of about USD 17 Billion that includes the replacement cost of plants and the value of gross profits.

The general liability/ 3rd party liability/ pollution liability/ product liability cover all the regions where we are present with a total limit of liability (LOL) of \$145 million.

Adequate D&O policy coverage is taken at Thailand apart from local coverages in respective regions.

IVL insures its risk with top notch underwriters who have excellent A.M. Best ratings; leading underwriters like Munich Re, FM Global, Allianz, CV Starr, A.I.G. etc.

Receivables Risk Coverage

It is IVL's endeavor to maintain high quality of Accounts Receivables through regular monitoring of receivables recovery, control of exposures through internal credit limit approvals etc. Approximately 75% of the current outstanding receivables have been secured through Credit Insurance, LC/ CAD/ Parent Guarantees.

Cyber Security risk

Cyber-crime is growing exceptionally and exponentially.

IVL is taking a number of initiatives on cyber security, including centralizing and standardizing processes and software.

Sustainability Initiatives

Group-Wide Information Technology Program

IVL's continued rapid growth through acquisitions has also brought about certain complexity for our IT landscape as a natural by-product of each acquisition. So as not to delay closing of any acquisition and also have business continuity, we have permitted acquired subsidiaries to continue running on their original ERP. We are today running a number of ERP instances which poses challenges on timely reporting & process standardization. Since our competitive strength is derived from strong MIS reporting systems, it is important to resolve and help businesses maintain this edge. We plan to do a diagnostic phase with the objective to define IVL's vision and roadmap to get there. We expect to then initiate the implementation of the roadmap within 2019, however it is expected that the completion will take a few years.

IVL 4.0

Our other competitive strength has been continuous internal and external benchmarking across our sites. In order to stay ahead of our curve, our technical teams have implemented some initiatives in robotics, real time optimization. They have now embarked upon data analytics and machine learning project on certain sites with an industry leading consultant with an objective to implement these learnings across sites and also develop a digital organization in IVL which will replicate these projects at other sites and initiate and implement new projects in this area.

Regional Corporate Structure

We have created regional corporate hubs in Americas, Europe, Indonesia and China; regions where we have a large asset exposure. The objectives for these teams is to ensure compliance with the region's regulatory environment requirements, provide

corporate services to businesses in real time, benchmark operation sites and implement best practices across the region so as to extract full synergies. These structures were introduced a couple of years back and with their learnings during this period, we will be targeting to derive full benefits expected from this structure and also strengthen them for future growth in their regions.

I will like to conclude by thanking the audit committee, board members for their continuous guidance to me and the corporate center function. I will also like to thank all my colleagues across the globe who have been churning reports very timely and guiding their businesses to the best of their abilities. And last but not the least a special thanks to the corporate team for completing a record number of transactions in 2018.

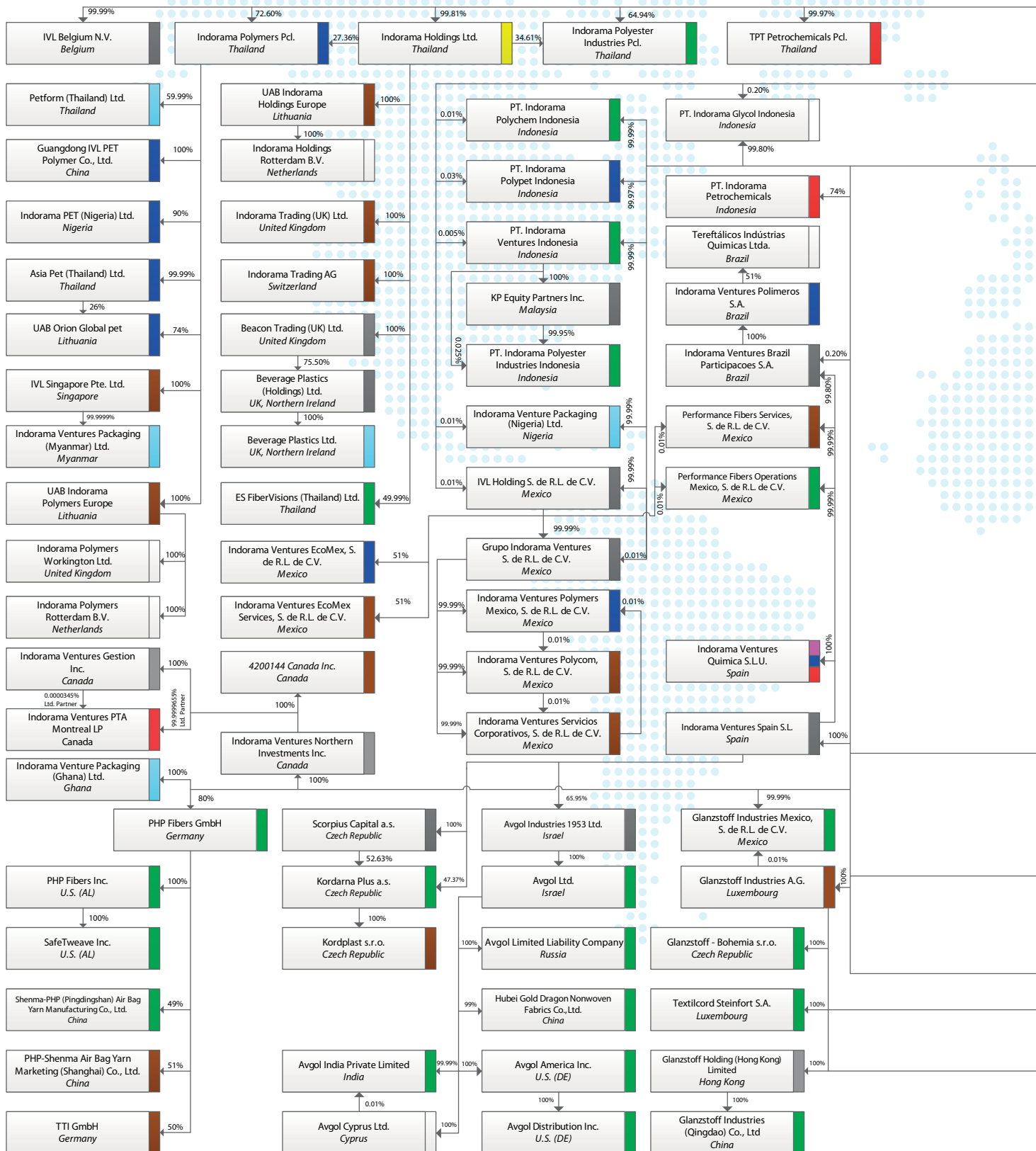
Thank you.



Sanjay Ahuja
Chief Financial Officer

IVL GROUP CORPORATE STRUCTURE

As of December 31st, 2018



GENERAL INFORMATION AND OTHER INFORMATION

General Information

Name	: Indorama Ventures Public Company Limited
Symbol	: IVL
Head Office	: 75/102 Ocean Tower 2, 37 th Floor, Soi Sukhumvit 19 (Wattana) Asoke Road, Klongtoey Nua, Wattana, Bangkok 10110, Thailand Tel: 0-2-661-6661 Fax: 0-2-661-6664-5 www.indoramaventures.com
Type of Business	: Holding Company
Company Registration No.	: 0107552000201
Registered Capital	: Baht 5,666,010,449 divided into 5,666,010,449 common shares of par value at Baht 1
Paid-Up Capital	: Baht 5,614,551,908 divided into 5,614,551,908 common shares of par value at Baht 1

References

Share Registrar	: Thailand Securities Depository Company Limited 93 Ratchadapisek Road, Dindaeng, Dindaeng, Bangkok 10400, Thailand Tel: 0-2-009-9999 Fax: 0-2-009-9991
Debenture Registrar	: Bangkok Bank Public Company Limited 333 Silom Road, Silom, Bangrak, Bangkok 10500, Thailand Tel: 0-2-230-1136 Fax: 0-2-626-4545-6
Debenture Registrar (For IVL Debenture No. 1/2015 Tranche 1 & 2)	: Siam Commercial Bank Public Company Limited 1060 SCB Chidlom Tower 2, 3 rd Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand Tel: 0-2-256-2339 Fax: 0-2-256-2406
Debenture Registrar (For IVL Debenture No. 2/2015)	: Krungthai Bank Public Company Limited 35 Sukhumvit Road, Klongtoey Nua, Wattana, Bangkok 10110, Thailand Tel: 0-2-298-0830 Fax: 0-2-298-0835
Debenture Holders' Representative	: Bank of Ayudhya Public Company Limited 1222 Rama III Road, Bang Phongphang, Yannawa, Bangkok 10120, Thailand Tel: 0-2-296-3582 Fax: 0-2-296-2202
Auditor	: KPMG Phoomchai Audit Limited 195 Empire Tower, 50 th – 51 st Floor, South Sathorn Road, Yannawa, Sathorn, Bangkok 10120, Thailand Tel: 0-2-677-2000 Fax: 0-2-677-2222
Legal Advisor	: The Capital Law Office Limited 44 Smooth Life Tower, 18 th Floor, North Sathorn Road, Silom, Bangrak, Bangkok, 10500, Thailand Tel: 0-2-633-9088 Fax: 0-2-633-9089

93 operating sites

31 countries

5 continents



NORTH AMERICA

Canada

Entreprise Indorama PTA Montreal

Mexico

Indorama Ventures Polymers Mexico

Indorama Ventures EcoMex

Performance Fibers Mexico Operations

USA

AlphaPet

Auriga Polymers

StarPet

FiberVisions Products

FiberVisions Manufacturing

PHP Fibers

Indorama Ventures (Oxide & Glycols)

Indorama Ventures Olefins

Indorama Ventures Xylenes & PTA

Winnsboro Fibres

Avgol America

SOUTH AMERICA

Brazil

Indorama Ventures Polimeros

AFRICA

Egypt

Egyptian Indian Polyester Company

Medco Plast for Packing and Packaging Systems

Ghana

Indorama Ventures Packaging (Ghana)

Nigeria

Indorama Ventures PET (Nigeria)

Indorama Ventures Packaging (Nigeria)

ASIA

China

Guangdong IVL PET Polymer

FiberVisions (China) Textile Products

ShenMa-PHP (Pingdingshan) Air Bag Yarn Manufacturing

Performance Fibers (Kaiping)

ES FiberVisions (Suzhou)

Glanzstoff Industires (Qingdao)

Hubei Gold Dragon Nonwoven Fabric

India

IVL Dhunseri Petrochem Industries

Avgol India

Indonesia

Indorama Polypet Indonesia

Indorama Polychem Indonesia

Indorama Ventures Indonesia

Indorama Polyester Industries Indonesia

Indorama Petrochemicals

Israel

Avgol Industries 1953

Avgol Israel

Philippines

Indorama Ventures Packaging (Philippines)

Myanmar

Indorama Ventures Packaging (Myanmar)

Thailand

Indorama Petrochem

TPT Petrochemicals

Indorama Polyester Industries

(Nakhon Pathom)

Indorama Polymers and AsiaPet (Thailand)

Indorama Holdings (Thailand)

Indorama Polyester Industries (Rayong)

Petform (Thailand)

ES FiberVisions (Thailand)

EUROPE

Austria

Schoeller

Czech Republic

Glanzstoff Bohemia

Kordarna Plus

Schoeller Kresice

Denmark

FiberVisions

France

Glanzstoff Longlaville

Wellman France Recyclage

Wellman Neufchateau

Germany

Trevira

PHP Fibers

Ireland

Wellman International

Italy

Glanzstoff Industries - Sicrem

Lithuania

Orion Global Pet

Luxembourg

Glanzstoff Industries - Textilcord Steinfort

Poland

Indorama Ventures Poland

Portugal

Indorama Ventures Portugal PTA

Russia

Avgol Russia

Slovakia

Kordarna Plus

Spain

Indorama Ventures Quimica

The Netherlands

Wellman Recycling Spijk

Indorama Ventures Europe

Turkey

Indorama Ventures Corlu PET

United Kingdom

Beverage Plastics

INVESTMENTS OF THE COMPANY

As of 31 December 2018

EG&EO Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	Indorama Ventures (Oxide & Glycols) LLC Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: +1 847 943 3100 Fax: +1 847 943 3196	USA	(Membership Interest)	-	99.99%
Ethylene Cracker Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	Indorama Ventures Olefins LLC Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: +1 337 502 4678 Fax: N/A	USA	(Membership Interest)	-	90.40%
PTA Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	TPT Petrochemicals Public Company Limited 75/116-117, Ocean Tower 2, 41 st Floor, Soi Sukhumvit 19 (Wattana), Sukhumvit Road, Klongtoey Nuer, Wattana, Bangkok 10110, Thailand Tel: +66 2 661 6661 Fax: +66 2 661 6664 - 5	Thailand	Common Share	492,500,000	99.97%
2	PT. Indorama Petrochemicals Graha Irama, 16 th Floor, Jalan H R Rasuna Said, Blok X-1, Kav. 1-2, Kuningan Timur, Setiabudi, Jakarta Selatan 12950, Indonesia Tel: +62 21 526 1555 Fax: +62 21 526 4436	Indonesia	Common Share Class A Class B Class C Class D Class E Class F	2,514,400 1,833,743 166,257 50,000 200,000 250,000 14,400	73.99%
3	Indorama Ventures PTA Montreal LP. 10200 rue Sherbrooke E., Montreal-Est, Quebec H1B 1B4, Canada Tel: +1 514 645 7887(229) Fax: +1 514 645 9115	Canada	(Partnership Interest)	290,000,000	99.99%
4	Indorama Ventures Portugal PTA - Unipessoal, LDA. ZILS Zona 2, Lote 2E1, Monte Feio, 7520-064 Sines, Portugal Tel: +351 269 189 000 Fax: +351 269 189 099	Portugal	Quota	1	99.99%

PTA & PET Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	Indorama Ventures Europe B.V. Markweg 201, 3198NB Europoort Rotterdam, Netherlands Tel: +31 181 285 400 Fax: +31 181 285 405	Netherlands	Common Share	100	99.99%
2	Indorama Petrochem Limited 75/93, Ocean Tower 2, 35 th Floor, Soi Sukhumvit 19 (Wattana), Sukhumvit Road, Klongtoey Nuer, Wattana, Bangkok 10110, Thailand Tel: +66 2 661 6661 Fax: +66 2 661 6664 - 5	Thailand	Common Share	1,014,616,651	99.99%
3	Corpus Christi Polymers LLC Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: N/A Fax: N/A	USA	(Membership Interest)	-	33.33%
PTA & PET & Purified Isophthalic Acid Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	Indorama Ventures Quimica S.L.U. Poligono Industrial Guadarranque, 0 S/N, 11360 San Roque, Cadiz, Spain Tel: +34 956 671 000 Fax: +34 956 671 127	Spain	Common Share	6,000	99.99%
PTA & Paraxylene & NDC Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	Indorama Ventures Xylenes & PTA LLC Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: +1 302 636-5401 Fax: +1 302 636-5454	USA	(Membership Interest)	-	99.99%
PET Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	Indorama Polymers Public Company Limited 75/102, 103 Ocean Tower 2, 37 th Floor, Soi Sukhumvit 19 (Wattana), Asoke Road, Klongtoey Nuer, Wattana, Bangkok 10110, Thailand Tel: +66 2 661 6661 Fax: +66 2 661 6664 - 5	Thailand	Common Share	1,382,197,870	99.91%
2	Asia Pet (Thailand) Limited 75/102 Ocean Tower 2, 37 th Floor, Soi Sukhumvit 19 (Wattana), Asoke Road, Klongtoey Nuer, Wattana, Bangkok 10110, Thailand Tel: +66 2 661 6661 Fax: +66 2 661 6664 - 5	Thailand	Common Share	45,000,000	99.90%
3	Guangdong IVL PET Polymer Company Limited No.1 Meihua Road, Shuikou Town, Kaiping City, Guangdong, People's Republic of China Tel: +86 750 220 9680 Fax: N/A	China	(Capital Contribution)	-	99.91%
4	UAB Orion Global pet Metalo G.16, Klaipeda, Republic of Lithuania, LT-94102 Tel: +370 46 300749 Fax: +370 46 314323	Lithuania	Common Share	776,880	99.91%

PET Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
5	Indorama PET (Nigeria) Limited East West Expressway, Eleme, Port Harcourt, Rivers State, Nigeria Tel: +234 (1) 2793841 Fax: +234 (1) 2793842	Nigeria	Common Share	450,000,000	89.92%
6	PT. Indorama Polypet Indonesia JL. Raya Anyar Km.121, Kel. Kepuh, Kec. Ciwandan, Cilegon 42445 (Banten), Indonesia Tel: +62 254 602300 Fax: +62 254 602940	Indonesia	Common Share	3,500	99.99%
7	Indorama Ventures Corlu PET Sanayi Anonim Sirketi Karamehmet Mahallesi, Avrupa Serbest Bölgesi, 3. Sokak No: 2 Ergene/Tekirdag - 59860, Turkey Tel: +90 282 691 1100 / 207 Fax: +90 282 691 1008	Turkey	Common Share	16,217,649	99.99%
8	Indorama Ventures Poland Sp. z o.o. ul. Krzywa Gora 19, 87-805 Wloclawek, Poland Tel: +4854 416 6442 Fax: +4854 416 6449	Poland	Common Share	993,988	99.99%
9	Indorama Ventures Ecomex, S. de R.L. de C.V. Carretera Libre a Colotlan 6800. Colonia Extramuros. Zapopan, Jalisco, Mexico Tel: +5233 1561 3732 Fax: N/A	Mexico	Equity Quota Class I	2	51.00%
10	Indorama Ventures Polymers Mexico, S. de R.L. de C.V. Avenida Prolongación Paseo de la Reforma 1015, Torre A piso 2, Colonia Santa Fe Cuajimalpa, CP 05348, Delegación Cuajimalpa de Morelos, Ciudad de México, México Tel: +52 55 9177 5700 Fax: +52 55 5292 4919	Mexico	Equity Quota Class I	2	99.99%
11	Alphapet, Inc. 1301 Finley Island Road, Decatur, Alabama, AL35601, USA Tel: +1 256 308 1180 Fax: +1 256 341 5926	USA	Common Share	4,400	99.99%
12	Auriga Polymers Inc. Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808 USA Tel: +1-877-738-7527 Fax: +1-980-233-6602	USA	Common Share	5,000	99.99%
13	Starpet Inc. Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808 USA Tel: +1-336-672-0101 Fax: +1-336-672-0904	USA	Common Share	5,000	99.99%
14	IVL Dhunseri Petrochem Industries Private Limited Dhunseri House, 4A, Woodburn Park, Kolkata- 700020, P.S. Bhawanipur, India Tel: +91 33 2283 6128 - 33 Fax: +91 33 2283 6056	India	Common Share	42,500,000	50.00%

PET Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
15	Indorama Ventures Polimeros S.A. 'Rod. PE-60, Km 10, s/nº - Engenho Massangana, TDR - Sul. Complexo Industrial Portuário Suape. 'CEP: 55590-000 - Ipojuca - PE, Brazil Tel: +91 33 2283 6128 - 33 Fax: +91 33 2283 6056	Brazil	Common Share	1,555,165,727	99.99%
16	Egyptian Indian Polyester Company 10 Nehru St., 5th Floor, Flat no.18 Behind Merryland Park, Heliopolis Cairo - 11341, Egypt. Tel: +202 225 88 991 Fax +202 225 88 945	Egypt	Common Share	570,000	49.99%
17	Wellman Neufchateau Recyclage S.A. Chemin de Greta 88300 Rebeuville, France Tel: N/A Fax N/A	France	Common Share	320,866	99.99%
18	Indorama Loop Technologies, LLC Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808 USA. Tel: N/A Fax: N/A	USA	(Membership Interest)	-	50.00%
Packaging Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	Petform (Thailand) Limited 85 Moo 11, Bangnga-Thaklong Road, Khao Samorkorn Sub-district, Thawung District, Lopburi Province, 15180 Thailand Tel: +66 36 489 116 Fax: +66 36 489 115,117	Thailand	Common Share	7,500,000	59.94 %
2	Beverage Plastics Limited Silverwood Business Park, 70 Silverwood Road, Lurgan, Craigavon, County Armagh, BT66 6LN, Northern Ireland Tel: +44 283 831 1800 Fax: +44 283 831 1888	Northern Ireland	Common Share	600,000	75.36%
3	Indorama Ventures Packaging (Nigeria) Limited Eleme Petrochemicals Complex, East-West Expressway, Eleme, Rivers State, Nigeria Tel : +234 (1) 2793841 Fax: +234 (1) 2793842	Nigeria	Common Share	150,000,000	99.99%
4	Indorama Ventures Packaging (Ghana) Limited Plot 234 Meridian Rd. COMM.2 Accra, Greater Accra, BOX CO PMB 350 TEMA GA/R, Ghana Tel: +233 266082249 Fax: N/A	Republic of Ghana	Common Share	4,649,215	99.99%
5	Indorama Ventures Packaging (Philippines) Corporation Building 1, Southern Luzon Complex, Barangay Batino, Calamba City, Laguna, Philippines Tel: +63 495 303 592 / +63 495 340 036 Fax: N/A	Philippines	Common Share	1,075,005	99.99%

Packaging Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
6	Indorama Ventures Packaging (Myanmar) Limited Lot No. A11-1, Thilawa Special Economic Zone A, Yangon Region, Myanmar Tel: +95-12309022 Fax: N/A	Myanmar	Common Share	3,516,322	99.91%
7.	Indorama Ventures Packaging (India) Private Limited C 524, Defence Colony, New Delhi - 110024, Delhi, India Tel: +91 11 4163 0033 Fax: +91 11 2433 9075	India	Common Share	140,000	99.98%
8	Medco Plast Co. for Packing & Packaging systems (S.A.E.) 3 Kambes st. - El Dokki, El Giza, Egypt Tel: +202 37481730 Fax: +202 37499685	Egypt	Common Share	4,950,000	73.99%
Fibers Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	Indorama Polyester Industries Public Company Limited 75/92, Ocean Tower 2, 35 th Floor, Soi Sukhumvit 19 (Wattana), Asoke Road, Klongtoey Nuer, Wattana, Bangkok 10110, Thailand Tel : +66 2 661 6661 Fax : +66 2 661 6664 - 5	Thailand	Common Share	2,202,850,000	99.49%
2	ES Fibervisions (Thailand) Company Limited 75/64, 65 Ocean Tower 2, 28 th Floor, Soi Sukhumvit 19 (Wattana), Asoke Road, Klongtoey Nuer, Wattana, Bangkok 10110, Thailand Tel : +66 2 661 6661 Fax : +66 2 661 6664 - 5	Thailand	Common Share	41,000,000	50.00%
3	PT. Indorama Polychem Indonesia JL. Desa Kembang Kuning, Kecamatan Jatiluhur, Purwakarta (Jawa Barat), Indonesia Tel : +62 264 207727 Fax : +62 264 211260	Indonesia	Common Share	70,000	99.99%
4	PT. Indorama Ventures Indonesia Desa Cihuni, RT/RW 002/004, Cihuni, Pagedangan, Tangerang, Banten, 15820 Indonesia Tel : +62 215 371111 Fax : +62 215 378811	Indonesia	Series A Shares Series B Shares	80,000 2,812,500	99.99%
5	PT. Indorama Polyester Industries Indonesia JL. Surya Lestari Kav. 1-16A, Kawasan Industry Surya Cipta, Desa Kutamekar, Kec Ciampel, Karawang, 41361, Jawa Barat, Indonesia Tel : +0267-440501 Fax: +0267-440764	Indonesia	Common Share	20,000	99.98%
6	Trevira GmbH Max-Fischer-Strasse 11, 86399 Bobingen, Federal Republic of Germany Tel : +49 8234 9688 2100 Fax: +49 8234 9688 5355	Germany	Common Share	25,300	99.99%

Fibers Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
7	PHP Fibers GmbH Industrie Center Obernburg, 63784 Obernburg, Germany Tel: +49 6022 81 2552 Fax: +49 6022 81 31 2552	Germany	Common Share	25,001	80.00%
8	Shenma-PHP (Pingdingshan) Air Bag Yarn Manufacturing Co., Ltd. Pingdingshan City, Henan Province, People's Republic of China Tel: +49 6022 81 2552 Fax: +49 6022 81 31 2552	China	(Capital Contribution)	-	39.20%
9	PHP Fibers Inc. 300 Serrano Way, Scottsboro, Alabama 35768 , USA Tel: +1-256-218-4000 Fax: +1-256-218-4062	USA	Common Share	1,000	80.00%
10	SafeTweave, Inc. 302 Serrano Way, Scottsboro, Alabama 35769, USA Tel: +1-256-218-4000 Fax: +1-256-218-4062	USA	Common Share	1,000	80.00%
11	FiberVisions A/S Engdraget 22, Varde Denmark, DK-6800, Denmark Tel: +45 7994 2200 Fax: +45 7994 2201	Denmark	Class A Class B	122,949,441 29,117,600	99.99%
12	FiberVisions (China) Textile Products Ltd. No. 29 Heng Shan Rd., New District, Suzhou, People's Republic of China Tel: +86 512 6823 1099 Fax: +86 512 6823 0021	China	(Capital Contribution)	-	99.99%
13	ES FiberVisions (Suzhou) Co., Ltd. No. 29 Hengshan Rd. Suzhou New District 215011, People's Republic of China Tel: +86 512 6823 1099 Fax: +86 512 6823 0021	China	(Capital Contribution)	-	50.00%
14	FiberVisions Manufacturing Company The Corporation Trust Company, 1209 Orange St., Wilmington, Delaware 19801, USA Tel: +1 302 658-7581 Fax: +1 302 655-2480	USA	Common Share	100	99.99%
15	FiberVisions Products, Inc. CT Corporation System, 289 S. Culver Street, Lawrenceville, Georgia 30046, USA Tel: +1 800 241 8922 Fax: +1 404 888 7795	USA	Common Share	25,000	99.99%
16	Wellman France Recyclage S.A.S. Zone Industrielle de Regret 55100 Verdun, France Tel: +33 (0) 971 002 005 Fax: +33 (0) 329 843 104	France	Common Share	500	99.99%
17	Wellman International Limited Mullagh, Kells, Co.Meath, A82 NN93, Ireland Tel: +353 46 9280200 Fax: +353 46 9280300	Ireland	Common Share	1,100,850	99.99%

Fibers Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
18	Performance Fibers (Kaiping) Company Limited 3 Hongqiao Road, Changsha, Kaiping, Guangdong Province, People's Republic of China Tel: +86 750 2278000 Fax: +86 750 2218093	China	(Capital Contribution)	-	99.99%
19	Performance Fibers (Kaiping) No.2 Company Limited 1 Huan Cui Road West, Cuishan Lake New Region, Kaiping, Guangdong Province, People's Republic of China Tel: +86 750 2278000 Fax: +86 750 2218093	China	(Capital Contribution)	-	99.99%
20	Performance Fibers (Kaiping) No.3 Company Limited Land Lot JCR2016-57(Kaiping 14)B, west of Die Cui Da Road , north of Huan Cui West Road, Cuishanhu New District, Kaiping, Guangdong, People's Republic of China Tel: + (86) 750-2201707 Fax: + (86) 750-2218093	China	(Capital Contribution)	-	99.99%
21	Glanzstoff Industries (Qingdao) Co., Ltd. No.1735 Maoshan Road, Sino-German Ecopark, Huangdao District, Qingdao, Shandong Province, People's Republic of China Room 299, No.2877 Tuanjie Road, Huangdao District, Qingdao City, Shandong Province, People's Republic of China Tel: +86 532 80987237 Fax: +86 532 80983559	China	(Capital Contribution)	-	99.99%
22	Glanzstoff Longlaville S.A.S. Pôle Européen de Développement, 54810 Longlaville, France Tel: +33 3 82 44 80 00 Fax: +33 3 82 44 56 82	France	Common Share	3,037,323	99.99%
23	Società Industriale Cremonese SICREM s.p.a. Pizzighettone, Via G.B. Pirelli, 56, Italy Tel: +39 0372 738011 Fax: +39 0372 730001	Italy	Common Share	9,180,000	99.99%
24	Textilcord Steinfurt S.A. Rue Schwarzenhof, 34 L-8452 Steinfurt - GD, Luxembourg Tel: +352 399 8811 Fax: +352 399 881 213	Luxembourg	Common Share	1,000	99.99%
25	Glanzstoff - Bohemia s.r.o. Terežinská 60, 41002 Lovosice, Czech Republic Tel: +420 416 575 111 Fax: +420 416 575 107	Czech Republic	Common Share	750	99.99%
26	Winnsboro Fibres LLC Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: + (256) 218-4006 Fax: +(256) 218-4017	USA	(Membership Interest)	-	99.99%

Fibers Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
27	Performance Fibers Operations Mexico, S. de R.L. de C.V. Av. de la Luz 77 Zona Industrial Benito Juárez, CP 76120, Querétaro, Qro., México Tel: +52 442 211 3000 Fax: N/A	Mexico	Equity Quota Class I	50,000	99.99%
28	Huvis Indorama Advanced Materials, LLC Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: N/A Fax: N/A	USA	(Membership Interest)	-	50.00%
29	Hubei Gold Dragon Nonwoven Fabrics Co., Ltd. 236 Xinlong Road, High-Tech Industrial Development Zone, Jingmen, Hubei, 448000, People's Republic of China Tel: 86 724 650 3034 Fax: N/A	China	(Capital Contribution)	-	65.28%
30	Avgol India Private Limited Plot No. 184, Part of Plot No. 183 & 185, Sector -A, Mandideep Industrial Area, Mandideep, Dist. -Raisen - 462046, Madhya Pradesh, India Tel: 91 748 066 6602 Fax: N/A	India	Common Share	2,746,449	65.94%
31	Avgol Limited Liability Company Building 1 Druzhby Street, town of Uzlovaya, Tula Region, 301605, Russian Federation Tel: 74 872 710 653 Fax: N/A	Russia	(Membership Interest)	-	65.66%
32	Avgol America Inc. 178 Avgol Drive Mocksville, NC, 27028-2558, USA Tel: +1 336 936 2503 Fax: N/A	USA	Common Share	150,000	65.94%
33	Avgol Distribution Company Inc. 178 Avgol Drive Mocksville, NC, 27028-2558, USA Tel: +1 336 936 2503 Fax: N/A	USA	Common Share	3,000	65.94%
34	Avgol Ltd. 20 Lincoln st., Rubinstien House, Tel Aviv, 67134-12, Israel Tel: 972-3-906-1555 Fax: 972-3-936-4376	Israel	Common Share	82,941,411	65.94%
35	Kordarna Plus a.s. No. 890, 696 74 Velká nad Velickou, Czech Republic Tel: N/A Fax: N/A	Czech Republic	Common Share	248,409,200	99.99%
36	Glanzstoff Industries Mexico, S. de R.L. de C.V. Av. de la Luz 77 Zona Industrial Benito Juárez, CP 76120, Querétaro, Qro. Mexico Tel: +52 442 211 3000 Fax: N/A	Mexico	Equity Quota Class I	50,000	99.99%

Wool Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	Indorama Holdings Limited 75/64, 65 Ocean Tower 2, 28 th Floor, Soi Sukhumvit 19 (Wattana), Asoke Road, Klongtoey Nuer, Wattana, Bangkok 10110, Thailand Tel: +66 2 661 6661 Fax: +66 2 661 6664 - 5	Thailand	Common Share	77,446,800	99.81%
2	Schoeller GmbH & Co KG Politischer Gemeinde Hard, Austria Tel: 0043 5574 609 0 Fax: N/A	Austria	(Capital Contribution)	-	99.99%
3	Schoeller Kresice s.r.o. Prazska 98, 41148 Kresice, Czech Republic Tel: N/A Fax: N/A	Czech Republic	(Capital Contribution)	-	99.99%
Holding Company Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	Indorama Netherlands Cooperatief U.A. Markweg 201, 3198NB Europoort, Rotterdam, Netherlands Tel: +31 181 285 400 Fax: +31 181 285 405	Netherlands	(Ownership Interest)	-	99.99%
2	Indorama Netherlands B.V. Markweg 201, 3198NB Europoort, Rotterdam, Netherlands Tel: +31 181 285 400 Fax: +31 181 285 405	Netherlands	Common Share	18,000	99.99%
3	Beacon Trading (UK) Limited 23 Northiam, Woodside Park, N 12 7ET, London, United Kingdom Tel: N/A Fax: N/A	United Kingdom	Common Share	320,000	99.81%
4	Beverage Plastics (Holdings) Limited Silverwood Business Park, 70 Silverwood Road, Lurgan Craigavon, Country Armagh, BT 66 6 LN, Northern Ireland Tel: +44 2838311800 Fax: +44 2838311888	Northern Ireland	Common Share Class A Class C	10,000 7,550 2,450	75.36%
5	KP Equity Partners Inc. Lot 2&3, Level 3, Wisma Lazenda, Jalan, Kemajuan, 87000 F.T. Labuan, Malaysia Tel: +087 414 073 Fax: +087 413 281	Malaysia	Common Share	10,000	99.99%
6	Trevira Holdings GmbH Max-Fischer-Strasse 11, 86399 Bobingen, Federal Republic of Germany Tel: N/A Fax: N/A	Germany	Common Share	25,000	99.99%
7	Indorama Ventures Recycling Netherlands B.V. Markweg 201, 3198 NB Europoort, Rotterdam, Netherlands Tel: +31 181 285 400 Fax: N/A	Netherlands	Common Share	18,000	99.99%

Holding Company Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
8	Indorama Ventures Holdings LP Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: +1-847-943-3100 Fax: +1-847-943-3196	USA	(Partnership Interest)	-	99.99%
9	Indorama Ventures USA Holdings LP Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: +1-847-943-3100 Fax: +1-847-943-3196	USA	(Partnership Interest)	-	99.99%
10	Indorama Ventures Performance Fibers Holdings USA, LLC Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: +1 302 636-5401 Fax: +1 302 636-5454	USA	(Membership Interest)	-	99.99%
11	FiberVisions Corporation The Corporation Trust Company, 1209 Orange St., Wilmington, Delaware 19801, USA Tel: +1 678 578 7240 Fax: +1 678 578 7276	USA	Common Share	1,000	99.99%
12	FiberVisions (China) A/S Engdraget 22, Varde Denmark, DK-6800, Denmark Tel: +45 7994 2200 Fax: +45 7994 2201	Denmark	Common Share	100,000	99.99%
13	ES FiberVisions Holdings ApS Engdraget 22, Varde Denmark, DK- 6800, Denmark Tel: +45 7994 2200 Fax: +45 7994 2201	Denmark	Common Share	48,500	50.00%
14	Indorama Ventures OGL Holdings LP Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: +1-847-943-3100 Fax: +1-847-943-3196	USA	(Partnership Interest)	-	99.99%
15	FiberVisions, L.P. 3700 Crestwood Parkway, Suite 900, Duluth, Georgia 30096, USA Tel: +1 302 658-7581 Fax: +1 302 655-2480	USA	(Partnership Interest)	-	99.99%
16	ES FiberVisions, Inc. 3700 Crestwood Parkway, Suite 900, Duluth, Georgia 30096, USA Tel: +1 302 636 5401 Fax: +1 302 636 5454	USA	Common Share	100	50.00%
17	IVL Holding, S. de R.L. de C.V. Avenida Prolongación Paseo de la Reforma 1015, Torre A piso 2, Colonia Santa Fe Cuajimalpa CP 05348, Delegación Cuajimalpa de Morelos, Ciudad de México, México Tel: +52 55 91775700 Fax: +52 55 52924919	Mexico	Equity Quota Series A	2	99.99%

Holding Company Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
18	Grupo Indorama Ventures, S.de R.L. de C.V. Avenida Prolongación Paseo de la Reforma 1015, Torre A piso 2, Colonia Santa Fe Cuajimalpa CP 05348, Delegación Cuajimalpa de Morelos, Ciudad de México, México Tel: +52 55 91775700 Fax: +52 55 52924919	Mexico	Equity Quota Class I	2	99.99%
19	Indorama Ventures Polyholding LLC Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: +1 256 308 1180 Fax: +1 256 341 5926	USA	(Membership Interest)	-	99.99%
20	Indorama Polymers (USA) LLC 1301 Finley Island Road, Decatur, Alabama, AL 35601, USA Tel: +1 256 308 1180 Fax: +1 256 341 5926	USA	(Membership Interest)	-	99.99%
21	Indorama Ventures USA LLC Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: +1 256 308 1180 Fax: +1 256 341 5926	USA	(Membership Interest)	-	99.99%
22	IVL Belgium N.V. Jules Bordetlaan 160, 1140 Evere, Belgium Tel: N/A Fax: N/A	Belgium	Common Share	30,615	99.99%
23	Performance Fibers Holdings Finance, Inc. The Corporation Trust Company, 1209 Orange St., Wilmington, DE 19801, USA Tel: +1 678 578 7240 Fax: +1 678 578 7276	USA	Common Share	1,000	99.99%
24	Performance Fibers Asia Holdings, LLC Corporation Trust Center, 1209 Orange St., Wilmington, Delaware 19801, USA Tel: +1 678 578 7240 Fax: +1 678 578 7276	USA	(Membership Interest)	-	99.99%
25	Performance Fibers Asia, LLC Corporation Trust Center, 1209 Orange St., Wilmington, Delaware 19801, USA Tel: +1 678 578 7240 Fax: +1 678 578 7276	USA	(Membership Interest)	-	99.99%
26	Indorama Ventures Northern Investments Inc. 10200 rue Sherbrooke E., Montreal-Est, Quebec H1B 1B4, Canada Tel: +1 514 645 7887 Fax: +1 514 645 9115	Canada	Class A Class B Class C	10,410 149,889,750 256,766,500	99.99%
27	Indorama Ventures Gestion Inc. 10200 rue Sherbrooke E., Montreal-Est, Quebec H1B 1B4, Canada Tel: +1 514 645 7887 Fax: +1 514 645 9115	Canada	Common Share	100	99.99%

Holding Company Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
28	Indorama Ventures Dutch Investments B.V. Markweg 201, 3198NB Europoort, Rotterdam, Netherlands Tel: +31 181 285 400 Fax: +31 181 285 405	Netherlands	Common Share	8,914,320	51.00%
29	Indorama Ventures Investments USA LLC Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: +1 302 636 5401 Fax: +1 302 636 5454	USA	(Membership Interest)	-	51.00%
30	Indorama Ventures Olefins Holding LLC Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: +1 302 636 5401 Fax: +1 302 636 5454	USA	(Membership Interest)	-	99.99%
31	Glanzstoff Holding (Hong Kong) Limited Unit 1301, 13/F. Chung Nam Building, 1 Lockhart Road, Wanchai, Hong Kong Tel: + 852 2153 9718 Fax: + 852 2117 1879	Hong Kong	Common Share	100	99.99%
32	Glanzstoff Industries S.r.l. Pizzighettone, Via G.B. Pirelli, 56, Italy Tel: +39 0372 738011 Fax: +39 0372 730001	Italy	Quota	10,000	99.99%
33	Indorama Ventures Spain S.L. Poligono Industrial Guadarranque, S/N, 11360 San Roque, Cadiz, Spain Tel: N/A Fax: N/A	Spain	Common Share	10,000	99.99%
34	Indorama Ventures Corpus Christi Holding LLC Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: N/A Fax: N/A	USA	(Membership Interest)	-	99.99%
35	Indorama Ventures Brazil Participações S.A. Av. das Nações Unidas, nº 12.551, 8º andar, Parte, Brooklin Novo. CEP: 04578-903, São Paulo -SP - Brasil. Tel: +55 11 2111-1388 Fax: +55 11 2111-1470	Brazil	Common Share	560,324,724	99.99%
36	Avgol Industries 1953 Ltd. 20 Lincoln st., Rubinstien House, Tel Aviv, 67134-12, Israel Tel: 972-3-9061555 Fax: 972-3-9364376	Israel	Common Share	302,373,632	65.94%
37	AE BG AlphaPhi Holding GmbH Politischer Gemeinde Wien, Austria Tel: N/A Fax: N/A	Austria	(Capital Contribution)	-	99.99%
38	AE BG AlphaOmega Holding GmbH Politischer Gemeinde Wien, Austria Tel: N/A Fax: N/A	Austria	(Capital Contribution)	-	99.99%

Holding Company Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
39	Scorpius Capital a.s. No. 890, 696 74 Velká nad Velickou, Czech Republic Tel: N/A Fax: N/A	Czech Republic	Common Share	2,146,843	99.99%
International Headquarter Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	Indorama Ventures Global Services Limited 75/80-81 Ocean Tower 2, 32 nd Floor, Soi Sukhumvit 19 (Wattana), Asoke Road, Klongtoey Nuer, Wattana, Bangkok 10110, Thailand Tel: + 66 2 661 6661 Fax: + 66 2 661 6664 - 5	Thailand	Common Share	4,275,791,662	99.99%
Trading & Services Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	IVL Singapore Pte. Ltd. 9 Raffles Place, #27-00 Republic Plaza, Singapore 048619 Tel: N/A Fax: N/A	Singapore	Common Share	19,000,000	99.91%
2	UAB Indorama Polymers Europe Metalo G.16, LT-94102 Klaipeda, Republic of Lithuania Tel: + 370 46 300 749 Fax: + 31 181 285 405	Lithuania	Common Share	725,088	99.91%
3	UAB Indorama Holdings Europe Metalo G.16, LT-94102 Klaipeda, Republic of Lithuania Tel: + 370 46 300749 Fax: +370 46 314323	Lithuania	Common Share	1,173,952	99.81%
4	Indorama Trading (UK) Limited 23 Northiam, Woodside Park, N12 7ET, London, United Kingdom Tel: N/A Fax: N/A	United Kingdom	Common Share	10,000	99.81%
5	Indorama Trading AG c/o RA Mauro Locarnini, Anwaltsbüro Locarnini, Talstrasse 39, CH-8001 Zürich, Switzerland Tel: N/A Fax: N/A	Switzerland	Common Share	100	99.81%
6	PHP-Shenma Air Bag Yarn Marketing (Shanghai) Co., Ltd. China Merchants Plaza, East Building, Room 1107, No. 333 Cheng Du Road (North), Shanghai 200041, People's Republic Of China Tel: +49 6022 81 2552 Fax: +49 6022 81 31 2552	China	(Capital Contribution)	-	40.80%
7	ES FiberVisions Shanghai Co., Ltd. Room 2401-B, Manpo Plaza, 500 Yan An West Road, Shanghai, People's Republic Of China Tel: +86-(0)21-6212-5877 Fax: +86-(0)21-6226-8829	China	(Capital Contribution)	-	50.00%

Trading & Services Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
8	Performance Fibers (Kaiping) Trading Company Limited No.3 Hongqiao Road Kaiping, Guangdong Province, People's Republic of China Tel: +86 750 2201707 Fax: +86 750 2218093	China	(Capital Contribution)	-	99.99%
9	TTI GmbH Kasinostr. 19 - 21, 42103 Wuppertal, Germany Tel: +49 6022 81 2552 Fax: +49 6022 81 31 2552	Germany	Common Share	25,100	40.00%
10	Trevira North America, LLC 5206 Leonardslee CT, Charlotte, Mecklenburg County, North Carolina, 28226, USA Tel: +1-704-910-0970 Fax: +1-704-496-2157	USA	(Membership Interest)	-	99.99%
11	ES FiberVisions Company Limited 3-3-23 Nakanoshima, Kita-Ku, Osaka 530-0005, Japan Tel: +81 6 6441 3307 Fax: +81 6 6441 3347	Japan	Common Share	200	50.00%
12	ES Fiber Visions Limited Partnership Entity Services (Nevada) LLC, 2215- B Renaissance Dr., Suite 10, Las Vegas, NV 89119, USA Tel: +706 357 5100 Fax: +706 966 4247	USA	(Partnership Interest)	-	50.00%
13	Indorama Ventures Alphapet Holdings, Inc. Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808 USA Tel: +1 256 308 1180 Fax: +1 256 341 5926	USA	Common Share	100	99.99%
14	ES FiberVisions ApS Engdragnet 22, Varde Denmark, DK- 6800 Tel: +45 7994 2200 Fax: +45 7994 2201	Denmark	Common Share	10,000	50.00%
15	Indorama Ventures Ecomex Services, S. de R.L. de C.V. Carretera Libre a Colotlan 6800. Colonia Extramuros, C.P. 45200, Zapopan, Jalisco, Mexico Tel: +52 33 1561-3732 Fax: N/A	Mexico	Equity Quota Class I	2	51.00%
16	Indorama Ventures Polycom, S. de R.L. de C.V. Avenida Prolongación Paseo De La Reforma 1015, Torre A piso 2, Colonia Santa Fe Cuajimalpa CP 05348, Delegación Cuajimalpa de Morelos, Ciudad de México, México Tel: +52 55 91775700 Fax: +52 55 52924919	Mexico	Equity Quota Class I	2	99.99%

Trading & Services Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
17	Indorama Ventures Servicios Corporativos, S. de R.L. de C.V. Avenida Prolongación Paseo de la Reforma 1015, Torre A piso 2, Colonia Santa Fe Cuajimalpa CP 05348, Delegación Cuajimalpa de Morelos, Ciudad de México, México Tel: +52 55 91775700 Fax: +52 55 52924919	Mexico	Equity Quota Class I	2	99.99%
18	Performance Fibers (Hongkong) Limited Room 3B, 22 nd Floor, 148 Electric Road, North Point, Hong Kong Tel: + 852 2110 8242 Fax: + 852 2110 0033	Hong Kong	Common Share	1,000	99.99%
19	ES FiberVisions Hong Kong Limited Unit No. 2810. 28/F, The Metropolis Tower, 10 Metropolis Drive, Hungghom, Kowloon, Hong Kong Tel: +852 2970 5555 Fax: +852 2970 5678	Hong Kong	Common Share	616,010	50.00%
20	4200144 Canada Inc. 3400 First Canadian Centre, 350 - 7 th Avenue SW, Calgary, Alberta T2P 3N9, Canada Tel: +1 (514) 645 7887 (229) Fax: +1 (514) 645 9115	Canada	Class A	100	99.99%
21	Indorama Ventures Exporter Inc. Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: +1-980-233-8191 Fax: +1-980-233-6220	USA	Common Share	2,500	99.99%
22	Glanzstoff Services S.A.S. Pôle Européen de Développement, 54810 Longlaville, France Tel: +33 3 82 44 80 00 Fax: +33 3 82 44 56 82	France	Common Share	82,195	99.99%
23	Glanzstoff Industries A.G. Rue Schwarzenhof, 34 L-8452 Steinfort - GD Luxembourg Tel: +352 399 881 1 Fax: +352 399 881 213	Luxembourg	Common Share	960,000	99.99%
24	Glanzstoff Management GmbH Technologiezentrum, Haus C, Technopark 1, 3430 Tulln, Austria Tel: N/A Fax: N/A	Austria	Common Share	500	99.99%
25	Indorama Ventures Portugal Utility - Unipessoal, LDA. ZILS Zona 2, Lote 2E1, Monte Feio, 7520-064 Sines, Portugal Tel: +351 269 189 000 Fax: +351 269 189 099	Portugal	Quota	1	99.99%

Trading & Services Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
26	Performance Fibers Services, S. de R.L. de C.V. Av. de la Luz 77 Zona Industrial Benito Juárez, CP 76120, Querétaro, Qro., México Tel: +52 442 211 3000 Fax: N/A	Mexico	Equity Quota Class 1	50,000	99.99%
27	Schoeller Süssen GmbH Bühlstrasse 14, 73079 Süssen, Germany Tel: 0049 7162 930 5015 Fax: N/A	Germany	(Capital Contribution)	-	99.99%
28	Kordplast s.r.o. No. 897, 696 74 Velká nad Velickou, Czech Republic Tel: N/A Fax: N/A	Czech Republic	Common Share	200,000	99.99%
Logistic Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	Indorama Ventures Logistics LLC Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: +1-847-943-3100 Fax: +1-847-943-3196	USA	(Membership Interest)	-	99.99%
Non-Operating Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	Indorama Polymers Rotterdam B.V. Markweg 201, 3198 NB, Europoort, Harbour No.6347, Rotterdam, Netherlands Tel: +31 181 285 400 Fax: +31 181 285 405	Netherlands	Common Share	18,002	99.91%
2	Indorama Holdings Rotterdam B.V. Markweg 201, 3198 NB, Europoort, Rotterdam, Netherlands Tel: +31 181 285 400 Fax: +31 181 285 405	Netherlands	Common Share	18,002	99.81%
3	MJR Recycling B.V. Tengnagelwaard 5, NL-6917 AE Spijk(Gld), Netherlands Tel: +31 656 6250 Fax: +31 656 6251	Netherlands	Common Share	18,100	99.99%
4	FiberVisions Vermögensverwaltungsgesellschaft mbH Local Court of Dusseldorf, Werdener Straße 1, 40227 Düsseldorf Germany Tel: +49211 8306-0 Fax: +49 211 87565 116-0	Germany	Common Share	3,000,000	99.99%
5	Indorama Ventures Adana PET Sanayi Anonim Sirketi Karamehmet Mahallesi, Avrupa Serbest Bolgesi, 3. Sokak No:2 Ergene/Tekirdag - 59860, Turkey Tel: +322 441 0253-226 Fax: +322 441 0110	Turkey	Common Share	5,489,505,865	99.99%

Non-Operating Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
6	Indo Polymers Mauritius Limited Les Cascades, Edith Cavell Street, Port Louis, Republic of Mauritius Tel: N/A Fax: N/A	Mauritius	Common Share	58,827	100.00%
7	Indorama Polymers Workington Limited Siddick, Workington, Cumbria, CA14 1LG, United Kingdom Tel: +31 181 285 440 Fax: +31 181 285 400	United Kingdom	Common Share	1	99.91%
8	Tereftálicos Indústrias Químicas Ltda. 'Fazenda São Francisco, s/nº, CEP: 13140-971 - Paulínia - São Paulo - SP/ Brasil Tel: +31 181 285 440 Fax: +31 181 285 400	Brazil	Common Share	37,573,293	51.00%
9	Avgol Cyprus Ltd. Arch. Makariou III, 284 FORTUNA COURT, BLOCK B, 2 nd floor P.C. 3105, Limassol, Cyprus Tel: N/A Fax: N/A	Cyprus	(Membership Interest)	-	65.94%
10	PT. Indorama Glycol Indonesia Gedung Graha Irama Building, 7 th Floor, JL. HR. Rasuna Said Blok X-1, Kav 1-2, Kuningan Timur, Setiabudi, Jakarta Selatan, Indonesia Tel: (62) 21 526 1155 Fax: (62) 21 526 1577	Indonesia	Common Share	500	99.99%

BOARD OF DIRECTORS



Mr. Sri Prakash Lohia

Chairman of the Board



Director Type

Non - Executive Director

Age

66

Appointment Date of Directorship

19 September 2009

Education

Bachelor of Commerce, Delhi University, India

Training Program

- Role of the Director and the Board Program 2017, Institute of Directors (IOD), London, UK

Working Experience (during the recent 5 years)

Other Listed Companies in SET

-None-

Other Companies and/or Organizations

(as of 31 December 2018)

2017 - Present	President Commissioner PT. Indorama Glycol Indonesia
2014 - Present	Chairman Industries Chimiques Du Senegal S.A., Senegal
2012 - Present	Director Indorama Eleme Fertilizer & Chemicals Limited

2012 - Present	Director Indorama Services UK Ltd.
2012 - Present	Commissioner PT. Irama Unggul
2011 - Present	President Commissioner PT. Indorama Ventures Indonesia
2011 - Present	President Commissioner PT. Indorama Polyester Industries Indonesia
2011 - Present	President Commissioner PT. Indorama Polychem Indonesia
2011 - Present	President Commissioner PT. Indorama Polypet Indonesia
2011 - Present	President Commissioner PT. Indorama Petrochemicals
2010 - Present	Director Indorama Commerce DMCC
2009 - Present	Chairman Indorama Corporation Pte. Ltd.
2009 - Present	President Commissioner PT. Indo-Rama Synthetics Tbk
2006 - Present	Chairman Indorama Eleme Petrochemicals Limited

% of shareholding in IVL As of 31 December 2018

-None-

Mr. Alope Lohia

Vice Chairman of the Board,
Chairman of the Sustainability and
Risk Management Committee and
Group Chief Executive Officer



Director Type

Executive Director

Age

60

Appointment Date of Directorship

19 September 2009

Education

- Honorary PhD Degree of Business Administration, Rajamangala University of Technology Thanyaburi, Thailand
- Bachelor of Commerce, Delhi University, India

Training Program

- Director Accreditation Program (DAP) Class No. 65/2007, Thai Institute of Directors, Thailand

Working Experience (during the recent 5 years)

Other Listed Companies in SET

-None-

Other Companies and/or Organizations: 17 companies (as of 31 December 2018)

- Chairman, Director and Commissioner of other subsidiaries of Indorama Ventures Pcl. (9 companies)
- Director, Viraa Limited
- Director, Capialla Limited
- Director, Aurelius Holdings Limited
- Director, Vega Aviation Limited
- Director, Brookgrange Investments Limited
- Director, Auctus Holdings Limited
- Chairman, Beacon Chemicals Ltd.
- Director, VOX Investment Limited

% of shareholding in IVL As of 31 December 2018

10 shares or 0.000%

Mrs. Suchitra Lohia

Executive Director and Chairperson of
the Corporate Social Responsibility
Committee



Director Type

Executive Director

Age

54

Appointment Date of Directorship

19 September 2009

Education

- Bachelor of Commerce, Delhi University, India
- Owner President Management Program Harvard Business School

Training Program

- Capital Market Academy Leadership Program, Capital Market Academy (Class 14), Thailand
- Director Accreditation Program (DAP) Class No. 108/2014 Thai Institute of Directors, Thailand

Working Experience (during the recent 5 years)

Other Listed Companies in SET

-None-

Other Companies and/or Organizations: 18 companies (as of 31 December 2018)

- Chairperson, Director and Commissioner of other subsidiaries of Indorama Ventures Pcl. (9 companies)
- Director, Viraa Limited
- Director, Capialla Limited
- Director, QAMA Investments Limited
- Director, Aurelius Holdings Limited
- Director, Vega Aviation Limited
- Director, Brookgrange Investments Limited
- Director, Auctus Holdings Limited
- Director, Beacon Chemicals Ltd.
- Director, VOX Investment Limited

% of shareholding in IVL As of 31 December 2018

-None- (help by her spouse - 10 shares or 0.000%)

Mr. Amit Lohia

Director



Director Type

Non - Executive Director

Age

44

Appointment Date of Directorship

19 September 2009

Education

- Bachelor of Economics and Finance, Wharton School of Business, USA

Training Program

-None-

Working Experience (during the recent 5 years)

Other Listed Companies in SET

-None-

Other Companies and/or Organizations (as of 31 December 2018)

2017 - Present	Commissioner PT. Indorama Glycol Indonesia
2016 - Present	Director Indorama Services UK Ltd.
2016 - Present	Director Indorama Group Holdings Limited
2014 - Present	Director Industries Chimiques Du Senegal S.A., Senegal

2013 - Present	Vice President Commissioner PT. Indo-Rama Synthetics Tbk
2012 - Present	Vice Chairman Director Indorama Eleme Fertilizer & Chemicals Limited
2011 - Present	Commissioner PT. Indorama Ventures Indonesia
2011 - Present	Commissioner PT. Indorama Polyester Industries Indonesia
2011 - Present	Commissioner PT. Indorama Polychem Indonesia
2011 - Present	Commissioner PT. Indorama Polypet Indonesia
2011 - Present	Commissioner PT. Indorama Petrochemicals
2010 - Present	Director Indorama Commerce DMCC, Dubai
2009 - Present	Vice Chairman Director Indorama Corporation Pte. Ltd.
2006 - Present	Director Indorama Eleme Petrochemicals Limited
2004 - Present	Director Isin International Pte. Ltd.

% of shareholding in IVL As of 31 December 2018

-None-

Mr. Dilip Kumar Agarwal

Executive Director, Member of
the Sustainability and
Risk Management Committee and
Chief Executive Officer of Feedstock
and PET Business



Director Type

Executive Director

Age

61

Appointment Date of Directorship

27 April 2010

Education

- Bachelor of Science, University of Udaipur, India
- Chartered Accountant The Institute of Chartered Accountants of India, India
- Cost Accountant Institute of Cost & Management Accountants of India, India
- Company Secretary Program The Institute of Company Secretaries of India (ICSI), India

Training Program

- Director Accreditation Program (DAP), Class No. 65/2007
Thai Institute of Directors, Thailand
- Director Certification Program (DCP), Class No.182/2013
Thai Institute of Directors, Thailand

Working Experience (during the recent 5 years)

Other Listed Companies in SET

-None-

Other Companies and Organizations: 47 companies (as of 31 December 2018)

- Chairman, Vice Chairman, President, Director and Manager of
other subsidiaries of Indorama Ventures Pcl

% of shareholding in IVL As of 31 December 2018

196,631 shares or 0.004%

Mr. Udey Paul Singh Gill

Executive Director, Member
of the Sustainability and
Risk Management Committee and
Chief Executive Officer of Fibers Business



Director Type

Executive Director

Age

65

Appointment Date of Directorship

27 April 2011

Education

- MBA (Marketing Management) College of Basic Sciences, PAU, Ludhiana, Punjab, India
- International Trade, Fulbright Scholar, University of California, USA
- Bsc. (Hons.), PAU, Ludhiana, Punjab, India

Training Program

- Director Accreditation Program (DAP) Class No. 95/2012, Thai Institute of Directors, Thailand
- Director Certification Program (DCP) Class No. 182/2013, Thai Institute of Directors, Thailand

Working Experience (during the recent 5 years)

Other Listed Companies in SET

-None-

Other Companies and/or Organizations: 18 companies (as of 31 December 2018)

- Chairman, President Director, Director, Chief Executive Officer and Manager of other subsidiaries of Indorama Ventures Pcl

% of shareholding in IVL As of 31 December 2018

51,322 shares or 0.001%

Mr. Rathian Srimongkol

Lead Independent Director,
Vice Chairman of the Board,
Chairman of the Audit Committee and
Member of the Sustainability and
Risk Management Committee



Director Type

Independent Director

Age

59

Appointment Date of Directorship

19 September 2009

Education

- Master of Business Administration, Thammasat University, Thailand
- M.P.A. (General Administration), Suan Sunandha Rajabhat University, Thailand
- Medical Degree, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand
- Bachelor's degree in Medical Science, Mahidol University, Thailand

Training Program

- Certificate in Politics and Governance in Democratic Systems for Executives Course (Class 9), King Prajadhipok's Institute, Thailand
- Diploma, National Defence College, The Joint State Private Sectors Course Class No. 51/21, National Defence College of Thailand, Thailand
- Capital Market Academy Leadership Program (Class 11), Capital Market Academy, Thailand
- Thai Institute of Directors (IOD), Thailand
 - Director Certification Program (DCP), Class No. 8/2001
 - Role of the Chairman Program, Class No. 19/2008
 - Financial Statements Demystified for Director Program, Class No. 1/2009

Working Experience (during the recent 5 years)

Other Listed Companies in SET

- | | |
|----------------|---|
| 2018 - Present | Raimon Land Public Company Limited
Independent Director, Vice Chairman of the Board of Directors, Chairman of Audit Committee and Nomination and Remuneration Committee |
| 2013 - Present | One to One Contacts Public Company Limited
Independent Director, Chairman of the Audit Committee, Member of the Corporate Governance Committee and Member of the Nominating & Compensation Committee |
| 2012 - Present | Krungthai Card Public Company Limited
Director, President and Member of Corporate Governance Committee |

Other Companies and/or Organizations

(as of 31 December 2018)

- | | |
|----------------|---|
| 2018 - Present | Chairman
Tobacco Authority of Thailand |
| 2015 - Present | Vice President
Thai Listed Companies Association |

% of shareholding in IVL As of 31 December 2018

265,200 shares or 0.005%

Mr. William Ellwood Heinecke

Independent Director and Chairman
of the Nomination, Compensation
and Corporate Governance Committee



Director Type

Independent Director

Age

69

Appointment Date of Directorship

19 September 2009

Education

- Honorary Doctoral Degree of Business Administration in Management, Yonok University, Lampang, Thailand
- International School of Bangkok, Thailand

Training Program

- Director Certification Program (DCP) Class No.64/2005 Thai Institute of Directors, Thailand

Working Experience (during the recent 5 years)

Other Listed Companies in SET

Present Chairman and Chief Executive Officer
Minor International Public Company Limited and
its subsidiaries

Other Companies and/or Organizations

(as of 31 December 2018)

Present Chairman
Minor Corporation Public Company Limited and
its subsidiaries

Present Chairman
The Minor Food Group Public Company Limited and
its subsidiaries

Present Director
Rajadamri Hotel Public Company Limited and
its subsidiaries

Present Director
Pacific Cross International Ltd.

% of shareholding in IVL As of 31 December 2018

2,994,932 shares or 0.053%

Mr. Maris Samaram

Independent Director, Member of the Audit Committee and Member of the Sustainability and Risk Management Committee



Director Type

Independent Director

Age

76

Appointment Date of Directorship

27 April 2010

Education

- B.S.B.A. in Accounting, University of the East, Philippines
- Program for Management Development, Harvard Business School, USA

Training Program

- Thai Institute of Directors (IOD), Thailand
 - Director Certification Program (DCP) Class No. 33/2003
 - Audit Committee Program Class No. 3/2004
 - Quality of Financial Reporting Program Class No. 2/2006
 - Monitoring the Internal Audit Function Class No. 3/2008
 - Monitoring the System of Internal Control and Risk Management Class No. 4/2008
 - Handling Conflicts of Interest: What the Board Should Do? (2008) Program
 - Board Failure and How to Fix it Program
 - The Responsibilities and Liabilities of Directors and Executives under the New SEC ACT (May 2008) Program

- Risk Management Program for Corporate Leaders (RCL) Class No. 13/2018
- IT Governance and Cyber Resilience Program (ITG) Class No. 8/2018

Working Experience (during the recent 5 years)

Other Listed Companies in SET

2017 - Present CIMB Thai Bank Public Company Limited
Independent Director and Chairman of Audit Committee

Other Companies and/or Organizations (as of 31 December 2018)

2005 - Present Director
PAC (Siam) Ltd.
2004 - Present Director
Marsh PB Co., Ltd.

% of shareholding in IVL As of 31 December 2018

-None-

Dr. Siri Ganjarerndee

Independent Director, Member of the Audit Committee and Member of the Nomination, Compensation and Corporate Governance Committee



Director Type

Independent Director

Age

70

Appointment Date of Directorship

27 April 2010

Education

- Ph.D. Monetary Economics and Econometrics & Operations Research, Monash University, Australia
- M.Ec. Economic Statistics and Monetary Economics, University of Sydney, Australia
- B.E. (Hons.) Economic Statistics, University of Sydney, Australia

Training Program

- Thai Institute of Directors (IOD), Thailand
 - Director Accreditation Program (DAP) Class No. 4/2003
 - Director Certification Program (DCP) Class No. 60/2005
 - Audit Committee Program Class No. 6/2005
- Capital Market Academy Leader Program Class No.5/2007, The Stock Exchange of Thailand
- Advanced Management Program (AMP) Class No. 113/1995 Harvard Business School

Working Experience (during the recent 5 years)

Other Listed Companies in SET

- | | |
|----------------|--|
| 1999 - Present | Bangkok Life Assurance PCL
Chairman of the Board of Director, Chairman of Nominating and Remuneration Committee, Chairman of Investment Committee and Chairman of Performance Assessment and Evaluation Committee |
|----------------|--|

Other Companies and/or Organizations

(as of 31 December 2018)

- | | |
|----------------|---|
| 2018 - Present | Member of the University Council, Sukhothai Thammathirat Open University |
| 2016 - Present | Chairman of the Board of Director and Chairman of Compensation and Nomination Committee TRIS Rating Ltd. |
| 2010 - Present | Member of Sub - Commission in Finance and Budgetary system, The Office of the Public Sector Development Commission |
| 2003 - Present | Director, Member of Audit Committee, Member of the Remuneration Committee and Chairman of Nomination Committee TRIS Corporation Co., Ltd. |
| 2003 - Present | Member of Sub - Committee for Evaluation of State Enterprise Policy Office, Ministry of Finance |

% of shareholding in IVL As of 31 December 2018

-None-

Mr. Kanit Si

Independent Director, Member of the Nomination, Compensation and Corporate Governance Committee and Member of Sustainability and Risk Management Committee



Director Type

Independent Director

Age

68

Appointment Date of Directorship

27 April 2010

Education

- MBA, Finance & Quantitative Method University of New Orleans, U.S.A.
- Bachelor of Engineering (Honor & Gold Medal) Chulalongkorn University, Thailand

Training Program

- Director Certification Program (DCP) 2003 Thai Institute of Directors, Thailand
- Global Leadership Development Program (GLDP) 2004, International Centre for Leadership in Finance (ICLIF), Thailand
- Capital Market Academy Leadership Program, (Class 9) 2009, Capital Market Academy, Thailand

Working Experience (during the recent 5 years)

Other Listed Companies in SET

1998 - Present Bangkok Bank Public Company Limited
Senior Executive Vice President

Other Companies and/or Organizations (as of 31 December 2018)

2000 - Present Director
Bangkok Industrial Gas Company Limited

2000 - Present Director
HMC Polymers Company Limited

2000 - Present Director
Indorama Polyester Industries PCL

1999 - Present Director
TPT Petrochemicals PCL

% of shareholding in IVL As of 31 December 2018

300,000 shares or 0.005%

Mr. Russell Leighton Kekuewa

Independent Director, Member of the Sustainability and Risk Management Committee, and Member of Nomination, Compensation and Corporate Governance Committee.



Director Type

Independent Director

Age

64

Appointment Date of Directorship

20 October 2014

Education

- Master of Science Industrial Engineering and Engineering Management, Stanford University Stanford, California, U.S.A.
- Bachelor of Science Civil Engineering University of the Pacific Stockton, California, U.S.A.

Training Program

- Thai Institute of Directors, Thailand
 - Director Certification Program (DCP) Class No. 196/2014
 - Strategic Board Master Class (SBM) Class No.3/2018

Working Experience (during the recent 5 years)

Other Listed Companies in SET

2016 - Present The Post Publishing Public Company Limited
Independent Director and Chairman of the
Risk Management Committee

Other Companies and/or Organizations (as of 31 December 2018)

2015 - Present Independent Director and Chairman of
Nomination and Remuneration Committee
Boutique Corporation Public Company Limited

% of shareholding in IVL As of 31 December 2018

539,000 shares or 0.010%

Mr. Chakramon Phasukavanich

Independent Director and Member of the Nomination, Compensation and Corporate Governance Committee



Director Type

Independent Director

Age

70

Appointment Date of Directorship

13 November 2015

Education

- M.A. (Economics), California State University, Northridge, U.S.A.
- Bachelor's Degree in Economics, Chulalongkorn University, Thailand

Training Program

- The National Defense College of Thailand (Class 39), Thailand
- Thai Institute of Directors (IOD), Thailand
 - Certificate, Senior Executive Development Program Class 12
 - Director Accreditation Program (DAP) Class No. 20/2004
 - Finance for Non-Financial Director Class No. 13/2004
 - Audit Committee Program Class No. 14/2006
 - Director Certification Program (DCP) Class No. 71/2006
 - Role of the Chairman Program Class No. 20/2008
 - Current Issue Seminar Class No. 1/2008
 - Director Forum Class No. 1/2009
 - Monitoring the System of Internal Control and Risk Management Class No.9/2010
 - Advanced Audit Committee Program Class No.3/2010
 - Financial Institutions Governance Program Class No.2/2011
 - Board Matters and Trends Agenda Class No.6/2018
- Certificate, Senior Executive Development Program Class 11 (2011), Capital Market Academy, Thailand

Working Experience (during the recent 5 years)

Other Listed Companies in SET

2016 - Present	CIMB Thai Bank PCL Chairman of the Board
2015 - Present	P.C.S. Machine Group Holding PCL Chairman

Other Companies and/or Organizations (as of 31 December 2018)

Present	President Investor Club Association
2004 - Present	Member Office of the Council of State (5 th Law Committee)

% of shareholding in IVL As of 31 December 2018

-None- (held by his spouse - 102,354 shares or 0.002%)

Mr. Sanjay Ahuja

Executive Director and
Chief Financial Officer



Director Type

Executive Director

Age

50

Appointment Date of Directorship

13 November 2015

Education

- Chartered Accountant The Institute of Chartered Accountants of India, India

Training Program

- Director Certification Program (DCP) Class No.175/2013
Thai Institute of Directors, Thailand

Working Experience (during the recent 5 years)

Other Listed Companies in SET

-None-

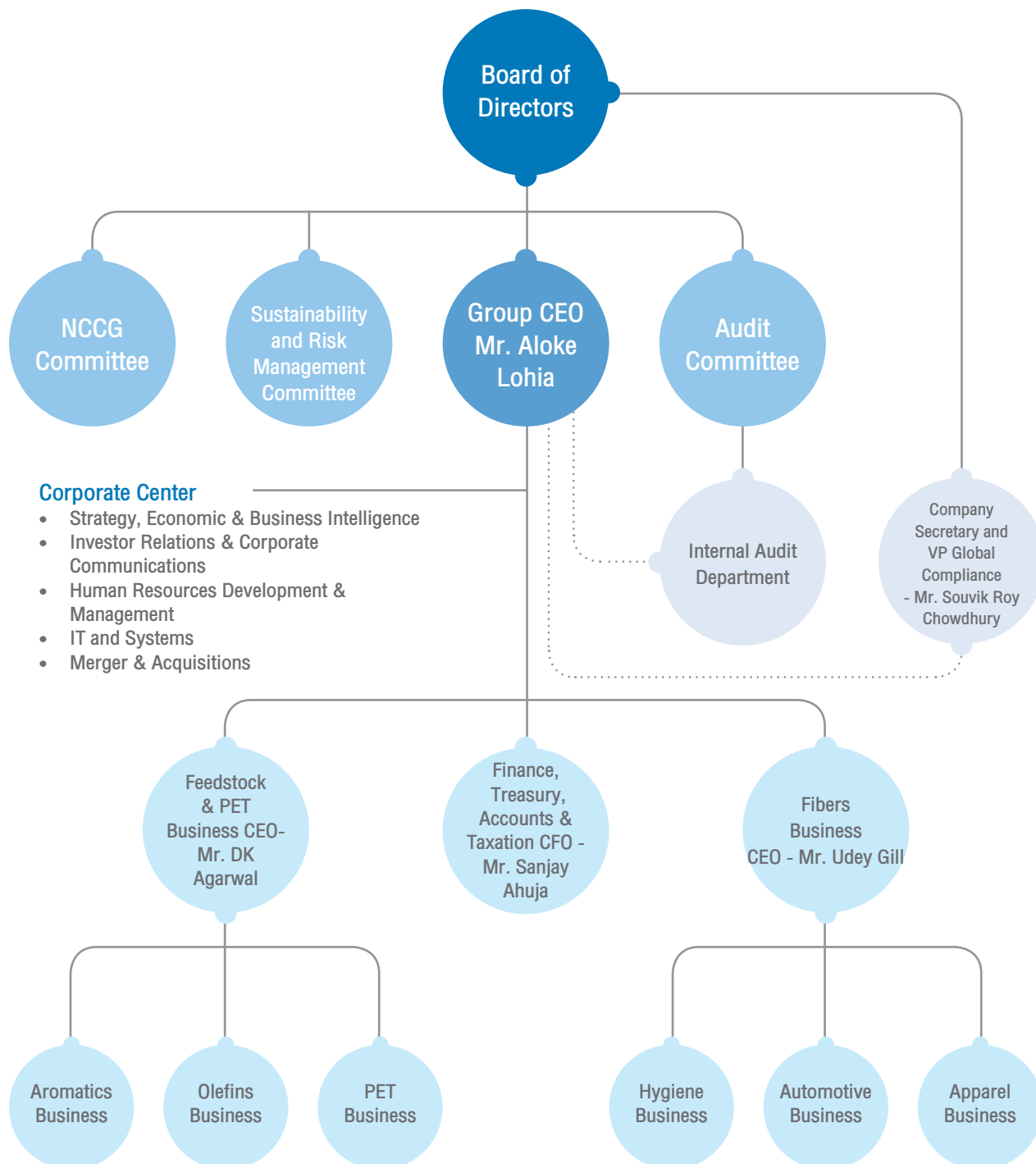
Other Companies and/or Organizations: 13 companies (as of 31 December 2018)

- Director of other subsidiaries of Indorama Ventures Pcl.

% of shareholding in IVL As of 31 December 2018

41,023 shares or 0.001%

MANAGEMENT STRUCTURE



The Board of Directors

As of 31 December 2018, IVL's Directors are:

Name	Position	Appointment Date of Directorship
1. Mr. Sri Prakash Lohia	<ul style="list-style-type: none"> Chairman of the Board Non-executive Director 	19 September 2009
2. Mr. Aloke Lohia	<ul style="list-style-type: none"> Vice Chairman of the Board Executive Director Chairman of the Sustainability and Risk Management Committee Group Chief Executive Officer 	19 September 2009
3. Mrs. Suchitra Lohia	<ul style="list-style-type: none"> Executive Director Chairperson of Corporate Social Responsibility Committee 	19 September 2009
4. Mr. Amit Lohia	<ul style="list-style-type: none"> Non-executive Director 	19 September 2009
5. Mr. Dilip Kumar Agarwal	<ul style="list-style-type: none"> Executive Director Member of the Sustainability and Risk Management Committee Chief Executive Officer of Feedstock and PET Business 	27 April 2010
6. Mr. Udey Paul Singh Gill	<ul style="list-style-type: none"> Executive Director Member of the Sustainability and Risk Management Committee Chief Executive Officer of Fibers Business 	27 April 2011
7. Mr. Sanjay Ahuja	<ul style="list-style-type: none"> Executive Director Chief Financial Officer 	13 November 2015
8. Mr. Rathian Srimongkol	<ul style="list-style-type: none"> Vice Chairman of the Board Independent Director Lead Independent Director Chairman of the Audit Committee Member of the Sustainability and Risk Management Committee 	19 September 2009
9. Mr. William Ellwood Heinecke	<ul style="list-style-type: none"> Independent Director Chairman of the Nomination, Compensation and Corporate Governance Committee 	19 September 2009
10. Mr. Maris Samaram	<ul style="list-style-type: none"> Independent Director Member of the Audit Committee Member of the Sustainability and Risk Management Committee 	27 April 2010
11. Dr. Siri Ganjarerndee	<ul style="list-style-type: none"> Independent Director Member of the Audit Committee Member of the Nomination, Compensation and Corporate Governance Committee 	27 April 2010
12. Mr. Kanit Si	<ul style="list-style-type: none"> Independent Director Member of the Nomination, Compensation and Corporate Governance Committee Member of the Sustainability and Risk Management Committee 	27 April 2010
13. Mr. Russell Leighton Kekuewa	<ul style="list-style-type: none"> Independent Director Member of the Sustainability and Risk Management Committee Member of the Nomination, Compensation and Corporate Governance Committee 	20 October 2014
14. Mr. Chakramon Phasukavanich	<ul style="list-style-type: none"> Independent Director Member of the Nomination, Compensation and Corporate Governance Committee 	13 November 2015

The Authorized Directors

The Authorized Directors who sign on behalf of the Company are any two of Mr. Alope Lohia, Mrs. Suchitra Lohia, Mr. Dilip Kumar Agarwal and Mr. Sanjay Ahuja, who jointly sign with the Company's seal affixed.

Composition of the Board of Directors

There are five executive directors, (1) Mr. Alope Lohia, (2) Mrs. Suchitra Lohia, (3) Mr. Dilip Kumar Agarwal (4) Mr. Udey Paul Singh Gill and (5) Mr. Sanjay Ahuja

There are 7 independent directors, (1) Mr. Rathian Srimongkol, (2) Mr. William Ellwood Heinecke, (3) Mr. Maris Samaram, (4) Dr. Siri Ganjarerndee, (5) Mr. Kanit Si, (6) Mr. Russell Leighton Kekuwa and (7) Mr. Chakramon Phasukavanich and there are 2 non-executive directors, (1) Mr. Sri Prakash Lohia and (2) Mr. Amit Lohia

Roles, Duties and Responsibilities of the Board

Please see the details under the topic of "Corporate Governance Report"

Sub-Committees

Indorama Ventures Public Company Limited consists of 3 sub-committees, namely, the Audit Committee, the Nomination, Compensation and Corporate Governance Committee and the Sustainability and Risk Management Committee. The details of each sub-committee are provided under the topic of "Corporate Governance Report".

Board Meetings

Meetings in 2018						
Name	Board of Directors (6 times)	Audit Committee (6 times)	Nomination, Compensation and Corporate Governance Committee (4 times)	Sustainability and Risk Management Committee (2 times)	Independent Directors (1 time)	AGM 2018
1. Mr. Sri Prakash Lohia	6/6	-	-	-	-	1/1
2. Mr. Alope Lohia	6/6	-	-	2/2	-	1/1
3. Mrs. Suchitra Lohia	6/6	-	-	-	-	1/1
4. Mr. Amit Lohia	4/6	-	-	-	-	0/1
5. Mr. Dilip Kumar Agarwal	6/6	-	-	2/2	-	1/1
6. Mr. Udey Paul Singh Gill	6/6	-	-	1/2	-	1/1
7. Mr. Sanjay Ahuja	6/6	-	-	-	-	1/1
8. Mr. Rathian Srimongkol	6/6	6/6	-	2/2	1/1	1/1
9. Mr. William Ellwood Heinecke	5/6	-	4/4	-	1/1	1/1
10. Mr. Maris Samaram	6/6	6/6	-	2/2	1/1	1/1
11. Dr. Siri Ganjarerndee	6/6	6/6	3/4	-	1/1	1/1
12. Mr. Kanit Si*	6/6	-	4/4	0/1*	1/1	1/1
13. Mr. Russell Leighton Kekuwa**	6/6	-	3/3**	2/2	1/1	1/1
14. Mr. Chakramon Phasukavanich	6/6	-	4/4	-	1/1	1/1

* Mr. Kanit Si was appointed as the Member of the Sustainability and Risk Management Committee with effect from 1st May 2018.

** Mr. Russell Leighton Kekuwa was appointed as the Member of the Nomination, Compensation and Corporate Governance Committee with effect from 1st May 2018.

Executives

As of 31 December 2018, IVL's executives are:

Name	Position
1. Mr. Alope Lohia	Group Chief Executive Officer
2. Mrs. Suchitra Lohia	Chairperson of Corporate Social Responsibility Committee

Name	Position
3. Mr. Dilip Kumar Agarwal	Chief Executive Officer of Feedstock and PET Business
4. Mr. Udey Paul Singh Gill	Chief Executive Officer of Fibers Business
5. Mr. Sanjay Ahuja	Chief Financial Officer
6. Mr. Manoj Kumar Sharma	Head of Account
7. Mr. Souvik Roy Chowdhury	Company Secretary and VP Global Compliance

The Company Secretary

The Board of Directors of the Company has appointed Mr. Souvik Roy Chowdhury as the Company Secretary effective 15 February 2010.

Education

- Chartered Accountant, The Institute of Chartered Accountants of India, India
- Chartered Institute of Management Accountants London - Intermediate
- Bachelor of Commerce, University of Calcutta, India

Working Experience

2010 – Present: Indorama Ventures PCL

Duties and Responsibilities of the Company Secretary

The Company Secretary must perform the duties as prescribed in Section 89/15 and Section 89/16 of Securities and Exchange Act (No.4) B.E.2551, effective 31 August 2008 with responsibility, carefulness and honesty and must comply with the laws, objectives, Articles of Association, resolution of the Board of Directors as well as resolution of Shareholders. The duties of Company Secretary prescribed by the laws are as follows:

- Preparing and keeping the following documents
 - Register of Directors
 - Notice of Board of Directors Meeting, Minutes of Board of Directors Meeting and annual report
 - Notice of the Shareholders' Meeting and Minutes of Shareholders' Meeting
- Keeping reports of interest filed by Directors and Executives and present reports of interest in Section 89/14 to the Chairman of the Board and the Chairman of the Audit Committee for acknowledge within 7 days from the date received by the Company;
- Performing any other acts as determined by the Capital Market Supervisory Board

In addition, the Company Secretary has other duties as assigned by the Company as follows:

- Providing basic advice pertaining to the securities laws and regulations and Articles of Association as well as monitoring compliance on a regular basis and reporting any significant changes to the Board.
- Arranging Shareholders' Meetings and Board of Directors' Meetings in accordance with the laws, regulations and related best practices.
- Preparing minutes of the Shareholders' Meetings and the Board of Directors' Meetings, and monitoring subsequent compliance with the resolutions of those Meetings.
- Preparing and keeping registrations of directors, annual reports, notice of the shareholders' meetings, notice of Board of Directors' Meetings, Minutes of the Shareholders' Meeting and the Board of Directors' Meetings.
- Keeping reports of interest filed by directors and executives, and presenting such reports as specified by the relevant laws.
- Ensuring statutory compliances across all subsidiaries.
- Ensuring that corporate information disclosures to regulatory agencies are in accordance with the laws and regulations (both Thai and English)*.
- Timely reporting of all necessary disclosures to SEC and SET.
- Assisting in board activities including provide preliminary advice and recommendations pertaining to legal, regulatory, corporate governance issues and best practices related to the board and committees.
- Supporting directors to ensure that all directors have sufficient information and knowledge to fulfill their roles and responsibilities effectively and report it on the annual report*.
- Frequently developing and updating the knowledge relating to company secretary duties*.

*Adding the duties of the Company Secretary in accordance with the Corporate Governance Codes for Listed Companies 2017 issued by The Securities and Exchange Commission and approved by the Board of Directors at their meeting No. 2/2018 held on February 20, 2018.

Remuneration of Directors and Management

Please see the details in the topic of "Corporate Governance Report"

Personnel

Please see the details in the topic: "Corporate Governance Report" under "People" Section of this report.

SHAREHOLDERS INDORAMA VENTURES PUBLIC COMPANY LIMITED

Major Shareholders of IVL

(as of December 31, 2018)¹

Top Ten Major Shareholders

No.	Shareholders	No. of Shares	%
1.	Indorama Resources Limited ²	3,504,991,318	62.43
2.	Thai NVDR Ltd.	358,677,424	6.39
3.	Bangkok Bank PCL.	270,905,264	4.83
4.	SOUTH EAST ASIA UK (TYPE C) NOMINEES LIMITED	162,726,901	2.90
5.	MORGAN STANLEY & CO. INTERNATIONAL PLC	98,757,586	1.76
6.	State Street Europe Limited	70,940,396	1.26
7.	GIC Private Limited	51,017,990	0.91
8.	SOUTH EAST ASIA UK (TYPE A) NOMINEES LIMITED	35,737,557	0.64
9.	Canopus International Limited ²	33,216,361	0.59
10.	SOCIAL SECURITY OFFICE	31,874,300	0.57

Remarks: 1 The Company Secretary has updated the list of major shareholders of the Company to Board of Directors and senior managements every quarter.

2 Group of Lohia Family	No. of Shares	%
• Indorama Resources Limited*	3,504,991,318	62.43
• Canopus International Limited**	130,000,000***	2.32
• Mr. Alope Lohia****	10	0.00
• Mr. Anuj Lohia	10	0.00

* Owned by Canopus International Limited 99.98%

** Mr. Alope Lohia and his immediate family have voting rights of up to 76% and an equity interest of up to 50% in Canopus International Limited while the remaining voting rights of 24% and 50% of equity interest is effectively controlled and held for the benefit of Mr. Sri Prakash Lohia and his immediate family.

*** 96,783,639 shares out of 130,000,000 shares are in the custodian of MORGAN STANLEY & CO.INTERNATIONAL PLC

**** Mr. Alope Lohia's shareholding in the Company, through his family holding in Canopus International Limited, is more than 25 times of his annual base salary.

STRATEGY AND OVERVIEW OF BUSINESS OPERATIONS



Strategy and Overview of Business Operations

Strategy and Overview of Business Operations

Group Strategy

Indorama Ventures is a major global intermediate petrochemicals producer and one of the largest vertically integrated polyester value chain producers in the world, serving world-class customers in diverse end-use markets including food, beverages, personal and home care, health care, automotive, textile and industrial uses. With around 19,581 employees, and 93 sites¹ in 31 countries across five continents, we supply our products to customers in nearly

every part of the world.

Our objective is to strengthen our position as a market leader in the polyester value chain segment of intermediate petrochemicals in terms of scale, integration and differentiation as well as profitability and return on investment; supported by a focus on delivering long-term, superior shareholder value.

¹ As of December 2018.

It is estimated that in 2030, the world population will reach 8.4 billion people (according to third party sources). This surge in population growth will present global challenges, but we see this as an opportunity for increased demand across all our markets. With the fast-paced evolution of technologies, innovation will also play a key role in the chemical industry creating a market that is sufficiently sustainable in balancing the environment, resources, climate, food and nutrition, and quality of life. As the fastest growing polymer in the world at a rate of roughly 6% annually, polyester is the future.

Strategic Levers

Our strategy has been designed to help us continue achieving our objectives as follows:

- Focused growth and investment
- Vertically integrated business model
- Geographic diversification
- Product diversification driven by innovation and R&D
- Sustainability
- Cost efficiency and operational excellence
- Financial prudence

Focused Growth and Investment

Our growth and investment strategy is to build and enhance our existing market leadership position in each of the regions where we operate, as well as expand our geographic presence through organic growth and value-enhancing acquisitions.

We have an established a track record of implementing this strategy through greenfield investments, brownfield expansions as well as through attractive acquisitions. Acquisitions are a strategy for achieving our strategic targets. Indorama Ventures has strict strategic and financial acquisition criteria that are used to evaluate potential acquisition targets. We have a strong track record of acquiring businesses and successfully integrating them into our organization.

Vertically Integrated Business Model

We expect vertical integration, either through asset ownership, co-located sites with owned assets or virtual integration through co-located sites with key raw material suppliers, to enhance our operational and logistical efficiency, cost-competitiveness and raw material security. Integration through owned assets also enhances our ability to insulate ourselves from sector cyclicality and improve the quality, visibility, and predictability of earnings. Continuing with our strategy, we have invested in ethylene production through our 440kt pa Louisiana-based gas cracker which is under refurbishment following our acquisition in 2015. We expect a commercial restart by the second quarter of 2018.

Geographic Diversification

Diversifying our customer mix, both geographically and through end-use applications (for some business segments), is an

important aspect for our continued success in the polyester value chain. We plan to continue to enhance our marketing efforts and geographically diversify our customer base based on product lines. Today, the Group sells its products in more than 100 countries and, through its localized manufacturing facilities in various regions, is able to serve its customers from close and convenient locations.

Product Diversification driven by innovation and R&D

As a leading polyester value chain player, we intend to focus on the development of our research and development capabilities, either through our own facilities or through the establishment of relationships with other industry players.

We work carefully alongside our customers to provide them with innovative ideas, expertise and support solutions for their specific requirements. Through this effort to differentiate, we have significantly expanded our non-commodity or high value-added (HVA) portfolio.

As part of its product diversification strategy, the Group aims to focus its expansion into industries with HVA products. Such industries include the automotive, personal care, packing and specialties, and industrial sectors. In the automotive industry, the Group focuses on HVA products such as interior textiles, tires, airbags and seat belts. In the personal care industry, the Group supplies high quality materials for end products such as flame retardant home textiles, diapers, wet wipes and other medical care products. The Group believes that these HVA businesses have strong market potential and high barriers to entry and will continue to leverage its leading market positions in these HVA industries for further growth.

Sustainability

We believe that the increase in our ability to use recycled materials and integrate such recycled materials within our standard processes will allow us to cater to changing customer objectives and proactively address environmental issues. In addition to recycling, we continue to promote our sustainability initiatives through the seven pillars of sustainability namely, Waste Reduction, Reducing Resources, Renewable Energy, Recycling, Employee Development, Stakeholder Engagement, and Local Community Development.

Operational Excellence

Maintaining a low-cost philosophy through a continued focus on production cost efficiency, scale and technology efficiency, raw material efficiency and investment efficiency will help us maintain our industry cost position in the future. In our volume-driven commodity businesses, such as our PET, PTA and some commodity polyester fiber businesses, cost competitiveness is a key driver which differentiates industry leaders from others.

We emphasize the importance of operational excellence to bring synergies and facilitate best practices and knowledge transfer

across IVL's global footprint. Key focus areas include benchmarking conversion costs, optimizing the workforce, waste reduction and recovery, and environmental health and safety issues.

Financial Prudence

We are committed to maintaining a continued emphasis on financial discipline and prudent investment decisions. We evaluate each potential investment on the basis of stand-alone profitability and efficiency, in addition to its potential synergistic contributions within the overall organization. We strive to maintain an efficient capital structure as we grow to provide us with adequate flexibility in our operations and sufficient liquidity in our cash flow position to meet our covenants at all times.

Changes and Important Developments

Company Overview

Formerly known as Beacon Global Limited, the company was established on February 21, 2003, and re-named Indorama Ventures Public Company Limited on March 19, 2009. Indorama Ventures Public Company Limited is a holding company with investments in companies operating in the intermediate petrochemicals industry in Thailand and globally. These companies are manufacturers and suppliers of three key business segments, namely PET, Fibers, and Feedstock comprising PTA, IPA, PX, NDC, MEG and various Ethylene Oxide (EO) derivatives.

Company Background

We commenced business operations in 1994 with the incorporation of Indorama Holdings Ltd., which was the first worsted wool yarn producer in Thailand.

Entry into the PET Business

The PET business segment comprises primarily the manufacture and sale of PET, a plastic polymer resin primarily used for beverage containers and food packaging, the packaging of pharmaceutical and household products as well as in industrial packaging applications. In addition, the Group also manufactures High Value-Added ("HVA") products such as packaging for oxygen-sensitive foods and beverages. In 1995, we entered the petrochemical industry focusing on the polyester value chain business with the establishment of a PET resin facility in Thailand. Since then, each successive growth and addition has been committed to the polyester value chain. We have grown significantly to become a major global polyester value chain producer.

We expanded our PET production footprint internationally into North America in 2003, with the acquisition of the StarPet facility, and into Europe in 2006, with the commencement of our Orion Global PET facility.

By the first half of 2011, IVL had completed major acquisitions of PET plants in China, Indonesia, Mexico, Poland and the US, which has resulted in the company becoming the world's largest PET producer and the largest player in Europe.

We also expanded our PET production footprint to Africa by implementing a new solid state polymerization SSP plant in Nigeria, which started commercial operations in 2012. In 2015, we entered the Middle East following the acquisition of a PET plant in Turkey. In 2018, we acquired a PET plant in Egypt, the largest in the Middle East and Africa.

In 2018, we acquired a PET plant in Brazil in order to further extend our market position, and expand our global footprint in key markets with high growth potential. This strategic position allows us to deliver products to key customers in Brazil and elsewhere in South America in a cost-effective and efficient manner.

Our growth in the PET business has been achieved through greenfield investments, strategic acquisitions, and brownfield expansions. The expansion made us the only PET resin producer with operations in the five largest consuming regions of Asia, Europe, North America, South America and Africa.

Entry into the Packaging Business

From 1996 onwards, we grew our packaging business by engaging in the downstream production of PET preforms, bottles and closures. IVL's first expansion globally was through the acquisition of Beverage Plastics in Northern Ireland (UK) in 2012. Then in 2013, we stepped into Africa with the acquisition of Aurus in Nigeria, in the belief that Nigeria has considerable potential for further growth. In 2018, IVL acquired Medco Plast for Packing and Packaging Systems S.A.E. This acquisition provides IVL with exposure to the East African PET packaging market, complementing our existing footprint in West Africa, where we have a presence in Nigeria and Ghana.

Entry into the Fibers Business

The Group's Fibers business segment comprises the manufacture and sale of a variety of polyester and other types of fibers and yarns (which are also used in the Group's HVA products, particularly in personal care, automotive and industrial applications). Polyester is one of the most widely used synthetic fibers in the world and is a versatile material with wide-ranging textile and industrial applications. Our development in the polyester business has been achieved through the acquisition of distressed assets and organic growth through debottlenecking and asset optimization. We entered the polyester business in 1997 through the acquisition of Indo Poly, a polyester fiber plant in Thailand. In 2008, we acquired Tuntex Thailand, the largest polyester fiber producer in Thailand. Both of our polyester facilities were acquired as distressed assets at a discount to their replacement cost and have been successfully turned around. In 2009, Indo Poly transferred all of its assets to, and all of its liabilities were assumed by Tuntex Thailand, which



was subsequently re-named Indorama Polyester Industries. Further expansions subsequently took place at this site.

In the first half of 2011, we expanded our polyester production footprint internationally. We entered the US market with the acquisition of Invistra US. In November 2011, we acquired the polyester fibers recycling businesses of Wellman International in Europe, which is comprised of three production facilities in the Republic of Ireland, the Netherlands, and France.

Backward Integration into Feedstock

The Group's feedstock business segment comprises the manufacture, production and sale of PTA, IPA, PX, NDC, MEG, EO derivatives and by-products, which are raw materials used in the production of the Group's polyester products. The Group's feedstock business segment supports its PET and polyester business segments and forms part of its strategy to vertically integrate its operations.

We entered the PTA business in Europe with the acquisition of a PTA facility located in the Netherlands in 2008. In the same year, we also acquired two PTA facilities in Thailand – TPT Petrochemicals and Indorama Petrochem.

In 2012, we took another step upward to feedstock integration with the acquisition of Old World Industries I, Ltd. and Old World Transportation, Ltd., which is the largest single EO/EG production facility in the US. Mono Ethylene Glycol (MEG) is one of our key feedstocks together with Purified Terephthalic Acid (PTA) in the manufacture of Polyethylene Terephthalate (PET) and Polyester fibers and yarns, both downstream products for IVL. We also acquired 100% of Indorama Ventures Olefins Holding LLC, an old ethylene cracker in the US in September 2015 (under

refurbishment). In March 2016, IVL bought BP's assets in Decatur, Alabama which produce PTA, PX and NDC. And in April 2016, IVL purchased CEPSA's PET, PTA and IPA assets in Spain.

Focus on Business Differentiation

Advancing towards High Value-Added (HVA) Segments

As we grew to become an industry leader, so did the importance of working more closely with our global customers in providing them with innovative and specialized solutions to meet their evolving needs. IVL has invested laterally into high value-added products in PET, Polyester fibers and yarns, polypropylene fibers and yarns, nylon fibers and yarns, PEO, IPA and NDC. We have made significant headway on the HVA front as a market leader and innovator of numerous products. Our specialty range has enhanced the brand value of IVL making the company a total global solutions provider. In 2018, our HVA portfolio represented 20% of production and 37% of consolidated core EBITDA. Core EBITDA is calculated as book EBITDA minus inventory gains or losses and extraordinary items, if any.

Recycling Business

We entered the recycling space in 2011 with the acquisition of Wellman International in Europe. At the beginning of 2014, we extended the know-how we obtained from the Wellman International purchase and commenced production of our recycled PET and fiber facility in Nakhon Pathom, Thailand. We expect to further leverage Wellman's bottle to flake technology on a global scale. We have also integrated three production sites in the US and Mexico with recycled PET and our objective is to continue to

increase the use of recycled PET in our operations. In 2018, we acquired Sorepla, a European non-integrated plastics recycler based in France which helped to enhance our recycling portfolio with food grade rPET.

Success in Raising Capital

Our Initial Public Offering

Indorama Ventures became a public company on September 25, 2009. In January, 2010, IVL completed an initial public offering of 400,000,000 ordinary shares at an offering price of THB 10.20 per ordinary share. The total amount raised in cash from the initial public offering of shares totaled THB 4,080 million. Simultaneously, the minority shareholders of Indorama Polymers Public Company Limited, a subsidiary of IVL listed on the Stock Exchange of Thailand were offered under an exchange offer, 582,727,137 ordinary shares of Indorama Ventures Public Company Limited. The ordinary shares of Indorama Ventures Public Company Limited were listed and commenced trading on the Stock Exchange of Thailand (SET) on February 5, 2010 under the ticker symbol IVL. The company soon became a member of the major indices, the SET 50 Index, FTSE SET Large Cap Index, and MSCI.

Rights Offering

In November, 2010, the Board of Directors passed a resolution to increase the authorized share capital from THB 4,334,271,047 to THB 4,815,856,719 and to reserve the increase in the authorized share capital of THB 481,585,672 for the exercise of Transferable Subscription Rights (TSRs). The Board approved a rights issue of TSRs to existing shareholders at the ratio of one TSR for every nine existing ordinary shares held of IVL. The conversion ratio was 1:1. One TSR to one ordinary share and the exercise price of the TSR

to ordinary shares was THB 36 per ordinary share. On December 17, 2010, at the extraordinary general meeting of shareholders (EGM), the shareholders approved the issue, allocation and the terms and conditions of the TSRs. On February 24, 2011, the subscription of TSRs was completed with 99.67% of TSRs being exercised into shares. A total of 479,986,198 new shares started trading on the SET on March 3, 2011. The total amount raised in cash from this rights issue totaled THB 17,280 million.

Tender Offer

Our PET business was listed on the SET as Indorama Polymers Public Company Limited (IRP) in 2005. On December 24, 2009, IVL offered to purchase up to 100% of IRP through a tender offer whereby IRP shareholders (other than IVL and its subsidiaries) were offered IVL shares in exchange for IRP shares. The said tender offer was completed on February 1, 2010 which resulted in IVL holding directly and indirectly (through its subsidiary Indorama Holdings [Thailand] Limited) around 99.08% of the issued and paid-up capital of IRP. IRP shares were delisted from the SET on February 5, 2010.

Warrants IVL-W1 Exercised

Upon conversion IVL-W1 until the last exercise date which was on 24 August 2017, the paid-up capital of the Company increased to THB 5,244,965,472 representing 5,244,965,472 ordinary shares.

Warrants IVL-W2 Exercised

Upon conversion IVL-W2 until the last exercise date which was on 24 August 2018, the paid-up capital of the Company increased to THB 5,614,551,908 representing 5,614,551,908 ordinary shares.

Changes and Important Developments

Year	Event	Location	Business
1994	Incorporation of Indorama Holdings Ltd.	Thailand	Wool
1995	Establishment of Indorama Polymers PCL's PET resin plant in Lopburi, Thailand.	Thailand	PET
1996	Establishment of Petform (Thailand) Ltd., a joint venture with Serm Suk PCL.	Thailand	PET
2002	Completion of various expansion projects leading to increased capacity in Thailand.	Thailand	PET/ Polyester
2003	• Incorporation of Beacon Global Limited (subsequently re-named Indorama Ventures PCL in 2008).	Thailand	PET
	• First major international expansion with the acquisition of StarPet PET plant in Asheboro, North Carolina.	US	PET
2006	• Acquisition of a 94.57% interest in Indorama Holdings Ltd. from an entity controlled by Mr. Alope Lohia.	Thailand	Wool/Holding Company
	• Expansion into Europe with the establishment of Orion Global PET plant in Klaipeda, Lithuania.	Lithuania	PET
2007	Completion of various expansion projects leading to increased capacity.	US/ Thailand	PET/ Polyester

Year	Event	Location	Business
March 2008	<ul style="list-style-type: none"> UAB Indorama Polymers Europe, IRP Rotterdam and IRP Workington acquired the net assets (property, plant and equipment, and working capital) and the operations of two PET production facilities located in the Netherlands and the United Kingdom, previously owned and operated by subsidiaries of Eastman Chemical Company. UAB Indorama Holdings Ltd. Europe and IRH Rotterdam also acquired the net assets (property, plant and equipment, and working capital) and the operations of a PTA production facility located in the Netherlands, previously owned and operated by a subsidiary of Eastman Chemical Company. 	The Netherlands/ UK	PET
June 2008	Indorama Holdings Ltd. sold its shares representing 89.71% of Indo-Rama Chemicals (Thailand) Ltd., to an entity controlled by Mr. Alope Lohia and his immediate family.	Thailand	Chemicals
August - October 2008	The Company acquired a 50.56% equity interest in TPT Petrochemicals PCL from various parties.	Thailand	PTA
September 2008	<ul style="list-style-type: none"> The Company acquired a 65.81% equity interest in Tuntex (Thailand) pursuant to Tuntex (Thailand)'s bankruptcy rehabilitation plan. The Company acquired an additional 44.38% of the outstanding shares of Indo Poly (Thailand) Ltd. from Indorama International Finance PCL. As a result of the acquisition, the Company increased its direct and indirect shareholdings of Indo Poly (Thailand) Ltd. to 98.85%. 	Thailand	Polyester
September - October 2008	The Company acquired a 100% equity interest in Indorama Petrochem Ltd. from various parties.	Thailand	PTA
October 2008	The Company acquired an additional 3.94% of the outstanding shares of Indorama Polymers PCL from DEG, thereby increasing the direct and indirect holdings of Indorama Polymers PCL to 69.29%.	Thailand	PET
December 2008	The Company acquired an additional 31.20% of the outstanding shares of Tuntex (Thailand) PCL (re-named Indorama Polyester Industries PCL).	Thailand	Polyester
July 2009	<ul style="list-style-type: none"> Indo Poly (Thailand) Ltd. transferred all of its assets and businesses to Indorama Polyester Industries PCL. (In August 2009, Indo Poly [Thailand] Ltd. commenced action to liquidate itself, a process which was completed in August 2011.) The Company acquired an additional 2.08% of the outstanding shares of TPT Petrochemicals PCL from International Finance PCL, thereby increasing the direct and indirect holdings of TPT Petrochemicals PCL to 52.64%. 	Thailand	Polyester
August 2009	The Company and Indorama Holdings Ltd. jointly made a tender offer to purchase all outstanding shares of Indorama Polyester Industries PCL that we did not own. After the tender offer, the Company and Indorama Holdings Ltd. increased our shareholdings of Indorama Polyester Industries PCL to 99.55% and delisted Indorama Polyester Industries PCL from the SET effective on November 9, 2009.	Thailand	Polyester
October 2009	Startup of the AlphaPet PET plant in Decatur, Alabama.	US	PET
November 2009	TPT Utilities Co., Ltd. transferred all of its assets to TPT Petrochemicals PCL and subsequently completed the liquidation on October 29, 2011.	Thailand	Others

Year	Event	Location	Business
December 2009	<ul style="list-style-type: none"> The Company acquired an additional 1.96% of the outstanding shares of TPT Petrochemicals PCL from International Finance PCL, thereby increasing the direct and indirect holdings of TPT Petrochemicals PCL to 54.60%. 	Thailand	PTA
	<ul style="list-style-type: none"> On December 24, 2009 Indorama Ventures Public Company Limited (IVL) announced a tender offer to purchase up to 100% of the shares in Indorama Polymers Public Company Limited (IRP) with an intention to delist the shares of IRP from the Stock Exchange of Thailand. A total of 424,480,300 shares of IRP were purchased through an exchange offer whereby IRP shareholders received IVL shares. 	Thailand	PET
February 2010	IVL shares were listed and began trading on the Stock Exchange of Thailand after completion of an initial public offering of 400 million new shares at THB 10.20 and completion of an exchange offer to minority shareholders of Indorama Polymers Public Company Limited (IRP). Simultaneously delisted IRP shares from the SET on the first day of trading of IVL.	Thailand	Corporate
July 2010	Acquisition of a 50% equity stake in a joint venture company, UAB Ottana Polimeri Europe, for the purpose of acquiring an integrated PTA and PET plant in Ottana, Italy from Equipolymers. The joint venture partner, PCH Holdings, is in the power and utilities business and holds the remaining 50% stake.	Italy	PTA and PET
August 2010	<ul style="list-style-type: none"> Announced the establishment of a greenfield project for PET polymers in Port Harcourt, Nigeria with an installed capacity of 75,000 tpa. 	Nigeria	PET
	<ul style="list-style-type: none"> Announced capacity expansion by 190,000 tpa for PET through a new production line at an existing site in Rotterdam, the Netherlands. Europe is a net importer of PET resins and the expansion has helped to reduce imports and growth in demand. In addition, the PET expansion will result in full captive consumption of PTA produced onsite and cost benefits from economies of scale. 	Netherland	PET
October 2010	Acquisition of additional shares in TPT Petrochemicals PCL from Tuntex Taiwan and other shareholders to increase the Company's equity stake from 54.60% to 99.96%.	Thailand	PTA
November 2010	<ul style="list-style-type: none"> Announced the approval of an acquisition to make PET resins and Polyester polymers for fibers and yarns in Kaiping City, Guangdong Province, China, from Guangdong Shinda UHMWPE Company Limited. The total installed capacity of the plant is 406,000 tpa. The acquisition allows the Company to expand its global footprint and to enter the high-growth market in China. The acquisition was completed in January, 2011. 	China	PET
	<ul style="list-style-type: none"> Announced the signing of a definitive agreement with INVISTA S.a.r.l. to acquire their PET resins and Polyester staple business located in Spartanburg, South Carolina (US) and Queretaro, Mexico. The total installed capacity at the Spartanburg site is 470,000 tpa and 535,000 tpa at the Queretaro site. The acquisition will allow the Company to build on its expanding global platform making IVL the world's largest PET producer and provide access to new markets in Central and South America. The acquisitions were completed in March 2011. 	US / Mexico	PET / Polyester
	<ul style="list-style-type: none"> Board of Directors Meeting No. 8/2010 on 10 November, 2010 approved the issuance of 481,585,672 free Transferable Subscription Rights (TSRs) to the company's existing shareholders and with an allocation ratio of 9 existing shares to 1 new TSR. The conversion ratio of 1 TSR entitled the TSR holder to purchase 1 newly issued share of the Company. The exercise price of the TSR into ordinary shares was determined prior to the extraordinary general meeting of shareholders to approve the rights issue. 	Thailand	Corporate

Year	Event	Location	Business
December 2010	<ul style="list-style-type: none"> Announced the signing of a definitive agreement with SK Chemicals and SK Syntec to acquire their Polyester Filament yarns and PET resins business in Indonesia and PET resins business in Poland. The total installed capacity in Indonesia is 196,000 tpa and 140,000 tpa in Poland. The acquisition allowed the Company to expand its global platform and reinforce our focus on the polyester value chain. It provided important access to the growth markets of Indonesia and Poland. The acquisitions were completed in March 2011. 	Indonesia/ Poland	Polyester/ PET
	<ul style="list-style-type: none"> Board of Directors Meeting No. 9/2010 on 16 December, 2010 approved an exercise price of THB 36 per share to subscribe to newly issued shares by each TSR holder. 	Thailand	Corporate
	<ul style="list-style-type: none"> Extraordinary General Meeting of Shareholders No. 1/2011 approved the resolution of a rights issue and allocated an issue of TSRs at a ratio of 9 existing shares to 1 TSR to existing shareholders. 	Thailand	Corporate
March 2011	<ul style="list-style-type: none"> A total of 479,986,198 new IVL shares were listed and began trading on the Stock Exchange of Thailand after completion of the TSR subscription at an exercise price of THB 36 per share. 	Thailand	Corporate
	<ul style="list-style-type: none"> Announced capacity expansion by 300,000 tpa for PET at an existing site in Purwakarta, Indonesia. 	Indonesia	PET
April 2011	Announced a brownfield expansion of PET polymers production with a capacity of 220,000 tpa at the existing site in Poland.	Europe	PET
May 2011	Announced a brownfield expansion of PTA production at the Rotterdam plant, with a new production line with an annual PTA capacity of 250,000 tpa. This expansion enhanced the Company's business integration with a key raw material for production of PET polymers in Europe.	Europe	PTA
June 2011	The IVL Board approved the acquisition of a 50% stake in PT Polyprima Karyesreska (PT Polyprima), a PTA producer located in Cilegon, West Java, Indonesia which has an installed capacity of 465,000 tpa.	Indonesia	PTA
July 2011	Acquisition of a 75% equity stake in a joint venture company, Trevira Holdings GmbH, for the purpose of acquiring a polyester fiber plant in Germany and Poland with a capacity of 120,000 tpa. The acquisition of Trevira GmbH facilitated IVL's entry into the branded specialist filament business and provided access to an outstanding research and development facility with the accompanying intellectual property.	Germany/ Poland	Polyester
August 2011	The Board approved investments in a new recycling plant in Thailand (now complete) and a high technology business in Polyester fibers and yarns in Thailand and Indonesia. These projects have higher value addition and margins to leverage our existing assets.	Thailand/ Indonesia	Polyester
November 2011	The Board approved the acquisition of a 100% equity stake in the recycling business of Wellman International in Europe from WIT Beteiligungs GmbH and Wellman International Trading which is subsidiary of Aurelius AG. This business consists of three plants, a Polyester plant in Mullagh, Ireland with an installed capacity of over 80,000 tons, a recycling plant in Spijk, the Netherlands with an installed capacity of over 45,000 tons, and Verdun, France with an installed capacity of 28,000 tons.	Ireland/ France/ Netherlands	Polyester
January 2012	The Board approved the acquisition of 100% of FiberVisions Holdings LLC, a global manufacturer of specialty mono and bi-component fibers based in Duluth, Georgia (US), with a total global capacity of 221,000 tpa of specialties, with 117,000 tpa capacity in the United States, 90,000 tpa capacity in Europe and 14,000 tpa capacity in China.	US	Polyester

Year	Event	Location	Business
February 2012	<ul style="list-style-type: none"> The Board of Directors approved the acquisition of a 100% partnership interest in Old World Industries I Ltd., and Old World Transportation Ltd., (collectively called Old World), located in Clear Lake, Texas (US). Old World is the largest single EO/EG production facility in the US with a Crude EO capacity of 435,000 tpa (which is the equivalent to 550,000 tpa of equivalent MEG capacity). Acquisition of a 51% stake in a packaging business. Beacon Trading (UK) Limited acquired a 51% stake in Beverage Plastics (Holdings) Limited (BPL) in Northern Ireland, United Kingdom. 	US UK	EO/EG Packaging
March 2012	Acquisition of 100% of the PET resin assets of PT Polypet Karyapersada. The PET facility is located in Cilegon, Indonesia with a production capacity of 100,800 tpa.	Indonesia	PET
April 2012	Acquisition of a 100% partnership interest in Old World Industries I, Ltd. and Old World Transportation, Ltd. in the US. Old World is in the business of production and sale of ethylene oxide (EO) and derivative products from ethylene oxide: purified ethylene oxide (PEO), mono ethylene glycol (MEG), diethylene glycol (DEG), and triethylene glycol (TEG).	US	EO/EG
July 2012	Start-up of a Solid State Polymerization (SSP) plant in Nigeria at a capacity of 84,000 tpa. This is IVL's first PET investment in Africa and establishes its foothold in the estimated 450,000 ton PET market for the African continent which currently has only one other PET producer.	Nigeria	PET
August 2012	Completion of the acquisition of the PET resin assets through its wholly-owned subsidiary, PT Indorama Polypet Indonesia, with a capacity of 100,800 tpa in Cilegon, Indonesia.	Indonesia	PET
November 2012	<ul style="list-style-type: none"> An announcement of the greenfield expansion of PET production in North America with the establishment of a new plant with a capacity of 540,000 tpa. With respect to the announced PET expansion at its Polish site, the Board decided to carry out a significant debottlenecking instead of setting up a new line as it would be more value accretive. This has now been completed. 	US Poland	PET PET
February 2013	Acquisition of a 100% stake in a packaging company, which produces PET preforms, in Nigeria. This acquisition will be a forward integration for the PET segment which set up a PET bottle resin manufacturing unit in Nigeria. All of the closing formalities were completed and the plant was taken charge of effective April 3, 2013.	Nigeria	Packaging
May 2013	<ul style="list-style-type: none"> The Board of Directors approved the formation of a 50:50 Joint Venture Company with a global producer of non-woven fibers to set up a 14,500 tpa Bicomponent Fiber Plant at IPI in Rayong, Thailand. The plant started operations in Q2 2015. The Board also approved expanding the current Bicomponent Fiber capacity by 10,800 tons at the Covington, Georgia (US) unit of wholly-owned FiberVisions Manufacturing Company. 	Thailand US	Polyester Polyester
October 2013	<ul style="list-style-type: none"> Establishment of Indorama Ventures Packaging (Philippines) Corporation to start a new packaging business in the Philippines. The establishment of new subsidiaries: Indorama Ventures USA Holdings LP Indorama Ventures AlphaPet Holdings, Inc. Indorama Ventures Europe B.V. The three holding companies were formed as part of a restructuring exercise. 	Philippines US US Netherlands	Packaging Holding Company
November 2013	An announcement for the moth-balling of our PET plant at Indorama Polymers Workington Ltd., in the UK, as part of our business improvement plan and restructuring strategy of our European businesses.	UK	PET

Year	Event	Location	Business
December 2013	<p>The establishment of a new subsidiary:</p> <ul style="list-style-type: none"> Indorama Ventures Global Services Limited. Signing of a joint venture agreement for Aromatics production in Abu Dhabi to develop the Tacaamol Aromatics Plant on Madeenat ChemaWEyaat Al Gharbia's (MCAG) site in the Western Region of Abu Dhabi. The plant is expected to have an annual capacity of about 1.4 million tons of Paraxylene and 0.5 million tons of Benzene. 	Thailand Abu Dhabi	Corporate PX
February 2014	<ul style="list-style-type: none"> Acquisition of PHP Fibers GmbH and its subsidiaries (PHP), where IVL holds 80% of PHP while the remaining 20% is held by Toyobo Co., Ltd., a leading Japanese manufacturer of high function products, including among others, automotive products. The acquisition was completed on 30 April, 2014. The establishment of a new indirect subsidiary company in the Republic of Ghana. 	Germany/ US/ China Ghana	Air bags/ Tire cord yarns Packaging
March 2014	The establishment of a new joint venture company in Thailand, 50% owned by Indorama Holdings Ltd., a subsidiary company of IVL, and 50% owned by JNC Fibers Corporation of Japan.	Thailand	Polyester
June 2014	Acquisition of 100% of Artenius TurkPET A.S. (Artenius) in Adana, Turkey. Artenius is a PET producer in Turkey with a capacity of 130,000 tpa. The acquisition was completed on 2 June, 2014.	Turkey	PET
October 2014	Reorganization of the Company's subsidiaries in the Netherlands and the US to improve operational and fiscal efficiencies, business workflows and to pool common resources, and some of the businesses of its subsidiaries.	Netherlands/ US	Corporate
November 2014	The establishment of two new joint venture companies: Indorama Ventures EcoMex, S. de R. L de C.V. Indorama Ventures EcoMex Services, S. de R. L de C.V.	Mexico	PET
December 2014	Announced the signing of a share purchase agreement to acquire a 100% equity stake in Performance Fibers Asia (PF Asia). PF Asia is a leading producer of premium polyester tire cord fabric in Asia. PF Asia's plants are located in Kaiping City, Guangdong, China, with an annual capacity of 41,000 tons of Polyester Tire Cord Fabric and 48,000 tons of Polyester Tire Cord Yarn. All of the closing formalities were completed and the plants were taken charge of effective April 01, 2015.	China	Polyester
January 2015	The establishment of a new indirect subsidiary company in Myanmar, Indorama Ventures Packaging (Myanmar) Limited, with a 100% investment by a wholly-owned subsidiary, IVL Singapore Pte. Ltd.	Myanmar	Packaging
March 2015	<ul style="list-style-type: none"> Completed the acquisition of a 100% stake in Polyplex Resins San. ve Tic. A.S, Turkey. Polyplex Turkey owns a newly set-up greenfield PET plant with a planned capacity of 252,000 tpa located in Corlu, close to Istanbul. Acquisition of a 100% stake in the PTA business of CEPESA Chimie Montréal s.e.c in Montreal, Canada. CPESA is the largest and the only PTA manufacturing facility in Canada with a capacity of 600,000 tpa and is one of the three merchant PTA producers in North America. 	Turkey Canada	PET PTA
May 2015	Completion of the acquisition of a 94.91% stake in a PET business in Thailand, Bangkok Polyester PCL (BPC). BPC is a producer of PET polymers in Rayong, Thailand, with a capacity of 105,000 tpa. Further shares were also acquired from the minority shareholders, thereby taking the Company's total shareholding in BPC to 98.97%.	Thailand	PET
June 2015	The acquisition of CEPESA Chimie Montréal s.e.c in Montreal, Canada was completed, including all of the closing formalities, and the plant was taken charge of effective June 1, 2015. IVL renamed the companies as Indorama Ventures Gestion, Inc., Indorama Ventures Northern Investments and Indorama Ventures PTA Montreal, respectively.	Canada	PTA

Year	Event	Location	Business
September 2015	The establishment of three new subsidiaries: <ul style="list-style-type: none"> Indorama Ventures Dutch Investments B.V. Indorama Ventures Investments USA LLC Indorama Ventures Olefins LLC 	Netherlands US US	Holding Company Ethylene Cracker
November 2015	<ul style="list-style-type: none"> Acquisition of 100% of CEPSA's business in Spain. CEPSA Spain is Europe's largest producer of IPA (isophthalic acid) and is the second largest producer in the world. With 220,000 tons of IPA capacity, 175,000 tons of PET, and 325,000 tons of PTA. The establishment of a new indirect subsidiary company in the US: Indorama Ventures Olefins Holding LLC 	Spain US	PET/PTA/ IPA Holding Company
December 2015	Completed the acquisition of a 100% stake in the Polyethylene Terephthalate (PET) business of MICRO POLYPET Private Limited (MicroPet) and its two subsidiaries, Sanchit Polymers Private Ltd., and Eternity Infrabuild Private Ltd. in India, effective 23 December, 2015. MicroPet has a PET capacity of 216,000 tpa and is situated in Panipat district in the northern Indian state of Haryana, and has a virtual integration with a major refinery for its PTA and MEG feedstocks.	India	PET
January 2016	Acquisition of a 100% stake in BP Amoco Chemical Company (BP)'s chemical complex in Decatur, Alabama (US). BP's integrated facility is located adjacent to IVL's PET manufacturing subsidiary, AlphaPet, Inc. and has a combined capacity of approximately 1.8 million tons of which PX capacity is 720,000 tons, PTA capacity is 1,020,000 tons, and NDC (Naphthalene Dicarboxylate). (The acquisition was completed and effective as of March 31, 2016.)	US	PTA/PX/ NDC
February 2016	Formation of an equal joint venture in India with Dhunseri Petrochem Limited. IVL will divest its 50% equity stake in its indirect, fully-owned PET manufacturing company - Micro Polypet Private Limited, India to Dhunseri Petrochem Limited. IVL will also acquire a 50% equity stake in a new carved-out entity from Dhunseri Petrochem Limited. The new entity will own the 480,000 ton PET manufacturing facility of Dhunseri Petrochem Limited located in the port city of Haldia in the eastern Indian state of West Bengal.	India	PET
March 2016	The establishment of a new indirect subsidiary in India, Indorama Ventures Packaging (India) Private Limited.	India	Packaging
April 2016	Completed the acquisition of a 100% of Compañía Española de Petróleos S.A.U. (CEPSA Spain)'s PIA, PET and PTA business in Guadarranque-San Roque, Cadiz, Spain. The operation was effective as of April 7, 2016. The company was renamed Indorama Ventures Química S.L.U.	Spain	PET/PTA/ IPA
July 2016	The establishment of a subsidiary company and a joint venture company in China. The new indirect subsidiary: Performance Fibers (Kaiping) No. 3 Company Limited	China	Polyester
	The new Joint Venture Company: ES FiberVisions Shanghai Co., Ltd.	China	Trading Business
August 2016	<ul style="list-style-type: none"> Name change of a subsidiary company in the US. Polyamide High Performance, Inc., an 80% indirect subsidiary of IVL in the US changed its name to "PHP Fibers Inc." The merger of two indirect subsidiaries in Germany. PHP Overseas Investments GmbH, a non-operating entity merged into PHP Fibers GmbH, an operating Fibers business entity. The new merged entity is known as "PHP Fibers GmbH." 	US Germany	Air bags/ Tire cord yarns Air bags/ Tire cord yarns

Year	Event	Location	Business
September 2016	<ul style="list-style-type: none"> Completed the formation of an equal joint venture in India with Dhunseri, effective September 12, 2016. The joint venture company in India was also renamed. Dhunseri Petglobal Limited was changed to "IVL Dhunseri Petrochem Industries Limited." The establishment of a new indirect subsidiary company in China: Performance Fibers (Kaiping) Trading Company Limited 	India	PET
		China	Polyester
December 2016	The establishment of a new indirect subsidiary company in Mexico, Indorama Ventures Mexico Assets, S. de R.L. de C.V., which is 99.99% held by Grupo Indorama Ventures, S. de R.L. de C.V., a wholly-owned indirect subsidiary company of IVL.	Mexico	Service Company
May 2017	<ul style="list-style-type: none"> Acquisition of a 100% stake of Glanzstoff Group (Glanzstoff), a tire cord business in Luxembourg, Italy, the Czech Republic and China. The Glanzstoff acquisition provides a strategic fit to the automotive segment in the HVA portfolio with a capacity of 36,300 tpa. Acquisition of the remaining 25% stake in Trevira Holdings GmbH (Trevira) in Germany. With this acquisition, IVL holds 100% of Trevira, a leading brand of specialty polyester fibers globally. 	Luxembourg/ Italy/ Czech Republic/ China	Tire cord
		Germany	Polyester
September 2017	Acquisition of a 100% stake of DuraFiber Technologies México Operations, S. A. DE C. V. (DuraFiber), a tire cord business with a capacity of 22,400 tpa.	Mexico	Tire cord
October 2017	Acquisition of a 100% stake of DuraFiber Longlaville, France, a tire cord business with a capacity of 35,000 tpa.	France	Tire cord
November 2017	Acquisition of the PTA assets of Artlant PTA S.A. and the adjacent utility assets of Artelia Ambiente, S.A. in Portugal.	Portugal	PTA
March 2018	<ul style="list-style-type: none"> Acquisition of a 100% stake of M&G Polimeros Brazil S.A. in Ipojuca, Brazil, the largest PET facility in the country with a capacity of 550,000 tpa. (Completed all closing formalities and took charge of the operations effective May 24, 2018). Formation of an equal joint venture company, namely Corpus Christi Polymers LLC (CC Polymers), with Alpek and Far Eastern and entered into an asset purchase agreement with M&G USA Corp. and its affiliated debtors (M&G) to acquire the integrated PTA-PET plant currently under construction in Corpus Christi, Texas (US). The plant is expected to be the largest single line vertically integrated PTA-PET production facility in the world and the largest PTA plant in the Americas with a capacity of 1.1 million tpa of PET and 1.3 million tpa of PTA. 	Brazil	PET
		US	Integrated PTA-PET
May 2018	Acquisition of a 65.72% equity stake in Avgol Industries 1953 Ltd., with a capacity of 203,000 tpa. Avgol Industries is a global manufacturer of non-woven fabric and hygiene products with six sites located in Israel, the US, Russia, China and India. (Completed all closing formalities of the transaction on 25 July 2018).	Israel/US/ Russia/ China/ India	Non-woven fabric and hygiene
June 2018	<ul style="list-style-type: none"> Formation of a joint venture in Egypt with Dhunseri Petrochem Limited, namely Egyptian Indian Polyester Company S.A.E. (EIPET) with a capacity of 540,000 tpa. EIPET is one of the largest PET producers in the Middle East and Africa. Formation of a 50:50 joint venture limited liability company in the US with Huvis Global Corporation named Huvis Indorama Advanced Materials, LLC. (HIAM) with a capacity of 60,000 tpa. HIAM is a manufacturer of Low Melting Fiber (LMF) used as a binder fiber in core-sheath constructions to produce HVA applications for automotive and industrial composites. Acquisition of an equity stake of 100% of KORDÁRNA Plus a.s. (Kordarna) in the Czech Republic with a capacity of 57,000 tpa. Kordarna is the largest producer of tire cord fabrics in Europe, having one production site in the Czech Republic and another in Slovakia. (Completed all closing formalities and took charge of the operations effective October 30, 2018). 	Egypt	PET
		US	Low Melting Fiber
		Czech Republic/ Slovakia	Tire cord

Year	Event	Location	Business
July 2018	• Acquisition of 74% of the share capital of Medco Plast for Packing and Packaging Systems S.A.E., Egypt (MEDCO) with a production capacity of 70,000 tpa of PET preforms. MEDCO is the largest PET convertor in Egypt with market share of approximately 25%. (Completed all closing formalities of the transaction on November 13, 2018).	Egypt	Packaging
	• Acquisition of 100% of the share capital of Sorepla Technologie S.A. and its subsidiary, namely Société de Recyclage de Matières Plastiques (Sorepla Industrie) S.A., in France (Sorepla). Sorepla is one of the largest plastics recyclers in Europe with a capacity of 52,000 tpa.	France	PET Recycling
September 2018	Agreed to form a 50:50 joint venture limited liability company in the US with Loop Innovations, LLC named Indorama Loop Technologies, LLC. (ILT).	US	Sustainable Polyester Resin
October 2018	• Acquisition of a 100% equity stake in Schoeller Group in Europe, with operating plants in Austria, the Czech Republic and Germany. Schoeller Group is a leading European producer of pure wool and wool blend worsted yarns, with one dyeing facility in Austria and one spinning facility in the Czech Republic, with a total production capacity of 3,600 tpa. (Completed all closing formalities of the transaction on November 23, 2018).	Austria/ Czech Republic/ Germany	Wool and Wool Blend Worsted Yarn
	• Established a new indirect subsidiary company and merged indirect subsidiaries in Mexico. The setting up of a new indirect subsidiary: Glanzstoff Industries Mexico, S. de R.L. de C.V.	Mexico	Chemical Fibers
	The merger of indirect subsidiaries: Indorama Ventures Mexico Assets, S. de R.L. de C.V. (IVMA)	Mexico	Service Business
November 2018	Acquisition of a 100% equity stake in M&G Fibras Brasil S.A. in Brazil. The site produces Polyester Staple Fiber, with a capacity of 75,000 tpa.	Brazil	Polyester Staple Fiber
December 2018	• Acquisition of a 100% equity stake in UTT Beteiligungsgesellschaft mbH (UTT), Germany, one of the leading suppliers of airbag fabrics and other highly specialized solutions in the field of technical textiles, with two manufacturing sites located in Germany and Mexico and with capacity of approximately 12,000 tpa.	Germany/ Mexico	Airbag Fabrics and Others
	• Acquisition of a 100% equity stake in the PET business of INVISTA Resins & Fibers GmbH, Germany (IRFG); and certain intellectual property rights of INVISTA Textiles (UK) Limited with regards to its barrier technology. PolyShield® PET and OxyClear® Barrier PET are well-known brands in oxygen barrier packaging. The IRFG plant is located in Gersthofen, Germany and manufactures high value-added PET with a combined capacity of 282,000 tpa.	Germany	PET
	• Signed a definitive Asset Purchase Agreement of with Custom Polymers PET, LLC, to acquire their PET recycling facility in Alabama (US). The facility consists of two production lines: rPET flakes and food-grade rPET pellets, with a combined capacity of 31,000 tpa.	US	rPET and food-grade rPET Pellets
	• An integrated PTA-PET asset at the Corpus Christi joint venture received all regulatory clearances required from the United States Federal Trade Commission for the proposed acquisition on December 21, 2018.	US	Integrated PTA-PET
	• Commercial production start-up at Indorama Ventures Xylenes & PTA, LLC's PIA plant in Decatur, Alabama (US) on December 23, 2018. This plant complements IVL's existing PIA plant at IVL Quimica in Spain. The two PIA plants have a combined name plate capacity of 440,000 tpa.	US	PIA

In August, 2014, IVL's Board of Directors passed a resolution to increase the Company's share capital and issue warrants through a rights issue to existing shareholders. Furthermore, the Extraordinary General Meeting of Shareholders No. 1/2014 held on August 6, 2014 considered and approved the rights issue of warrants to existing shareholders, terms of the warrants, and the increase in registered share capital and allocation of share capital for the exercise of the warrants. The key terms of the issued warrants are:

Warrant	IVL W1	IVL W2
Term	3 Years	4 Years
Exercise Ratio	1 unit of warrant for 1 share	1 unit of warrant for 1 share
Exercise Price	THB 36 per share	THB 43 per share
Issue Date	25 August 2014	25 August 2014
Expiry Date	24 August 2017 3 years from the issue date	24 August 2018 4 years from the issue date
Warrant Issue Price	THB 0 (at no cost)	THB 0 (at no cost)
Allocation	To existing shareholders at the ratio of 10 IVL existing shares to 1 IVL-W1	To existing shareholders at the ratio of 13 IVL existing shares to 1 IVL-W2
Exercise Period	Last business day of each month for every 3 months starting from 31 October 2014. The last exercise date is the third anniversary from the issue date.	Last business day of each month for every 3 months starting from 31 October 2017. The last exercise date is the fourth anniversary from the issue date.



As of August 31, 2014, the Company increased its registered share capital from THB 4,815,856,719 to THB 5,666,010,449 in ordinary shares with a par value of THB 1 per share. The increase in registered share capital by THB 850,153,730 is reserved for the exercise of IVL-W1 and IVL-W2 warrants into ordinary IVL shares. As per the terms of the issue, if all warrants are exercised by the warrant holders into ordinary shares, IVL will raise, with the exercise of all IVL-W2, up to THB 15.9 billion by September 2018.

In October 2014, the Company successfully completed the offering of Subordinated Perpetual Debentures No. 1/2557 for THB 15 billion. The Perpetual Debentures carry a fixed rate coupon of 7.0% per annum for the first five years, after which the coupon will be adjusted every five years as per the stated terms and conditions. The issuance has strengthened IVL's capital structure, and improved the liquidity and flexibility of the Company.

In October 2015, the Company successfully issued its first overseas Senior Unsecured Bond in the amount of SGD 195 million to institutional investors in Singapore through its wholly-owned subsidiary, IVL Singapore PTE Ltd. The Bond was rated AA (Stable) by Standard and Poor's with a tenure of 10-years at

an interest rate of 3.73 percent per annum. It is guaranteed by the Credit Guarantee & Investment Facility (CGIF), a trust fund of the Asian Development Bank and listed on the SGX-ST.

In 2017, the total number of IVL-W1 exercised from October 2014 until the last exercise on 24 August 2017 was 430,708,227 warrants, representing 89.47% of the total warrants issued. The unexercised (IVL-W1) warrants have expired and were delisted on August 25, 2017. The Company will use this inflow of funds to reduce its debt and pursue future growth opportunities.

In 2018, the total number of IVL-W2 exercised from October 2017 until the last exercise on August 24, 2018 was 369,586,436 warrants, representing 99.80% of the total warrants issued. The unexercised (IVL-W2) warrants expired and were delisted on August 25, 2018. The Company will use this inflow of funds to reduce its debt and pursue future growth opportunities.

In October 2018, TRIS Ratings (a strategic partner of S&P Global) ascribed the Company's rating at "AA-". They also upgraded the outlook of IVL to "AA-" from "A+" reflecting the Company's successful strategy and future potential.

WATER IS ALWAYS WITHIN REACH

WITH RECYCLABLE PET MATERIALS FROM IVL

With bottles, preforms and closures made of **PET materials** from **Indorama Ventures**, clean, safe water is always within reach. Plus, as a leader in recycling these bottles back into reusable PET flakes, we're also helping to minimize their impact on our environment.

INDORAMA
VENTURES

> Empowering potential.

CHEMICALS | POLYMERS | FIBERS

NATURE OF THE BUSINESS



Revenue Structure

The details of our sales revenue structure, according to our consolidated financial statements for the year ended December 31, 2016 to 2018, are as follows:

Details	Year Ended December 31,					
	2016		2017		2018	
	(Bt million)	%	(Bt million)	%	(Bt million)	%
Revenue breakdown by						
PET	134,990	53	145,760	51	182,415	53
Fibers	73,291	29	81,065	28	99,207	29
Feedstock	93,771	37	115,161	40	147,296	42
Elimination	(47,432)	(19)	(55,655)	(19)	(81,747)	(24)
Consolidated revenue from sale of goods	254,620	100	286,332	100	347,171	100

Details	Year Ended December 31,					
	2016		2017		2018	
	(Bt million)	%	(Bt million)	%	(Bt million)	%
Revenue breakdown by 5 Segments						
Integrated PET	153,343	60	170,374	60	209,231	60
Olefins	10,988	4	14,332	5	14,595	4
Fibers	64,202	25	71,590	25	89,137	26
Packaging	5,446	2	6,168	2	8,053	2
Specialty Chemicals	24,069	9	28,615	10	31,595	9
Elimination	(3,428)	(1)	(4,746)	(2)	(5,441)	(2)
Consolidated revenue from sale of goods	254,620	100	286,332	100	347,171	100

Source : The Company's consolidated financial statements and MD&A.

The Company's operations in major regional markets allows for diversified sales, which are serviced from manufacturing units within the region and through a declining quantity of exports. Our sales by geographic segment for the year ended December 31, 2016 to 2018 are as follows:

Details	Year Ended December 31,					
	2016		2017		2018	
	(Bt million)	%	(Bt million)	%	(Bt million)	%
Revenue breakdown by Geographic Segments*						
Thailand	14,789	6	17,823	6	20,782	6
North America	94,552	37	105,568	37	124,819	36
Europe	77,443	30	92,075	32	100,809	29
Rest of the World	67,836	27	70,866	25	100,761	29
Consolidated revenue from sale of goods	254,620	100	286,332	100	347,171	100

*Geographic revenue breakdown based on customers' locations.

Source: The Company's consolidated financial statements.

Business Overview

Indorama Ventures (SET: IVL) is a major global intermediate and downstream petrochemicals producer with 93 sites in 31 countries across five continents (as of December 31, 2018) providing value-added and differentiated products and services several diversified consumer goods industries. Our management team has in-depth experience in the global chemicals and high value-added products chain.

High value-added products are premium products and normally have higher margins over pure staple commodity products.

IVL has integrated businesses which are aligned to create a sustainable value proposition. IVL's customer orientation, global reach and scale allow us to benchmark ourselves globally to enhance operational excellence.

The additional factors that provide a broader portfolio of products for customers are in innovation, high value-added products and recycling, which will enhancing earnings growth and enhanced sustainability of the business. Ongoing investment in research and development provide customers with new products and services that improve our offerings and complete IVL's positioning as a one-stop center for global requirements.

Business Description

The term Polyester can be broken into poly, meaning many, and ester, a basic organic chemical compound. The principle ingredients used in the manufacture of polyester are purified terephthalate acid, derived from Paraxylene, a part of the aromatics chain leading backwards to crude oil, and monoethylene glycol, part of the olefins chain that leads backward to crude oil or natural gas. The chemical process that produces the finished polyester is polymerization. IVL is one of the world's foremost-integrated producers in the Polyester industry.

IVL is a bridge connecting the oil and gas industry with consumer goods producers. There is constant demand growth from downstream customers, as they are mostly consumption oriented FMCG companies, which grows in volume at the rate of around 5-6 percent globally.

The industry norm is to have long-term volume contracts with customers, normally of one to three years; however, the pricing is adjusted monthly as per benchmark prices in the industry and according to an agreed mechanism. The system indicates IVL's ability to pass through price movements to end customers (not always contractually).

This mechanism implies that crude oil and its derivative raw materials used to produce PET and Polyester fibers have a low-impact on the business except in the event there is a sharp rise or fall in the price of such materials within a short period, entailing an adjustment in the cost of inventory to reflect market prices. This mark-to-market effect is termed “inventory gains” or “inventory losses.”

However, there could be volatilities in the spread when there is oversupply or tight supplies in the industry in the short-term.

Portfolio Development

IVL continues to consolidate its existing businesses. Fundamental shifts in the portfolio, both in its existing shape and form, and, as it evolves over the medium-term, necessitate the need to review the way we analyze and report our segments.

To this extent, we have completed a comprehensive assessment of our portfolio, identified areas of synergies and natural alignment, and recalibrated our future capital deployment strategies. All of this is in-line with our imperatives towards becoming a world-class, well-diversified, growth-oriented global chemicals company.

Going forward, each of our segments necessitates differentiated investment and growth strategies depending on the role they play in our existing portfolio. Each segment is either already delivering or is capable of delivering double-digit EBITDA margins through its business cycles. These segments are also poised for healthy growth momentum and thereby support IVL's overall growth strategy.

These new segments are as follows:

1. Integrated PET

This segment will include businesses in the aromatics and PET value chain, including PX, PTA and PET. Given PET's unique properties of 100% recyclability, reporting under this segment will also include IVL's recycling initiatives across the polyester value chain.

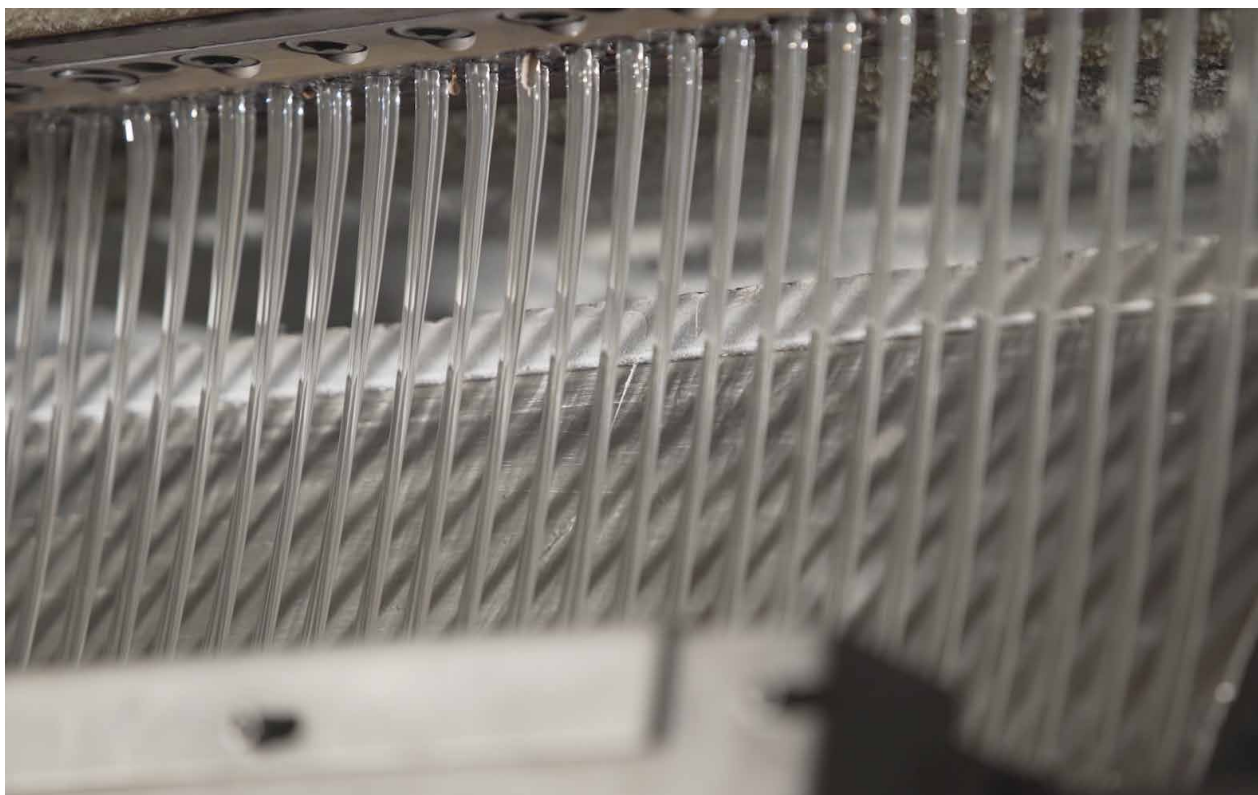
PX Business Overview

Paraxylene (PX) is used in the polyester chain, mainly in the production of fiber, film and polyethylene terephthalate (PET) bottle resins, via one of two intermediates - purified terephthalic acid (PTA) or dimethyl terephthalate (DMT). A small amount of PX is used as a solvent and to produce di-paraxylene and herbicides. The PX market has seen strong growth driven by increasing PTA consumption in the manufacturing of polyester.

PTA Business Overview

Terephthalic acid is an organic compound and a colorless solid. It is a commodity chemical, used principally as a precursor to polyester PET, used to make clothing and plastic bottles.

IVL entered the PTA business in 2008 with a strategy of developing raw material integration to ensure an uninterrupted supply of raw materials and ensure better integration in the polyester value chain. This provides IVL with a cost competitive edge to the PET and Fiber businesses. The Company's PTA assets are strategically co-located with downstream facilities in many countries including Thailand, Indonesia, Spain, the United States and the Netherlands. As of



December 31, 2018, we were a globally integrated PET producer with a total PTA capacity of 4.9 million tons per annum.

PET Business Overview

Our PET business is part of our core polyester value chain business and comprised 41% of production volumes in 2018. Beginning with one manufacturing plant, we have grown with operations now across the five major consuming continents of North America, South America, Europe, Africa, and Asia. Our PET business includes the production and sale of PET resin. As of December 31, 2018, we were the largest PET resin producer in the world with an aggregate installed production capacity of 5.7 million tons per annum (including our India joint ventures where IVL owns a 50% equity interest).

Recycling Business Overview

In responding to the needs of customers and tackling global challenges on resource scarcity and waste, IVL started to explore the recycling business as part of our corporate sustainability programs. Our decision to execute the recycling project is based on the growth of PET use in a number of industries, the opportunities available in recycling PET and the increased attention being paid to developing a circular materials economy. We started producing PET flakes from discarded PET bottles in 2011 following our acquisition

of Wellman Group, with flake processing facilities in Spijk, the Netherlands and Verdun, France. These two bottle recovery plants process discarded PET bottles to produce recycled PET flakes to serve the facility in Ireland. Recycled PET flakes are then converted into both food-grade and fiber-grade materials.

This PET recycling project complements IVL's existing capabilities and serves as a way to gain access to new markets and product lines. Over the past several years, we continued to expand PET recycling facilities in Thailand, the United States, Mexico and France. These expansions are a further milestone in strengthening our business and reflect our desire to continue to build a more sustainable business.

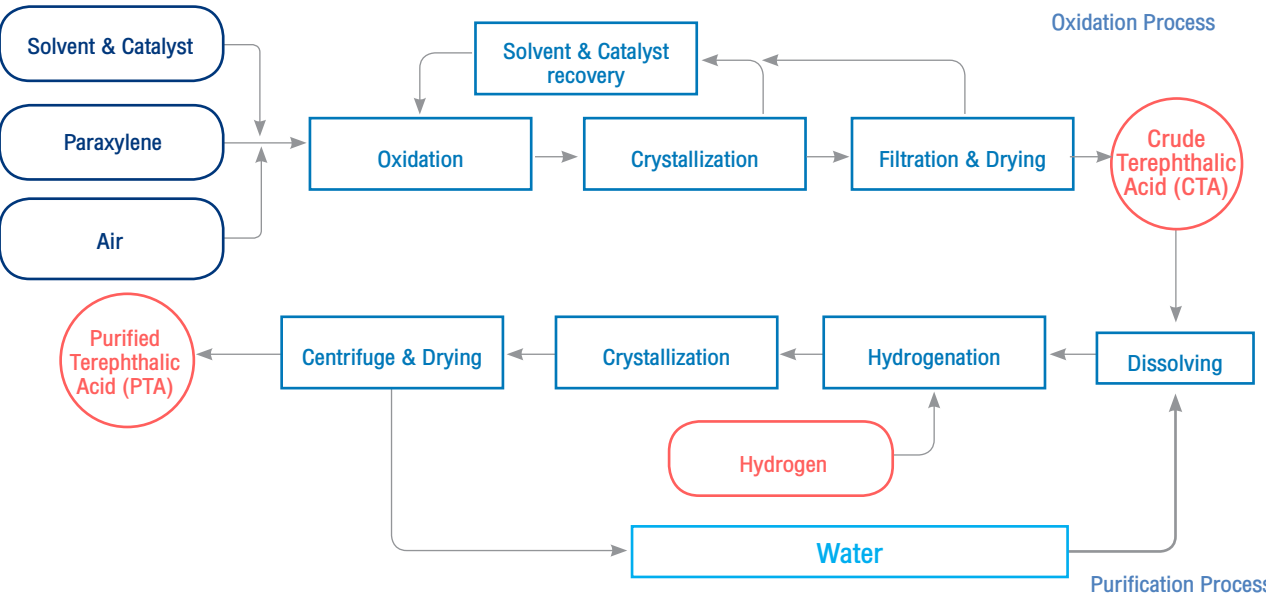
Integrated PET Production Process

PTA production process

Terephthalic acid (TA) is the result of the oxidation of Paraxylene (PX). The commercial process utilizes acetic acid as a solvent together with a catalyst composed of cobalt and manganese salts, with a bromide promoter.

A radical chain reaction occurs in a series of intermediates, starting with the oxidation of paraxylene and finally to terephthalic acid. It is then further purified to make PTA.

The chart below summarizes the PTA production process.

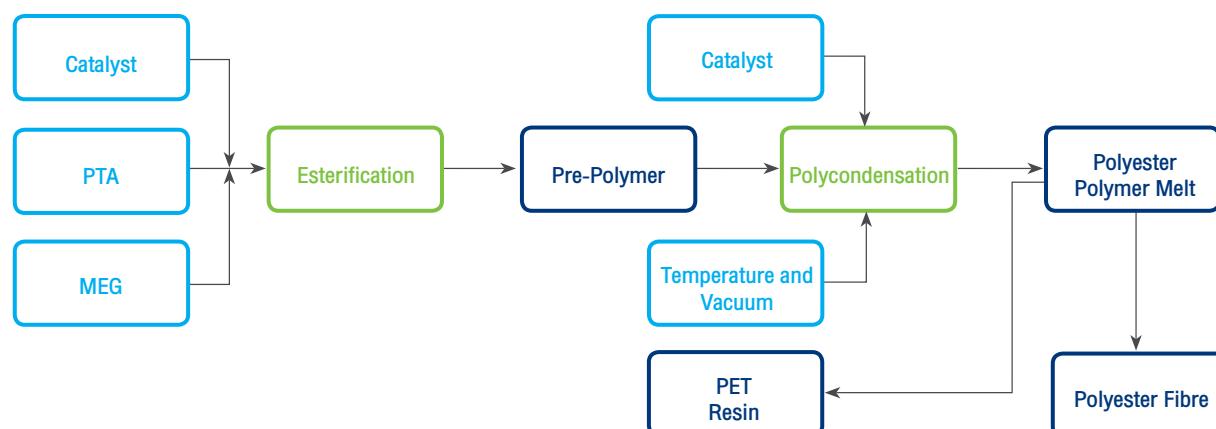


PET production process

PET resin comes from polyester polymer melt. The melt is converted into PET resin, either through a conventional solid-state process or through a newer technology melt-to-resin process. Under the conventional solid-state polycondensation process, the melt is extruded into strands, which are quickly cooled down

by water. After solidification, the strands are cut into small pellets, dried and further crystallized by being heated in a reactor under a specific temperature and pressure conditions under a nitrogen flow. Under the melt-to-resin process, the polycondensation process is completed during the melt phase, resulting in the formation of pellets without going through the solidification process. We have plants that use both of these technologies.

The chart below summarizes the PET production process.



Integrated PET Products and Markets

We have sales and marketing teams in each of the regions where we operate, which are overseen strategically by our sales and marketing head office in Thailand. Our marketing activities include regular meetings with our customers to understand their requirements and maintain good relationships as well as providing first-rate customer service.

Most of our PX production is used for internal consumption to produce PTA in our plant in Alabama, in the United States.

Our main customers for PTA are PET resin and polyester producers. Our downstream PET and polyester production facilities use a significant proportion of our PTA production. We sell the remaining PTA that we do not use within the group to third party customers. In 2016, 2017, and 2018, 55.9%, 53.1%, and 61.9% respectively, of our PTA was sold to the group and 44.1%, 46.9%, and 38.1% respectively, of our PTA was sold to third party customers.

We classify our PET customers into four main groups:

- Well-known brand name beverage companies with their own conversion plants to produce PET bottles;
- Well-known brand name beverage companies who sub-contract the production of PET bottles to converters using PET resin purchased by such beverage companies;
- PET resin traders; and
- PET converters who use PET resin to manufacture preforms, bottles, sheets and other PET packaging to service the needs of end users.

We sell our PET resin primarily through direct sales to end-use customers. A small proportion of our sales take place through agents and traders.

We are the world's largest PET resin producer and the only PET resin producer with production facilities in five continents, Asia, North America, South America, Europe, and Africa, which allows us to market our PET resin products globally to customers for their worldwide PET requirements.

Integrated PET Competition

IVL is the world's largest PET producer with a number 1 or number 2 position in 95% of our manufacturing locations. We have a strong presence in the Americas and EMEA and a high level of feedstock integration (PTA to PET in key markets and PX integration in North America), all of which position us as the global leader in this 100% recyclable business.

We are an integrated PET producer, where we manufacture and use PX and PTA for our own captive consumption partially or fully. Currently in China, there are many new plants, especially PTA plants, using the latest technology and having lower conversion costs than previously. However, there are other competitors in Europe and North America. For PET competitors, Equipolymers and Neo Group are the main competitors in the European market; Alpek (DAK Americas LLC) and the Far Eastern Group are the principal competitors in the US market; and Thai Shinkong Industry Corp. and Thai PET Resin Co., Ltd are the main competitors in the Thai market. Although PET technology is available through

commercial licenses, we believe the capital investment required to achieve profitability through economies of scale may inhibit new entrants to the market.

Integrated PET Production Facilities

The following table sets out the key figures for our integrated PET production facilities as of December 31, 2018

Production Facilities/Location	Nameplate Capacity ⁽¹⁾ (‘000 tons per annum)
PTA	
Europe	1,735
Indonesia ⁽²⁾	500
United States	1,303
Thailand	1,373
PET	
China	488
Europe	1,363
Indonesia	201
MENA	369
United States	1,570
India ⁽³⁾	699
Thailand	414
Recycling facilities	404
Total	10,418

⁽¹⁾ The capacity of plants has been re-rated to reflect the de-bottlenecking projects taken-up by the various plants from time-to-time. However, the capacity does not include a non-operating site: Ottana Polimeri S.R.L., IRP Workington, Ottana Polimeri S.R.L. and Adana Turckpet.

⁽²⁾ From October 1, 2018, Polyprima was fully consolidated due to a revision in terms with the JV partner.

⁽³⁾ A 50/50 Joint Venture partnership with Dhunseri Petrochem Limited in India.

2. Olefins

IVL commenced its presence in this segment by acquiring the MEG and PEO facility in the United States in Texas, in 2012. We are in the process of further enhancing our presence by shortly commencing production at our ethylene cracker in Louisiana. This cracker will mainly support the captive EO-EG facility providing a unique integration advantage and the ability to capture the entire value chain margin.

Monoethylene Glycol (MEG) Business Overview

The other major feedstock produced by Indorama Ventures is MEG, which is an organic compound. In its pure form, it is an odorless, colorless, syrupy, sweet-tasting liquid.

Monoethylene glycol comes from ethylene via intermediate ethylene oxide. Ethylene oxide reacts with water to produce ethylene glycol.

The major end uses of ethylene glycol are in the polyester industry and in anti-freeze for automobile radiators. Besides automobiles, MEG is a medium in liquid-cooled computers, chilled water air-conditioning systems and geothermal heating/cooling systems.

Purified Ethylene Oxide (PEO) Business Overview

Purified Ethylene Oxide comes from the direct oxidation of ethylene in the presence of a silver catalyst.

Purified Ethylene Oxide is used in the production of detergents, thickeners, solvents, plastics and various organic chemicals such as ethylene glycol, ethanolamines, simple and complex glycols, polyglycol ethers and other compounds. Pure ethylene oxide is a disinfectant that is widely used in hospitals and the medical equipment industry to replace steam in the sterilization of heat-sensitive tools and equipment, such as disposable plastic syringes.

PEO derivatives are used to manufacture various products such as soaps, detergents, brake fluids, weed killer and urethane foam.

Ethylene oxide is one of the most important raw materials used in large-scale chemical production. Most ethylene oxide is used for the synthesis of ethylene glycols, including diethylene glycol and triethylene glycol that accounts for up to 75% of global consumption. Other important products include ethylene glycol ethers, ethanolamines and ethoxylates. Among glycols, ethylene glycol is used as antifreeze, in the production of polyester and PET, liquid coolants and solvents. Polyethylene glycols are used in perfumes, cosmetics, pharmaceuticals, lubricants, paint thinners and plasticizers. Ethylene glycol ethers are used in brake fluids, detergents, solvents, lacquers and paints. Other products of ethylene oxide include ethanolamines, which are used in the manufacture of soaps and detergents and for the purification of natural gas. Ethoxylates are reaction products of ethylene oxide with higher alcohols, acids or amines. They are used in the manufacture of detergents, surfactants, emulsifiers and dispersants.



Diethylene Glycol (DEG) and Triethylene Glycol (TEG) Business Overview

Diethylene Glycol (DEG) is a by-product made together with MEG through the processing of EO. DEG has broad applications and is used to manufacture polyester polyols, unsaturated polyester resins, buffet heaters, morpholine production, paints and coatings, plasticizers, liquid laundry detergents, cement grinding and as an intermediate for polyethylene glycol.

Triethylene Glycol (TEG) is a by-product made by processing EO and is mainly used for natural gas dehydration. The other applications are air sterilizers, resin for windshield plate glass and as an intermediate for polyethylene glycol. It is used as a plasticizer for vinyl as well as in air sanitizer products. When aerosolized,

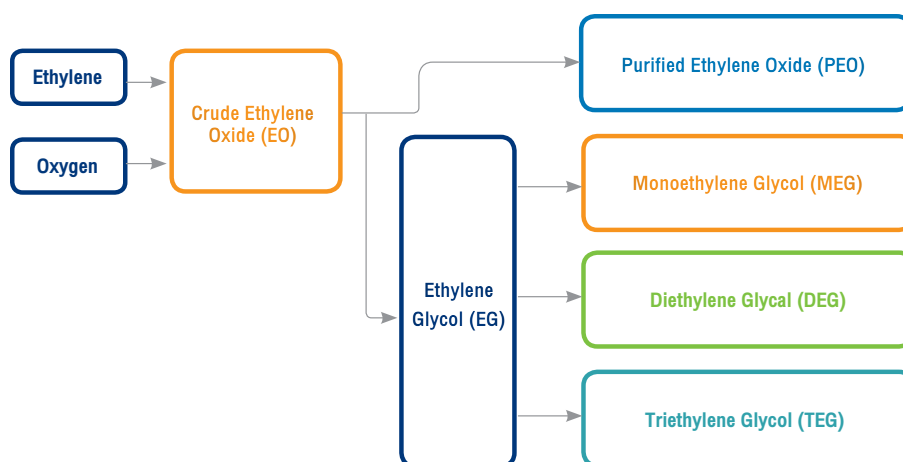
it acts as a disinfectant. It is an additive for hydraulic fluids and brake fluids and is used as a base for “smoke machine” fluid in the entertainment industry.

US Olefin Cracker Business Overview

IVL acquired an old and mothballed ethylene cracker located in the United States in Lake Charles, Louisiana, through its subsidiary, Indorama Ventures Olefins LLC. The refurbishment and restart process is ongoing. The plant has an expected commercial start-up in the first half of 2019. On completion, our integration will expand in North America, as we are currently a buyer of ethylene, which will be the end product of our US cracker once the refurbishment is completed.

Oxide and Glycol Production Process

The chart below summarizes the EO/EG production process.



Oxide and Glycol Products and Markets

IVL acquired its first EO/EG plant in April 2012, which has 100% of its sales in North America. Sales and Marketing for Indorama Ventures (Oxide & Glycols), or IVOG, is overseen by the sales and marketing head office in Thailand and implemented by the US sales team. Sales of our products are broken into two main categories:

Purified Ethylene Oxide (PEO) is sold exclusively in the US merchant market. PEO is used as a chemical intermediate in the manufacturing of PEO derivatives such as ethanolamines, polyols, ethers and surfactants which are in turn, used in the manufacture of agricultural chemicals, rigid and flexible foams, cleaning solvents and the personal care and beauty care industries, respectively.

There are currently many pure merchant consumers of PEO in the United States and IVOG supplies many of these companies, a testimonial to our reliability and service excellence. IVOG has an approximate 30% of the US merchant market share of PEO sales.

In addition to PEO, the plant manufactures the glycol products Monoethylene Glycol (MEG), Diethylene Glycol (DEG) and Triethylene Glycol (TEG) through a distillation process. The majority of the yield is MEG.

- IVL's acquisition of the Clear Lake, Texas plant accompanied an MEG supply agreement with the former owner who consumes MEG for the engine coolant market principally in the US.
- IVL's US Polyester and PET plants consume MEG as a raw material for their products. IVL's US plants have consumptive MEG capacity in excess of the Clear Lake, Texas plant's production capabilities, giving IVL the option to merchant MEG in the US and global markets or consume the MEG on a captive basis.

In 2016, 2017, and 2018, 31.2%, 33.1%, and 37.3% respectively of our EO/EG was sold to the group and 68.8%, 66.9%, and 62.7% respectively of our EO/EG was sold to third-party customers.

Oxide and Glycol Competition

PEO Competition – Due to the hazardous nature of PEO, there are no imports or exports of PEO as a product. PEO derivatives, however, are open to import-export. IVOG competes in the US PEO market with global competitors, all of whom primarily produce PEO to support internal production of PEO derivatives and sell the balance of their capacity to the merchant market. Unlike all of our

competitors, IVOG does not produce any PEO derivatives, which competes with our merchant customers businesses.

Glycols Competition – The global market for MEG is highly competitive, involving a large number of producers located throughout the world. MEG is easy to transport and store. The shale gas revolution in the US has given its producers advantaged ethylene as a feedstock material ensuring the US is a low-cost region for MEG production. IVL's integration into MEG adds value to the US PET and Polyester margin chain. The largest competitors in North America include Shell Chemical, MEGlobal, Equistar and Sabic, along with Pemex in Mexico. The US is a largely mature consumer of MEG with demand growth driven by new PET capacity and an opportunistic export arbitrage platform based on the advantaged North American ethylene costs associated with shale gas.

Olefins Production Facilities

The following table sets out the key figures for our olefins production facilities as of December 31, 2018 (excluding the US Gas Cracker as it is under a restart process):

Production Facility/Location	Nameplate Capacity ('000 tons per annum)
EO/EG Facility United States	550

3. Fibers Business

This segment includes all our offerings in the mobility domain (automotive and tires), the personal hygiene domain and lifestyle domain. Each of these domains continues to grow at a rate of 6-7% annually, and offers the potential for multi-billion dollar businesses

individually. Growth in the fiber business comes as a result of trends towards light-weighting, use of sustainable materials, increasing levels of consciousness for personal hygiene and change in choice of personal wear, specifically by the younger generation.

Polyester Fibers and Yarns Business Overview

Polyester was discovered in the 1940s and has been manufactured on an industrial scale since 1947. Polyester fibers are the first choice for apparel and are used in trousers, skirts, dresses, suits, jackets, blouses and outdoor clothing.

Blends with cotton and virgin wool are very popular. They are often referred to as the "classical blend."

Polyester fibers are produced by the melt spinning process. Raw materials are heated to a spinning mass, which is then pressed through spinnerets (similar to a sieve). Manufacturing techniques have developed to the point where they can produce round, oval or angular profiles, making them firm to the touch.

Polyester fibers are particularly resistant to light and weather, can withstand climatic effects, being as light or as fine as the weather demands, and have good moisture transport and dry quickly.

Polyester Fibers and Yarns Products

Polyester fibers are most commonly used for apparel, from sportswear to high fashion; home textiles, such as bedding and carpets; non-woven materials including surgical gowns; technical textiles such as filters, and automotive uses including carpets and insulation.

With the acquisition of Performance Fibers in China in 2015, IVL can now produce Polyester yarns and Polyester fabrics that are used in tires and supplied to various world-class tire companies.



With the growth in demand, IVL is in the process of expanding product capacity by around 40% in China.

The acquisition of Glanzstoff in 2017 enhanced the offering of fibers in the automotive space with Rayon fiber. Glanzstoff also makes composite fibers for the automotive sector. This acquisition enhances our strategic position in automotive fibers as we can now offer a suite of products to the same or similar group of customers.

DuraFibers in France and Mexico expanded the footprint of Performance Fibers in China as they produce similar products in the automotive fibers space.

Polyolefin Fibers Business Overview

The fiber forming substance is any long-chain synthetic polymer composed of a weight of at least 85% of ethylene, propylene, or other olefin unit in these manufactured fibers. Italy began production of olefin fibers in 1957. Production of olefin fibers in the United States began in 1960. The first commercial producer of olefin fibers in the United States was Hercules, Inc., now known as FiberVisions and wholly-owned by IVL.

Polymer granules are usually fed into an extruder that melts the polymer that is then pumped through a spinneret. The filaments are cooled in an air stream before being wound on a package or collected in cans. Because the fibers are difficult to dye, colored pigments are often added to the polymer stream before extrusion to produce colored fibers.

Propylene, when polymerized, creates a crystalline polypropylene polymer. The fibers made with these polymers can be used in furnishings, apparel and industrial products. Olefin fibers provide warmth without much weight. Olefin is resistant to abrasions, stains, sunlight, fire and chemicals. It does not dye well, but has the advantage of being colorfast since pigments are added in the fibers. Since Olefin fibers have a low melting point, they can be thermally bonded. One of the most important properties of Olefin fibers is its strength, which can be tailored for different applications. It keeps its strength in wet or dry conditions. Olefin fibers can be multi- or monofilament and staple, tow, or film yarns. The cross section is usually round, but can be modified for different end uses.

Polyolefin Fibers Products

Uses include nonwoven fabrics for diapers, feminine care and adult incontinence products (as top sheets, back sheets, leg cuffs, elastic waistbands, and transfer layers); in spun laced nonwoven products such as medical disposable textiles, filtration products or in air-laid nonwoven structures as absorbent cores, and wet wipes.

In terms of apparel, olefin fibers are used in sports and active wear, socks, thermal underwear and as lining fabrics, while in the home they are often used independently or in blends for indoor and outdoor carpets, carpet tiles and carpet backing. The fiber can also be used in upholstery, draperies, wall coverings, slipcovers, and floor coverings as well as heat-sealable paper for use in cases such as tea and coffee-bags.

In heavier applications, the fibers are often used for interior fabrics, sun visors, arm rests, door and side panels, and trunk and parcel shelves, while olefins can be created into carpets, ropes, and geo-textiles that are in contact with the soil, filter fabrics, bagging and concrete reinforcements.

Bicomponent Fibers Business Overview

Bicomponent fibers may be defined as “extruding two polymers from the same spinneret with both polymers contained within the same filament.” A close relative is “co-spun fiber,” which is a group of filaments of different polymers, but with a single component per filament spun from the same spinneret. The term “conjugate fibers” is often used, particularly in Asia, as synonymous with bicomponent fibers. The main objective of producing bicomponent fibers is to exploit capabilities not existing in either polymer alone. Bicomponent fibers are commonly classified by their fiber cross-section structures as side-by-side, sheath-core, islands-in-the-sea and citrus fibers or segmented-pie cross-section types. Bicomponent fibers made of polyethylene sheath and polypropylene core are important fibers for the nonwoven fabric market.

Worsted Wool Yarns Business Overview

The term worsted is derived from Worsted, a village in the English county of Norfolk. Worsted wool fabric is typically used in the making of tailored garments such as suits, as opposed to woolen wool, which is used for knitted items such as sweaters. The essential feature of worsted yarn is its straight, parallel fibers. Worsteds differ from woolens, in that the natural crimp of the wool fiber is removed in the process of spinning the yarn. IVL produces wool from Merino sheep. These sheep are sought after for their coats, which are said to produce the finest, softest wool available.

While many forms of wool require that the fiber undergo a spinning process, the production of worsted wool follows a slightly different path. Rather than going directly into a spinning process, the wool is first combed in a carding process. This is where the fibers are separated and prepared for spinning to remove any short and brittle fibers from the wool, leaving only the longer strands of fiber



to undergo the spinning process, producing a smooth yarn that possesses a higher durability.

Owing to the strength of worsted wool, the fibers can be woven into a finer material that is more crease resistant than many other fabric choices making it an ideal choice for garments that need to hold their shape. Worsted wool has been a popular choice for men's trousers, pleated skirts for women, and both men's suits and sports jackets. Because worsted wool is so durable, it wears very well and drapes easily, making it an ideal fabric for all sorts of garments.

Worsted Wool Yarns Products

Worsted wool produced by Indorama Ventures is used in high-end suiting for both men and women.

Nylon 6.6 Tire Cord Yarns Business Overview

With the acquisition of PHP Fibers GmbH and its subsidiaries ("PHP"), IVL holds 80% of PHP while the remaining 20% is held by Toyobo Co., Ltd., a leading Japanese manufacturer of high function products, including among others, automotive products.

PHP is a globally recognized manufacturer of branded high-tenacity polyamide nylon 6.6 yarns and is one of the leading suppliers in Europe for the automotive safety supply chain. PHP Group's production facilities are located in the United States, Europe and China.

The acquisition of PHP significantly enhances our High Value-Added (HVA) product portfolio with the addition of high performance automotive and industrial products.

Nylon 6.6 Tire Cord Yarns Products

These yarns are extensively used in air bags and tire cords in the automotive sector.

Fibers Products and Markets

Our main customers for fibers and yarns products are companies producing textiles for apparel, fast moving consumer goods companies in hygiene, companies producing home textiles and industrial companies such as automotive companies and packaging film producers.

Fibers Competition

Competition in the global fibers and yarns industry is characterized by the presence of large diversified industrial companies, as well as a large number of relatively small niche players with a capacity of sometimes less than 10,000 tons per annum. Larger fiber producers usually focus on high-volume standard fibers for sale in domestic markets where the level of competition is high and predominantly based on price and, to a lesser degree, on consistency of product quality. The larger polyester producers of commodity polyester products continue to focus on increasing their production of non-

commodity products. They comprise approximately half of our total output. China dominates polyester production and has many companies involved in this business. There are a few companies in Korea, China, Turkey, and in western markets where they make specialized fibers and yarns, which compete with our specialized fibers and yarns.

Fibers Production Facilities

The following table describes our fibers and yarns production facilities as of December 31, 2018.

Production Facilities/Location	Nameplate Capacity ⁽¹⁾ (‘000 tons per annum)
China	139
Europe	412
Indonesia	404
MENA	35
United States	260
India	10
Thailand	266
Total	1,526

⁽¹⁾ The capacity of plants has been re-rated to reflect the de-bottlenecking projects taken-up by various plants from time-to-time. However, the capacity does not include a non-operating site: IVL Karawang.

4. Specialty Chemicals

Specialty Chemicals Business Overview

IVL entered this segment in 2011 with the acquisition of Auriga Polymers in the United States in South Carolina, which owns the technology for the Crystal Clear Oxygen Barrier Resin, OxyClear® and Polyshield®. We supplemented our presence in this segment in 2016 by acquiring the world's only NDC facility in the state of Alabama, and an IPA facility in Cadiz, Spain.





In 2018, we grew this portfolio by expanding our IPA production in Spain and additionally converted a PTA line to IPA in Alabama, thereby becoming the world's second largest producer. Also in 2018, IVL announced the acquisition of Invista's assets in Germany resulting in IVL possessing the IP for Polyshield® and Oxyclear® resins, together with Invista's barrier technology in all markets globally.

Specialty Chemicals Products and Markets

Our main customers for specialty PET resins are manufacturers of medical applications, premium bottles, and film and textile specialties. IVL continues to innovate our products in order to maximize differentiation, increase customer loyalty and enter new markets. We are moving closer to customers, offering both customer-tailored products and customer-specific service arrangements. Increasing consumer preference for eco-friendly substitutes also benefits us as we are the leading global solutions provider of barrier resins, which come from renewable feedstocks and offer a minimal carbon footprint.

For IPA, we manufacture and (mostly) captively use within our group. In 2018, we sold 17% of IPA production to outside customers who manufacture PET resin as well as paints and coatings.

We sell NDC to outside customers who manufacture new-generation polyesters and resins to make items such as LCD flat

panel displays and ultra-thin data storage tapes. We have sales and marketing teams in each of the regions where we operate, which are overseen strategically by our sales and marketing head office in Thailand.

Specialty Chemicals Competition

IVL is the only commercial producer of NDC in the world. Since there are no other commercial producers, there is no direct competition, however, products made from NDC monomers do have competition from products such as modified PET, PI, and PC. NDC is used in markets such as films for optical displays, insulation for motors, flexible circuits for harnesses, industrial and pharmaceutical packaging containers, industrial fibers, and tire cords, among others.

Close to 40% of IPA demand is concentrated in domestic markets in Europe (where we are the only producer) and North America. Global IPA demand is close to 1.1 million tons with China being the largest consumer as PET is the main application for IPA. Apart from PET, the main applications are coatings and Unsaturated Polyester Resins (UPRs). We are the second largest producer of IPA worldwide and our main competitors are Lotte, FCFC, Ineos and Eastman. In 2018, we were the only producer that increased its market share in every region.

Specialty Chemical Production Facilities

The following table describes our specialty chemical production facilities as of December 31, 2018.

Production Facilities/Location	Nameplate Capacity ⁽¹⁾ ('000 tons per annum)
Specialty PET - various sites	513
IPA – Spain and the US	440
Total	953

⁽¹⁾ The capacity of plants has been re-rated to reflect the de-bottlenecking projects taken-up by various plants from time-to-time.

5. Packaging

Packaging Business Overview

IVL has been involved in this business for the past two decades, first through a Joint Venture with SermSuk PCL in Thailand and thereafter expanding our facilities to PET under penetrated but high growth countries in Southeast Asian and African markets including the Philippines, Nigeria, Myanmar and Ghana. The current portfolio consists of plastic polymer resins primarily used for beverage and food packaging, and packaging of pharmaceutical and household products. Currently, our main products are preforms, bottles and closures at 14 production facilities in seven countries. An aggregate production quantity of 0.3 MMt makes this IVL's smallest business segment.

Our focus is on developing a sustainable packaging business, and not competing with PET, by broadening the production footprint around the world through M&A and a greenfield expansion led growth strategy.

In the fourth quarter of 2018, IVL acquired MEDCO, a facility in Egypt, to expand our global footprint.

The overall global packaging industry is valued at around USD 1 trillion and is growing at 5% per annum. This is a high growth segment, especially in olefins-based sustainable packaging materials, that serves the key needs of the FMCG and pharmaceutical industries.

This downstream business provides tremendous scope for reducing earnings volatility, margin enhancements through segment integration into the olefins chain, and increased diversification.

Packaging Products and Markets

Our main customers are reputable global beverage and FMCG companies such as L'Oréal, Pepsi and Coca Cola. We can produce clear and colored preforms, bottles, and closures. We have been regularly working on lightweighting as per the requirements of our customers. Through superior engineering, technology, plus reliable customer service and delivery, we provide our customers with packaging solutions that help them build the value and volume of their brands. Similar to other segments, we have sales and marketing teams in each of the regions where we operate, which are overseen strategically by our sales and marketing head office in Thailand.

Packaging Competition

The global beverage packaging market is extremely competitive due to the presence of many vendors involved in the packaging of soft drinks. Though many new vendors are regularly emerging in the market, it is difficult for them to compete with international vendors, including IVL, in terms of features, functions, and services. The key players in the global market are Alpla, Ball Corporation, Crown Holdings, and Amcor.

In response to the increasing needs of our customers, we have also invested in high speed bottling lines. In the near future, we plan to expand our product portfolio to pharmaceutical healthcare, personal care and home care packaging products with enhanced functionality and sustainable materials.

Packaging Production Facilities

The following table describes our packaging production facilities as of December 31, 2018.

Production Facilities/Location	Nameplate Capacity ('000 tons per annum)
Packaging – various sites	320

MANAGEMENT DISCUSSION AND ANALYSIS (MD&A)



The following MD&A should be read in conjunction with our consolidated financial statements. It includes forward-looking statements reflecting our current views with respect to future events and future performance. Thus, a number of factors could

cause actual results or outcomes to differ materially from those expressed in any forward-looking statement as described in our Risk Factors and statements appearing elsewhere.

2018 Summary Financials

Table 1: Core Financials of Consolidated Business

\$ million (except where stated otherwise)	Full Year		
	2018	2017	2018 YoY
Production Volume (kt)	10,419	9,103	14%
Consolidated Revenue ^{1,2}	10,741	8,438	27%
Core EBITDA³	1,441	1,004	44%
PET	588	296	98%
Fibers	240	208	15%
Feedstock	613	501	22%
New Segments			
Integrated PET	791	414	91%
Olefins	232	145	60%
Fibers	211	181	17%
Packaging	48	37	29%
Specialty Chemicals	158	229	(31)%
Core EBIT	1,000	647	54%
Core Net Profit after Tax and NCI⁴	789	459	72%
Core Net Profit after Tax and NCI (THB million)	25,488	15,576	64%
Reported EPS after PERP Interest (THB)	4.61	3.98	16%
Core EBITDA/ton (\$)	138	110	25%
Operating Cash Flow⁵	989	852	16%
Net Debt to Equity (times)	0.87	0.75	16%

¹ Consolidated financials are based upon elimination of intra-company (or intra-business segment) transactions.

² Total of each segment may not always tally with consolidated financials due to holding segment.

³ Core EBITDA is Reported EBITDA less Inventory gains/(losses).

⁴ Core Net Profit is Reported Net Profit less Inventory gains/(losses) one-time extraordinary items.

⁵ Operating Cash Flow is after the change in net working capital and cash tax, before maintenance capex.

FY 2018 Performance Highlights

- FY18 core EBITDA increased by 44% YoY to \$1.4 billion, driven by volume growth and higher margin realization.
- Core EBITDA margin increased to 13%. Core EBITDA per ton was \$138, up 25% from 2017, driven by improvement in aromatics, PET, olefins and fibers, and offset by IPA normalization.
- Annual production increased by 14% YoY to 10.4 million tons, driven by PET acquisitions in Brazil and Egypt; a PTA acquisition in Portugal; several debottlenecking projects and the consolidation of PTA in Indonesia. This increase was achieved despite the force majeure of two PET lines for a period of 50 days in the Netherlands in 4Q18, which also impacted PTA production at the site. PET production in Poland was also impacted due to a temporary shutdown.
- EPS of THB 4.61, +16% after the impact of an 11% dilution due to a warrants exercise (W2).

- IVL achieved Operating Cash Flow of \$1.0 billion, up 16% YoY. This was achieved after factoring in higher working capital due to higher production (Egypt, Brazil, and Portugal) and the higher cost of raw materials.
- Profit after tax and NCI of \$819 million, up 33% YoY.
- TRIS Rating (an S&P partner) upgraded IVL to AA- from its earlier rating of A+.

Strategic Investments

IVL continued in its earnings accreting growth journey through several acquisitions and organic imperatives with an overall capital investment of \$2.26 billion in 2018 which resulted in a marginal increase in our debt to equity ratio.

We strengthened our footprint in North America by acquiring the Corpus Christi JV which, once operational, will provide a low cost production platform of integrated PTA-PET in an attractive region.

We initiated our entry in South America by acquiring Brazil's largest PET manufacturing site. Subsequently, we expanded our presence in Brazil by acquiring M&G Fibras (transaction closed in Feb 2019) and entered the high growth fibers business.

IVL entered the high-growth North African region by first entering into a JV with Dhunseri in the PET business in Egypt. Subsequently, we acquired a majority stake in MEDCO, the largest PET packaging company in Egypt, in order to strengthen our packaging offering to key bottlers in the region.

The recycling portfolio was enhanced with the acquisitions of Sorepla (France) and Custom Polymer (US; transaction closed in Jan 2019).

The Fibers segment was strengthened with the acquisitions of Avgol (enhances market share in personal hygiene and establishing a fiber manufacturing footprint in Russia and India), Kordarna (propelling IVL to the number 2 position globally in the tire cord business and strengthening our vertical mobility), UTT (Closing in 1Q19E – enhances IVL's airbag yarn and fibers business) and Schoeller – a specialty wool yarn producer in Europe.

Lastly, we created the platform for strengthening our Specialty Chemicals segment by acquiring Invista's barrier resin business in Germany with a global IP (Closing in 1Q19E).

Sustainable Development

- Included in the Dow Jones Sustainability Index for the second consecutive year.
- Ranked in the FTSE4Good Index.
- Improved to a BB rating in the MSCI ESG, indicating a reduction in greenhouse gas emissions, carbon footprint and enhanced recycling of water and chemicals.
- Committed to increasing our use of post-consumer PET and polyester waste materials as part of a global agreement to combat plastic waste led by the Ellen MacArthur Foundation.
- Formed a JV with Loop Industries to manufacture and commercialize sustainable polyester resin to meet growing global demand. IVL will have an exclusive, worldwide license to use Loop's technology to produce 100% sustainably produced PET resin and polyester.
- Signed an agreement with Ioniqa and Unilever for chemical recycling of PET waste in Europe.
- Enhanced our HR strategies by launching the i-Lead, v-Lead and Shadow Talent Development programs, completed the hiring of a Chief Strategy Officer and a Chief Human Resources Officer and formed the Indorama Management Council.
- Commenced a review to implement Industry 4.0 strategies which could drive opportunities in machine learning and mathematical optimization. Identified 250 digital value creation opportunities across 12 sites and continue to analyze their implementation.

Portfolio Development

IVL continues to consolidate its existing businesses. Fundamental shifts in the portfolio, both in its existing shape and form, and, as it evolves over the medium-term, necessitate the need to review the way we analyze and report our segments.

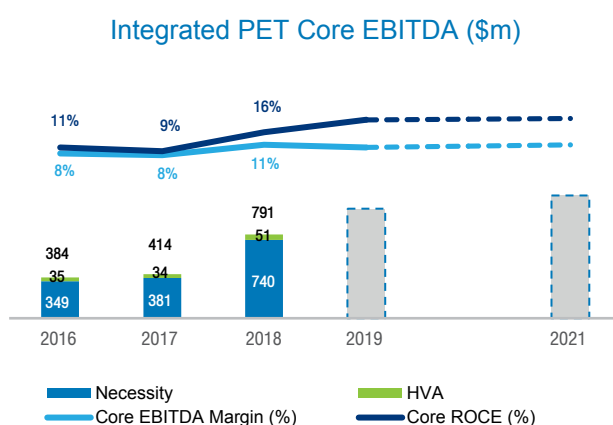
To this extent, we have completed a comprehensive assessment of our portfolio, identified areas of synergies and natural alignment, and recalibrated our future capital deployment strategies. All of this is in-line with our imperatives towards becoming a world-class, well-diversified, growth-oriented global chemicals company.

Going forward, each of our segments necessitates differentiated investment and growth strategies depending on the role they play in our existing portfolio. Each segment is either already delivering or is capable of delivering double-digit EBITDA margins through its business cycles. These segments are also poised for healthy growth momentum and thereby supporting IVL's overall growth strategy.

IVL foresees the ability to invest \$3 to \$4 billion of projected free cash flow over the next three years in these high-growth, high-margin areas. This amount is in addition to the investments already made or announced of \$1.50 billion in projects that are pending completion and their associated contribution to earnings in 2019, 2020 and 2021. These new segments are as follows:

1. Integrated PET

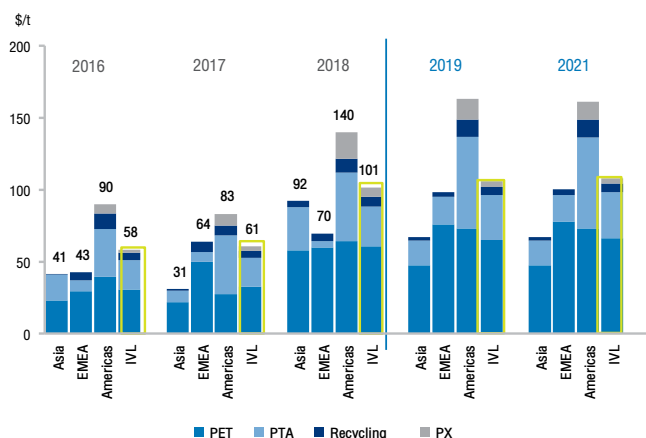
This segment will include businesses in the aromatics and PET value chain. Given PET's unique properties of 100% recyclability, reporting under this segment will include IVL's recycling initiatives across the polyester value chain. IVL is the world's largest PET producer with a number 1 or number 2 position in 95% of our manufacturing locations.



IVL's consolidation strategy; our global footprint (including strong presence in the Americas and EMEA); high level of feedstock integration (PTA to PET in key markets and PX integration in NA), all help in positioning us as the global leader in this 100% recyclable business. Investment plans to enhance the recycling

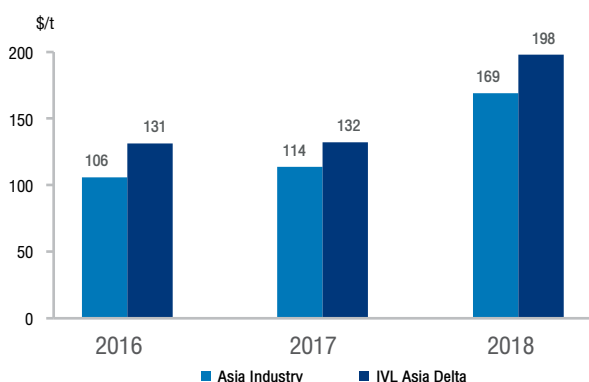
volumes to 750 KMT by 2025; completing the JV project in Texas (US); expanding earnings in 2019 from investments made in Brazil and Egypt; consolidating operations in India (PET) and Indonesia (PTA) are all aimed at growing earnings from this segment.

Integrated PET Core EBITDA/t



Production makes up 75% of IVL's total. In 2018, it contributed to \$791 million of IVL's total core EBITDA (\$1,441 million). This segment achieved a core EBITDA margin of 11% in 2018. Core EBITDA from this segment was adversely impacted in 2018 due to the acquisitions of mothballed capacities in EMEA (Egypt, Portugal) and the FM/shutdown in the Netherlands and Poland. These will contribute to their full capacity in 2019 thereby creating a positive earnings impact especially in EMEA for this segment and IVL as a whole.

PET & PTA Blended Delta



Note: PET and PTA blended delta on IVL portfolio

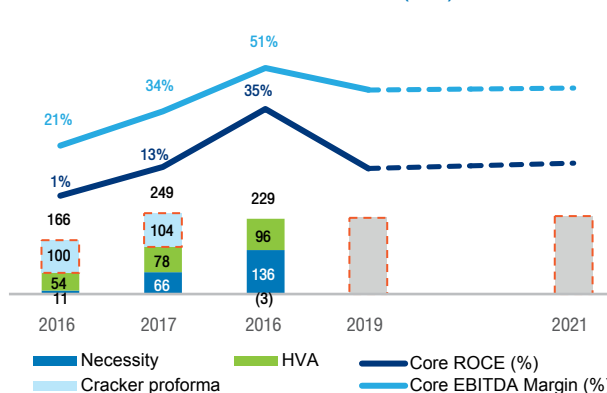
IVL's unique manufacturing reach and integrated business model in Asia gives us the ability to earn a premium to industry benchmarks in this over-supplied region.

Given IVL's vast geographic footprint, our integrated business model, proven ability to benefit from local market dynamics, and further grow our recycled PET footprint by aligning with key customer goals, EBITDA margin from this segment is expected to remain firm over the next 2-3 years with higher production from premium markets.

2. Olefins

IVL commenced its presence in this segment by acquiring the MEG and PEO facility in Texas in 2012. It is in the process of further improving its position by shortly commencing production from its ethylene cracker in Louisiana. This cracker will mainly support the captive EO-EG facility providing a unique integration advantage and the ability to capture the entire value chain margin. The chart highlights the value of this model, especially in the context of the shale gas ecosystem in the United States.

Olefins Core EBITDA (\$m)



Note: 2016-2018 Core EBITDA Margin and ROCE based on actual earnings and capital employed of EOEG plant

In 2018, production volume was 0.52 MMt, and earned a core EBITDA of \$232 million with a core EBITDA margin of 51%.

Traditionally, IVL has allocated its capital towards feedstock investments mainly in the aromatics value chain with a strategy of strengthening the integrated PET value chain. As we expand our polypropylene-based fibers portfolio and allocate meaningful capital toward the packaging segment, opportunities to invest in 'fit-for-purpose' olefin capacities will enable us to capture additional margins and replicate our success in the integrated PET segment going forward.

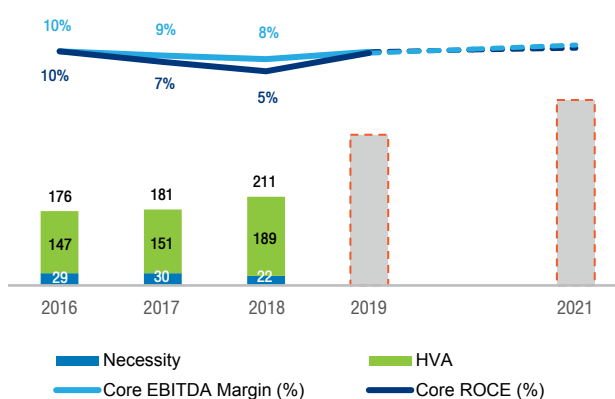


3. Fibers

This segment includes all our offerings in the mobility (automotive and tires) domain, the personal hygiene domain, and the lifestyle domain. Each of these domains continues to grow at a rate of 6-7% annually and offer the potential for multi-billion dollar businesses individually. Growth in the fiber business comes as a result of trends towards lightweighting, use of sustainable materials, and increasing levels of consciousness for personal hygiene and change in choice of personal wear, especially by the younger generation.

From a production perspective, Fibers is the second largest constituent and achieved a total production of 1.3 MMt (12% of IVL) and contributed \$211 million in core EBITDA. The lag impact of higher feedstock prices, force majeure by one of our suppliers (impacting PHP) and the start-up impact of recently acquired assets including DuraFiber, Avgol, and Kordana resulted in this segment earning a core EBITDA margin of 8% in 2018. As these facilities are expected to operate at their full potential in 2019, margins from this segment are expected to revert to double-digits.

Fibers Core EBITDA (\$m)

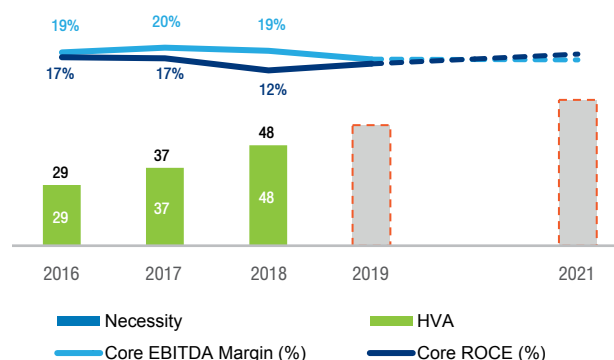


IVL will continue to invest in this segment; grow its market share and its earnings-per-ton by expanding the higher-value component of our fibers portfolio through ongoing innovation, collaborations with key customers and cost rationalization. Over the next few years, based on investments already made (announced and/or completed), this segment is poised to be one of the highest growth areas in terms of its EBITDA contributions to IVL.

4. Packaging

IVL has been involved in this business for the past two decades, first through a JV with SermSuk PCL in Thailand and thereafter expanding our footprint to frontier markets. The current portfolio consists of PET-based preforms, PET bottles and HDPE/PP closures with an aggregate production volume of 0.16 MMt making it the smallest segment within IVL.

Packaging EBITDA (\$m)



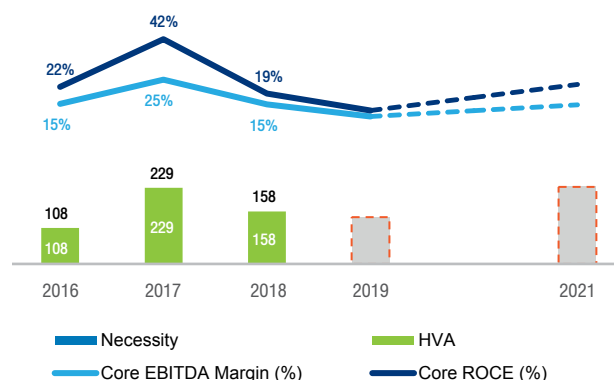
In 2018, this segment earned a core EBITDA of \$48 million with a 19% core EBITDA margin. The recent decline in YoY ROCE is due to the start-up impact from the acquisition of MEDCO in 4Q18 and is projected to improve to its historical level. The overall packaging industry is valued at around \$1 trillion, growing at 5% p.a. This is a high growth segment, especially in the non-PET-related, predominantly olefins-based, sustainable packaging materials serving key needs in the FMCG and pharmaceutical industries.

This downstream business provides tremendous scope for reducing earnings volatility, for margin enhancement through segment integration in the olefins chain and an increase in earnings diversification.

5. Specialty Chemicals

IVL entered this segment in 2011 with the acquisition of Auriga Polymers in South Carolina, which owns the technology for the Crystal Clear Oxygen Barrier Resin, OxyClear® and Polyshield®. We supplemented its presence in this segment in 2016 by acquiring the world's only NDC facility in Alabama and an IPA facility in Cadiz, Spain.

Specialty Chemicals Core EBITDA (\$m)



In 2018, we grew this portfolio by expanding our IPA production in Spain and additionally converted a PTA line to IPA in Alabama,

thereby becoming the world's second largest producer. Also in 2018, IVL announced the acquisition of Invista's assets in Germany resulting in IVL owning the IP for Polyshield® and Oxyclear® resins, together with Invista's barrier technology in all markets globally.

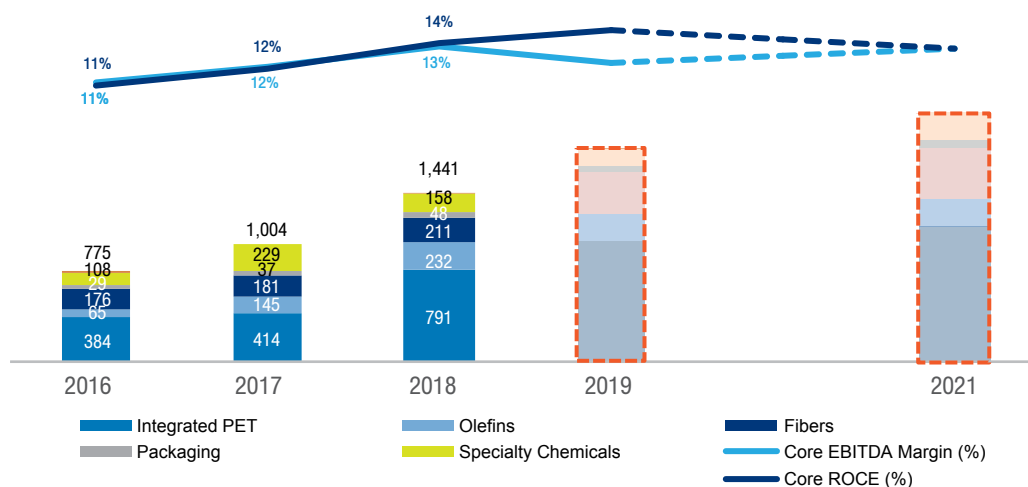
In 2018, this segment earned a core EBITDA margin of 15% despite the normalization of IPA margin and is expected to continue to earn

a double-digit margin over the next several years. Production from this segment was 0.65 MMt and its contribution was \$158 million to IVL's core EBITDA in 2018.

Going forward, this segment is expected to absorb significant capex growth as we leverage our knowledge in related industries and grow geographically using our IP and technology platform.

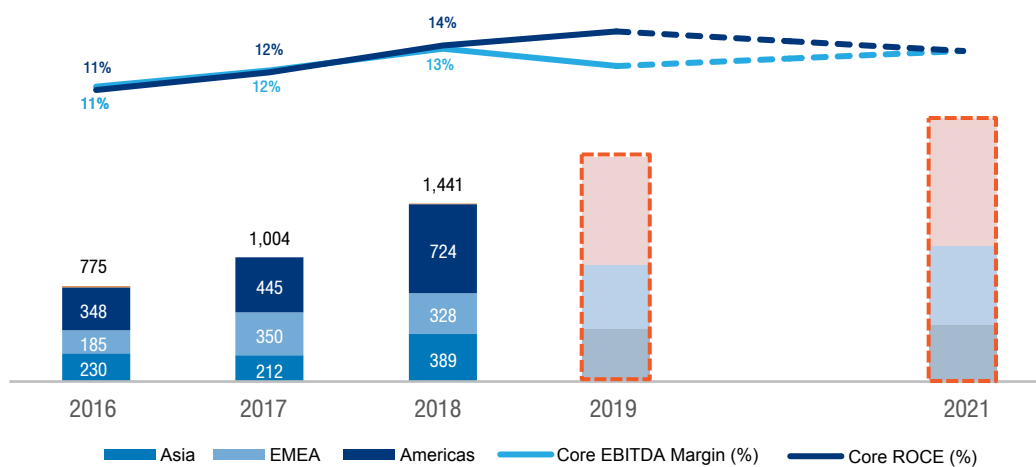
IVL-Larger-than-Sum-of-The-Parts

Core EBITDA By Segment (\$m)



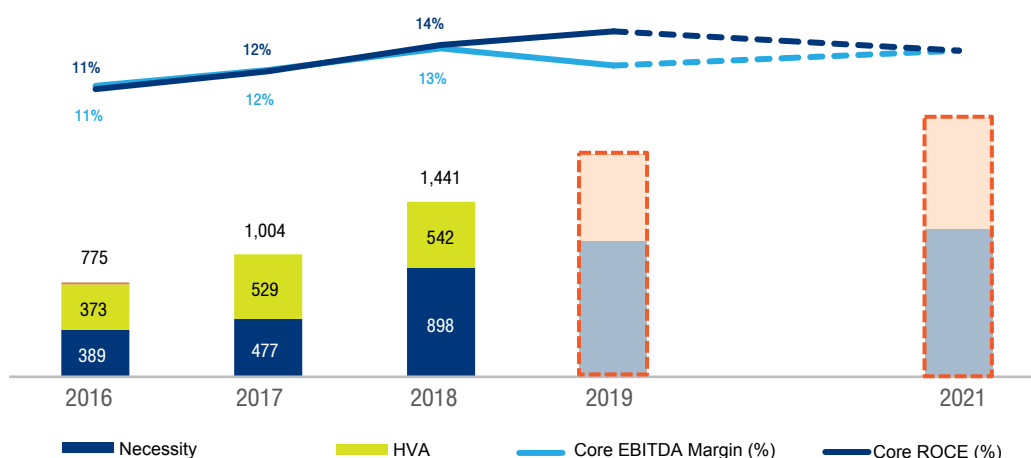
Note: Total of each segment may not always tally with consolidated financials due to holding segment

Core EBITDA By Region (\$m)



Note: Total of each segment may not always tally with consolidated financials due to holding segment

Core EBITDA By HVA/Necessity (\$m)



Note: Total of each segment may not always tally with consolidated financials due to holding segment

Summary

Delivering on Promises

The past three years have been momentous, both in terms of earnings growth and in creating a solid framework for the next phase of growth at IVL. We ended 2015 with an overall production of 7.0 MMt, core EBITDA of \$640 million, and ROCE of 9.7%. The strategic initiatives undertaken from 2016 to 2018 resulted in the Company achieving production of 10.4 MMt, core EBITDA of \$1.4 billion, and core ROCE of 13.7% in 2018.

It is important to remind our stakeholders that this performance has been achieved despite headwinds in the main integrated aromatics chain including PTA and PET through most of 2016 and 2017, through a gradual increase in level of feedstock integration, increasing domestic-orientation in the portfolio and an evolving fibers portfolio. Events in late 2017 and early 2018 resulted in further consolidation in the Americas leading to a structural change in the integrated PET value chain. IVL, as the single largest producer globally, is well poised to continue to benefit from this change.

IVL: A Trailblazer in Global Chemical Businesses

In 2018, IVL made overall investments of \$2.26 billion. This, and investments made in the latter part of 2017 will have a cumulative impact on our performance for 2019, which promises to be yet another trailblazing year.

Production volume is expected to increase to 13.0 MMt, which is a huge increase on a YoY basis. This additional volume, and improving realization in the more disciplined markets in the western

hemisphere in the context of the integrated PET chain and higher utilization rates and earnings per ton in the fibers portfolio provide us the confidence that we are well positioned to achieve our 2019 earnings guidance of \$1.75 billion.

As stated earlier, we foresee investing \$3 to \$4 billion of projected free cash flow over the next three years (2019 until 2021) in businesses that deliver double-digit EBITDA margins. This amount is in addition to the investments already made or committed in 2018 on various projects that are pending completion and will have associated earnings contributions to IVL in 2019, 2020 and 2021 and will also result in deleveraging of the balance sheet.

Seen in the context of our differentiated focus in investing selectively in high growth areas across the five segments discussed earlier, we are confident of maintaining our long-term growth trajectory and targeting to double our core EBITDA over the next five years.

Ongoing commitments to sustainability and the circular economy, focusing on strengthening human capital, leveraging Industry 4.0 opportunities and improving the health and productivity of our businesses will remain essential to the **IVL way of doing business**.

Reporting

In order to support a transition in capital market coverage and earnings models, IVL will continue to share information as per its earlier three segments (PET, Fibers and Feedstocks) for the next four quarters and will simultaneously provide deeper analysis based on the above-mentioned five segments.

Table 2: Segment Results (New segment)

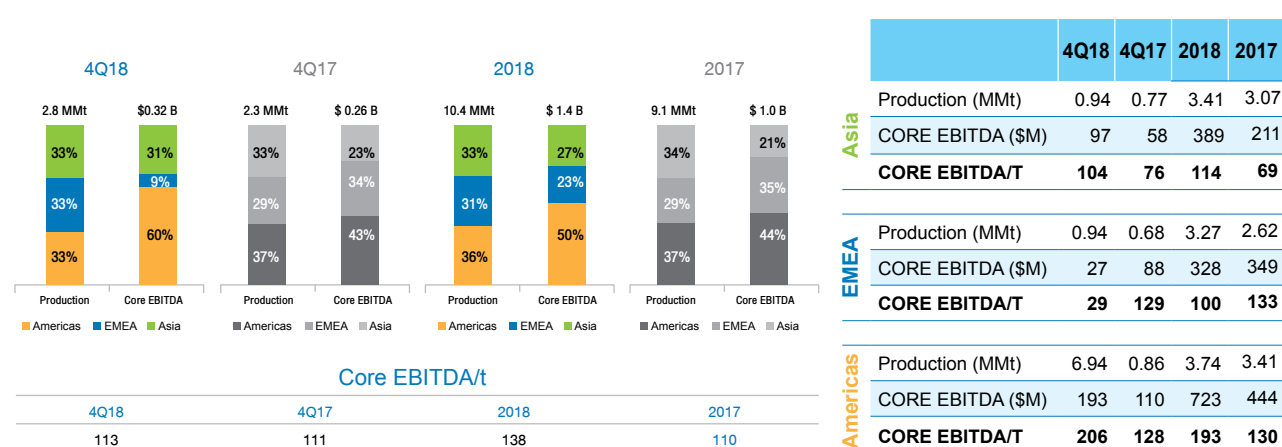
\$million (except where stated otherwise)	Full Year		
	2018	2017	2018 YoY
Production Volume (kt)	10,419	9,103	14%
Integrated PET	7,804	6,844	14%
Olefins	515	478	8%
Fibers	1,292	1,125	15%
Packaging	162	120	35%
Specialty Chemicals	646	536	20%
Operating rate (%)	88%	88%	26 bps
Integrated PET	88%	89%	-170 bps
Olefins	94%	87%	671 bps
Fibers	94%	88%	579 bps
Packaging	61%	66%	-513 bps
Specialty Chemicals	85%	74%	1,054 bps
Consolidated Revenue^{1,2}	10,741	8,438	27%
Integrated PET	6,983	5,366	30%
Olefins	452	422	7%
Fibers	2,760	2,112	31%
Packaging	249	182	37%
Specialty Chemicals	1,044	910	15%
Core EBITDA³	1,441	1,004	44%
Integrated PET	791	414	91%
Olefins	232	145	60%
Fibers	211	181	17%
Packaging	48	37	29%
Specialty Chemicals	158	229	(31)%
Core EBITDA Margin (%)	13%	12%	152 bps
Integrated PET	11%	8%	361 bps
Olefins	51%	34%	1,705 bps
Fibers	8%	9%	-90 bps
Packaging	19%	20%	-119 bps
Specialty Chemicals	15%	25%	-1,001 bps
Core ROCE%	14%	12%	189 bps
Integrated PET	16%	9%	673 bps
Olefins	35%	13%	2,277 bps
Fibers	5%	7%	-243 bps
Packaging	12%	17%	-425 bps
Specialty Chemicals	19%	42%	-2,227 bps

¹ Consolidated financials are based upon elimination of intra-company (or intra-business segment) transactions.

² Total of each segment may not always tally with consolidated financials due to elimination of Intra-company.

³ Core EBITDA is Reported EBITDA less Inventory gains/(losses).

Figure 1: Regional Performance



2018 Performance Analysis

Integrated PET (PX, PTA, PET and Recycling)

Integrated PET production in 2018 was 7.8 million tons, up 14% YoY, supported by higher PET volume contributions from Brazil (since 2Q18), Egypt (since 3Q18) and debottlenecking in China. Sorepla (3Q18) helped enhance recycled PET production. PTA volumes also grew with Portugal (since 3Q18), expansion in the Netherlands and the consolidation in Indonesia (4Q18).

Core EBITDA in 2018 of \$791 million was almost double that of 2017 (\$414 million), driven by a structural improvement in the global polyester chain margins and the impact of higher volume. On a per ton basis, this segment achieved a Core EBITDA per ton of \$101 as compared to \$61 in 2017. Core EBITDA margin in 2018 was 11%, up 3% from 2017.

Olefins

(Ethylene, PEO, MEG and related derivatives)

Production in 2018 increased by 8% YOY to 515,000 tons, driven by a higher utilization rate of 94% in 2018 (2017: 87%).

The segment delivered strong earnings in 2018 with core EBITDA of \$232 million, increasing by 60% from \$145 million in 2017 driven by the US ethylene cost advantage. Core EBITDA margin increased from 34% in 2017 to 51% in 2018.

In 1Q19, the EO-EG plant was shut down for 38 days for routine maintenance and catalyst change which was due for a scheduled replacement. The US gas cracker that will provide ethylene feedstock is expected to start up in 1H19.

Fibers

Production in 2018 was 1.3 million tons, up 15% YoY, driven by contributions from Glanzstoff (acquired May 2017), DuraFiber (acquired 2H17), Avgol (acquired 3Q18), Kordana (acquired 4Q18), and Scholler (acquired 4Q18). Overall production was partly offset by lower volumes at PHP (FM by raw material supplier).

The segment achieved a core EBITDA of \$211 million in 2018, a 17% increase YoY. This was primarily due to higher production. Core EBITDA margin in 2018 was 8% (2017: 9%). Margin for the business was impacted as a result of higher feedstock prices and lower operating rates in the Avgol, DuraFiber and Kordana assets. This trend is expected to reverse in 2019 with higher operating rates, lower conversion costs and an improved vitality index which will add to the segment EBITDA margin.

Packaging

2018 production volume was 162,000 tons, up 35% YoY, driven by additional volume from Nigeria, Thailand and Egypt. This translated to a core EBITDA of \$48 million, a 29% increase YoY. Core EBITDA margin in 2018 was 19% (2017: 20%).

Specialty Chemicals

(NDC, IPA and Specialty PET)

Production in 2018 was 646,000 tons, up 20% YoY, as a result of higher production of IPA in Spain. The utilization rate of this IPA plant increased from 67% in 2017 to 100% in 2018.

2018 Core EBITDA of the segment was \$158 million. Core EBITDA margin in 2018 was 15%, down from 25% in 2017. The decline in earnings of the segment was due to normalization of IPA spreads compensated, to some extent, by higher volumes.

In 2019, we expect higher volume contribution from this segment from the IPA plant in the US with a capacity of 220,000 tons per annum and the newly acquired asset, Invista Germany. The IPA in the US captures the entire value chain from Paraxylene to PET. IVL has become the only IPA producer in both Europe and North America, in a business where we are the world's second largest producer.

Capital Expenditure Program

We continue to invest in the business to enhance overall production, vertical integration and quality of earnings. IVL's balance sheet and cash flow generation are strong, allowing us to invest significantly in our growth engines, through selective growth and turnaround opportunities, leveraging our strengths in core markets and in further enhancing our offerings.

Table 3: Pipeline of Ongoing Projects 2019-2020

Project	Business	Year	Total Installed Capacity (MMt)
Consolidation of India PET JV	Integrated PET	2019	0.7
Custom Polymers acquisition	Integrated PET	2019	0.03
Brazil Fibras and UTT acquisitions	Fibers	2019	0.2
Invista PET Germany acquisition	Specialty Chemicals	2019	0.3
Corpus Christi PET/PTA	Integrated PET	2019-2020	PET: 1.1, PTA: 1.3
Debottlenecking projects			

Definitions

Core EBITDA is after excluding inventory gains/losses from reported EBITDA.

Inventory gains/losses in a period result from the movement in prices of raw materials and products from the end of the previous reported period to the end of the current reported period. The cost of sales is impacted by inventory gains/losses wherein inventory gains decrease the cost of sales and inventory losses increase the cost of sales.

Core Net Profit is the Reported Net Profit less extraordinary items less tax adjusted inventory gain/loss.

Net Operating Debt is Net Debt (total debt less cash and current investments) less cash outflow for the various projects underway which are not yet completed and have not yet started contributing to earnings.

Accounting Policy

The accounting policies are adopted and applied consistently to all of the periods. For more information on key accounting policies, please refer to Note numbers 2 and 3 of our full-year 2018 audited financial statements.

Emphasis of Matters in the Auditors Opinion

The auditor has drawn attention to note 4 to the consolidated financial statements that, as at the reporting date, the determination of the fair value and the allocation of the purchase price of several business acquired during 2018 was determined provisionally and is subject to potential amendment. The opinion is not modified in respect of this matter.



Performance Comparison

Revenue from the sale of goods

THB in Millions	FY 2017	FY 2018	Change (%)
Revenue from the sale of goods	286,332.3	347,170.9	21.2%
Add: Eliminations	56,091.1	81,747.5	
Adjusted revenue from the sale of goods	342,423.3	428,918.4	25.3%
PET	145,760.3	182,415.4	25.1%
Fibers	81,065.4	99,207.0	22.4%
*Feedstock	115,597.6	147,296.0	27.4%

*Excluding Feedstock price adjustment for captive sales to PET on freight savings.

Sales revenue for the year ended 2018 was THB 347,170.9 million, an increase of 21.2% from 2017, and in-line with volume growth of 14% and higher prices following the trend in crude prices in 2018.

PET Revenue

PET revenue for the year ended 2018 was THB 182,415.4 million, an increase of THB 36,655.1 million, or 25.1% from 2017, mainly driven by increased volumes, which grew by 14%. The higher PET volume contributions were from Brazil (since 2Q18), Egypt (since 3Q18), and debottlenecking in China.

Fibers Revenue

Fibers revenue for the year ended 2018 was THB 99,207.0 million, an increase of THB 18,141.6 million, or 22.4% from 2017,

driven by increased volumes which grew by 13%. The higher Fibers volume contributions were from the full-year of Glanzstoff (acquired May 17), DuraFiber (acquired 2H17) and the acquisition of Avgol (acquired 3Q18), Kordana (acquired 4Q18), and Scholler (acquired 4Q18).

Feedstock Revenue

Feedstock revenue for the year ended 2018 was THB 147,296.0 million, an increase of THB 31,698.4 million or 27.4% from 2017, in-line with volume growth of 15%. The higher Feedstocks volume consisted of contributions from PTA volumes which grew with Portugal (since 3Q18), expansion in the Netherlands, the consolidation in Indonesia (since 4Q18), and improvements as a result the conversion of IPA in Spain.

Cost of Sale of Goods

THB in millions	FY 2017	FY 2018	Change (%)
Cost of sale of goods	234,483.4	281,119.7	19.9%
As a percentage of total revenues	81.9%	81.0%	
Add: Eliminations	52,510.0	77,611.2	
Adjusted cost of sale of goods	286,993.4	358,730.8	25.0%
*PET	127,290.9	154,401.2	21.3%
As a percentage of total PET revenue	87.3%	84.6%	
Fibers	68,482.6	84,565.2	23.5%
As a percentage of total Fibers revenue	84.5%	85.2%	
Feedstock	91,219.9	119,764.4	31.3%
As a percentage of total Feedstock revenue	78.9%	81.3%	

*Excluding Feedstock price adjustment for captive sales to PET on freight savings.

Our cost of sales for the year ended 2018 was THB 281,119.7 million, an increase of THB 46,636.3 million, or 19.9% from 2017 which is in-line with the increase in sales revenue.

PET Cost of Sale of Goods

For the year ended 2018, PET cost of sale of goods was THB 154,401.2 million, an increase of THB 27,110.3 million, or 21.3% from 2017, in-line with an increase in sales revenue.

Fibers Cost of Sale of Goods

For the year ended 2018, Fibers cost of sale of goods was THB 84,565.2 million, an increase of THB 16,082.6 million, or 23.5% from 2017, in-line with an increase in sales revenue.

Feedstock Cost of Sale of Goods

For the year ended 2018, Feedstock cost of sale of goods was THB 119,764.4 million, an increase of THB 28,544.5 million, or 31.3% from 2017, in-line with an increase in sales revenue.

Gross Profit

THB in millions	FY 2017	FY 2018	Change (%)
Gross Profit	51,848.9	66,051.2	27.4%
As a percentage of total revenues	18.1%	19.0%	
Add: Eliminations	(3,581.1)	(4,136.3)	
Adjusted gross profit	55,429.9	70,187.5	26.6%
PET	18,469.4	28,014.2	51.7%
As a percentage of total PET revenue	12.7%	15.4%	
Fibers	12,582.8	14,641.8	16.4%
As a percentage of total Fibers revenue	15.5%	14.8%	
Feedstock	24,377.7	27,531.6	12.9%
As a percentage of total Feedstock revenue	21.1%	18.7%	

Gross profit for the year ended 2018 was THB 66,051.2 million, an increase of THB 14,202.3 million or 27.4% from 2017. The gross profit margin of 19.0% in 2018 increased from the prior year mainly due to a change in the product mix and from hedging the value chain by increasing feedstock integration.

PET Gross Profit

For the year ended 2018, PET gross profit was THB 28,014.2 million, an increase of THB 9,544.8 million from 2017 in-line with volume growth. PET gross profit margin in 2018 was 15.4%, an increase YoY predominantly due to a structural change in margins and management actions to optimize costs in various locations.

Fibers Gross Profit

For the year ended 2018, Fibers gross profit was THB 14,641.8 million, an increase of THB 2,059.0 million from 2017 in-line with volume growth. Gross profit margin in 2018 was 14.8%, decreasing from the prior year as a result of negative raw material price lag and force majeure in the EMEA region, together with lower operating rates in the Avgol, DuraFiber and Kordarna assets.

Feedstock Gross Profit

For the year ended 2018, Feedstock gross profit was THB 27,531.6 million, an increase of THB 3,153.9 million from 2017 in-line with an increase in volumes and a recovery in Asia PTA margins. However, gross profit margin in 2018 was 18.7%, decreasing from the prior year due to normalization of IPA spreads which were compensated, to some extent, by higher volumes.

*Spread or Raw Material Margins

Amount in US\$ per MT	FY 2017	FY 2018
Industry spread		
Asia PET	125	186
West PET (50:50- North America : Europe)	203	295
IVL spread		
Asia PET	157	240
West PET (IVL Actual Mix)	233	292
Industry spread		
Asia PTA	104	155
West PTA (50:50- North America : Europe)	223	245
IVL spread		
Asia PTA	123	178
West PTA (IVL Actual Mix)	229	230

*Selling price less raw material consumption

We normally receive a minor premium over industry margins due to our volume and vast global presence. Our actual geographic capacity mix also impacts our margin when compared with the industry.

Earnings before Interest Expenses, Income Taxes, Depreciation & Amortization (EBITDA)

THB in millions	FY 2017	FY 2018	Change (%)
EBITDA⁽¹⁾	35,348.7	47,128.5	33.3%
Add: Inventory loss/(gain) ⁽²⁾	(1,271.2)	(539.4)	
CORE EBITDA	34,077.5	46,589.1	36.7%
As a percentage of total revenues	11.9%	13.4%	
Add: Eliminations and others ⁽³⁾	58.3	(30.5)	
Adjusted CORE EBITDA	34,135.8	46,558.6	36.4%
PET	10,060.9	18,993.4	88.8%
As a percentage of total PET revenue	6.9%	10.4%	
Fibers	7,064.2	7,753.4	9.8%
As a percentage of total Fibers revenue	8.7%	7.8%	
Feedstock	17,010.6	19,811.8	16.5%
As a percentage of total Feedstock revenue	14.7%	13.5%	

⁽¹⁾ EBITDA is calculated from sales revenue adding net foreign exchange gain (loss) and other income, then deducting cost of sales, selling & administrative expenses (excludes depreciation & amortization), management benefits expenses, and adjusting by extraordinary items. Excluding Feedstock price adjustments for captive sales to PET on freight savings. There are no impacts on regional or consolidated EBITDA.

⁽²⁾ Inventory gains (losses) are the gains or losses on the inventories that IVL carries every month, due to the movement in the prices of finished products and raw materials following market movements.

⁽³⁾ Eliminations and others include the amounts attributable to intra-group transactions and the EBITDA of holding companies.

Core EBITDA for the year ended 2018 was THB 46,589.1 million, an increase of THB 12,511.6 million or 36.7%, mainly from the PET segment. Core EBITDA is defined as EBITDA less Inventory gain/(loss).

PET Core EBITDA

PET Core EBITDA for the year ended 2018 was THB 18,993.4 million, a significant increase of THB 8,932.5 million, or 88.8% from 2017, driven by a structural improvements in PET margins and the impact of higher volumes.

Fibers Core EBITDA

Fibers Core EBITDA for the year ended 2018 was THB 7,753.4 million, a slight increase of THB 689.2 million, or 9.8% from 2017. This was primarily due to higher production.

Feedstock Core EBITDA

Feedstock Core EBITDA for 2018 was THB 19,811.8 million, an increase of 16.5% from THB 17,010.6 million in 2017, driven by the impact of higher volumes and the cost advantage of US ethylene.

Other Revenues

THB in millions	FY 2017	FY 2018	Change (%)
Interest Income	102.4	247.2	141.3%
Net foreign exchange gain/(loss)	(61.9)	586.2	1,047.1%
Gain on a bargain purchase	3,672.7	1,928.5	(47.5)%
Other income	1,160.2	1,952.6	68.3%
Total	4,873.4	4,714.5	(3.8)%

Interest Income

Interest Income for the year ended 2018 was THB 247.2 million, a significant increase of THB 144.7 million, or 141.3% from 2017. This was mainly due to an increase in cash received from warrant exercised in the first half of the year.

Net foreign exchange gain/(loss)

There was a net foreign exchange gain for 2018 of THB 586.2 million, an increase from a loss of THB 61.9 million in 2017. This was primarily due to our disciplined approach to hedging receivables and payables. Currency volatilities are also hedged in a natural way due to our global presence, for example US\$ assets are hedged naturally against US\$ liabilities.

Gains on bargain purchases

During 2018, IVL acquired several businesses where the excess of the Group's interest in the net identified assets and liabilities of the companies acquired over cost (recognized values are higher than the consideration transferred) are considered to be gains on bargain purchases, and recognized in the consolidated statement of income in accordance with generally accepted accounting principles for business combinations. A valuation of net identified assets acquired and liabilities assumed is calculated every time to arrive at recognized values. Fair value adjustments are the difference between the carrying amount and the recognized value. In 2018, IVL had gains on bargain purchases of THB 1,928.5 million. The following details are provided:

Baht in millions	Net identified assets acquired and liabilities assumed				
	Interest acquired (%)	Recognized values	Total Consideration	Gain on a bargain purchase	Goodwill
Companies acquired during the years ended December 31, 2017					
DuraFiber Mexico, Mexico	100%	1,102.4	894.5	207.9	
Longlaville DuraFiber Technologies (DFT) SAS, France	100%	601.9	-	601.9	
The PTA assets of Artlant PTA S.A. and the utility assets of Artelia Ambiente, S.A., Portugal	100%	4,503.5	1,640.6	2,862.9	
Glanzstoff Group, Europe	100%	5,148.4	6,100.6	-	952.2
				3,672.7	952.2
Companies acquired during the years ended December 31, 2018					
Egyptian Indian Polyester Company S.A.E., Egypt	50%	1,197.2	307.1	890.1	
Sorepla Technologie S.A., France	100%	400.3	395.0	5.3	
Kordárna Plus a.s., Czech Republic	100%	2,767.0	2,124.3	642.7	
Schoeller Group, Austria, Czech Republic and Germany	100%	1,802.8	1,412.4	390.4	
M&G Polimeros Brazil S.A., Brazil	100%	12,216.5	12,246.7		30.2
Avgol Industries 1953 Ltd., Israel	66%	5,996.6	10,643.5		4,646.9
Medco Plast for Packing and Packaging Systems S.A.E., Egypt	74%	702.1	1,699.5		997.4
				1,928.5	5,674.5

A gain on bargain purchase is considered by management as an extraordinary item which does not arise from the normal operations of the business, but is included in the net profit of the Company. Additional information on each acquisition is provided in Note 4 – Acquisitions of Businesses in the Audited Financial Statements. Net identifiable assets acquired, including intangible assets, i.e. customer contracts, technology licenses and know-how, trade names and trademarks, were all recognized in the financial statements at fair value, and subject to depreciation, amortization or impairment (if any) in accordance with generally accepted accounting principles, as disclosed in Note 3 - Significant Accounting Policies in the Audited Financial Statements.

IVL's management expertise and business model allows us to buy companies most of the time at below their fair value as determined by an appraiser. We, therefore, need to record the gain on bargain purchases. These gains are recorded under property plant & equipment or intangibles or other assets, as applicable.

Other Income

Other income for the year ended 2018 was THB 1,952.6 million, an increase of THB 792.4 million, or 68.3%, from 2017. This was mainly due to insurance income THB 662.4 million received by Indorama Ventures (Oxide & Glycols) LLC, the indirect subsidiary in the US, in March 2018 relating to loss claim due to a business interruption in 2015. Please refer to Note 27 – Other Income in the Audited Financial Statements for further details.

Expenses

THB in millions	FY 2017	FY 2018	Change (%)
Distribution costs	15,778.3	18,449.4	16.9%
Administrative expenses	9,988.4	10,143.7	1.6%
Management benefit expenses	136.9	190.8	39.4%
Total	25,903.6	28,783.9	11.1%

Total expenses for the year ended December 31, 2018 was THB 28,783.9 million, an increase of THB 2,880.3 million, or 11.1%, from 2017 as a result of higher spending on selling and administrative expenses in-line with our volume growth. Please refer to Note 29 and 30 – Distribution Costs and Administrative Expenses of the Audited Financial Statements for further details on this item.

Management benefit expenses was THB 190.8 million, or an increase of 39.4% from last year, due to an increase in wages and salaries and an increase in the number of sites.

Doubtful Debt Expenses

IVL had doubtful debt expenses in the amount of THB 23.9 million in 2018 and THB 1,978.6 million in 2017, a significant decrease of THB 1,954.7 million, or 98.8%, from 2017 due to the fact they were recorded in 2017 when M&G Polymers USA, LLC, a customer of Cepsa Canada, filed for bankruptcy. We recorded a provision for doubtful debt amounting to THB 1,794.3 million against the said provision. The bankruptcy proceedings of M&G was completed in December 2018. Accordingly, the allowance for doubtful debt against receivables from M&G was written-off. However, there is no significant doubtful debt in 2018. Please refer to Note 8 – Trade Account Receivables of the Audited Financial Statements for further details on this item.

Research and Development (R&D) Expenses

IVL has a strong R&D platform with 11 centers for innovation around the world. We are strongly committed to providing innovative solutions to our customers and focusing on an agenda geared

to sustainability. We have many high value-added businesses which require R&D, and as a result, we have a strongly focused approach to innovation. In 2018, IVL spent THB 401.6 million (2017: THB 401.9 million) on R&D which was booked under appropriate expenses.

Finance Costs

Finance costs for the year ended 2018 was THB 4,227.4 million, an increase of THB 362.9 million from 2017, that was in-line with an increase in overall interest-bearing liabilities.

Share of profit of jointly-controlled entities, net

IVL had a share of profit from joint ventures in the amount of THB 585.9 million and THB 28.4 million for the year ended 2018 and 2017, respectively. A significant increase in the share of profit from joint ventures was due to significantly improved performance in Dhunseri and Polyprima. Please refer to Note 12 – Investment in Joint Ventures in the Audited Financial Statements for further details.

Income Tax Expense

Tax expense for 2018 was THB 3,812.4 million compared with tax income in the amount of 1,400.2 in 2017. There was an amendment in the US corporate income tax rate reducing it from 35% to 21%. Accordingly, some deferred tax liabilities were reversed as one-time income in 2017 in the amount of THB 3,540 million. Please refer to Note 34 – Tax Expense (benefit) in the Audited Financial Statements for further details.

Net Profit

THB in millions	FY 2017	FY 2018	Change (%)
Net profit	21,078.3	26,337.6	25.0%
As a percentage of total revenues	7.4%	7.6%	
Profit attributable to:			
Owners of the Company	20,882.9	26,465.4	26.7%
Non-controlling interests	195.4	(127.8)	(165.4)%

Net Profit for the year ended December 31, 2018 was THB 26,337.6 million, an increase of THB 5,259.3 million, or 25.0%, from 2017 due to higher earnings from margins and acquisitions. Please refer to the explanation of EBITDA above for more details. Net profit for the period included extraordinary items, i.e. gains on bargain purchases, acquisition costs, and related transaction expenses incurred on completed acquisitions. These non-recurring items are not from the normal operations of the business.

Financial Position

IVL closely monitors the financial position, and any changes, of various businesses at the group level. An analysis of the financial position is presented below:

Total Assets

As of December 31, 2018 and 2017, IVL had total assets of THB 379,194.8 million and THB 282,358.4 million, respectively. The increase of 34.3% was mainly due to growth in our business from expansions and acquisitions. The major assets are as follows:

Trade Accounts Receivable

As of December 31, 2018 and 2017, IVL reported trade accounts receivable of THB 37,636.6 million, and THB 32,098.2 million respectively, representing 9.9% and 11.4% of total assets. We continued to improve and control our debt management. Each subsidiary takes responsibility to set up and monitor their allowance for doubtful accounts by focusing on amounts that are over 12 months overdue in order to ensure that the allowance is adequate. The allowance for doubtful accounts is normally in a narrow low-range due to the close follow-up and collections that are conducted on time. The aging analysis for trade accounts receivable is as follows:

THB in millions	Consolidated financial statements	
	December 31, 2017	December 31, 2018
Related parties		
Within credit terms	796.6	855.6
Overdue:		
Less than 3 months	105.3	138.6
3-6 months	9.4	0.9
6-12 months	0.2	0.2
Over 12 months	160.2	150.0
Net	1,071.7	1,145.3
Other parties		
Within credit terms	26,542.6	31,121.4
Overdue:		
Less than 3 months	4,692.7	4,687.3
3-6 months	798.4	253.8
6-12 months	854.1	51.9
Over 12 months	153.0	618.3
	33,040.8	36,732.7
Less: allowance for doubtful accounts	(2,014.3)	(241.5)
Net	31,026.5	36,491.2
Total	32,098.2	37,636.5

Inventories

As of December 31, 2018 and 2017, IVL reported inventories of THB 70,085.3 million and THB 46,036.5 million, respectively, representing 18.5% and 16.3% of total assets. The spike in inventories is the result of customers deferring their purchases and our expansion and business growth in 2018.

Investment in joint ventures

As of December 31, 2018 and 2017, IVL reported investment in jointly-controlled entities of THB 5,294.0 million and THB 6,247.1 million, respectively, representing 1.4% and 2.2% of total assets. The slight decrease is mainly the result of our investment in Polyprima JV. As a result of a change in accounting treatment, the transaction is accounted for as a business combination.

Property, plant and equipment (PPE)

As of December 31, 2018 and 2017, IVL reported property, plant and equipment of THB 205,182.4 million and THB 151,202.0 million, respectively, representing 54.1% and 53.5% of total assets. The increase is the result of various acquisitions and the ongoing gas cracker project in the US.

The PET segment saw an increase of 57.8% in its PPE in 2018 from 2017 to THB 57,602.6 million. In 2018, IVL completed the acquisition of M&G PET which is Brazil's largest PET manufacturing site. We also acquired PET Egypt and Medco which is the largest PET convertor in Egypt.

The Fibers segment saw an increase of 47.2% in its PPE in 2018 from 2017 to THB 55,633.9 million. In 2018, IVL completed the acquisition of Avgol which is the 3rd largest manufacturer of nonwovens for hygiene applications in the world. The Company

also acquired Kordana which is the largest producer of tire cord fabrics in Europe and acquired Schoeller – a specialty wool yarn producer in Europe as well.

The Feedstock segment saw an increase of 19.6% in its PPE in 2018 from 2017 to THB 91,661.4 million. This was primarily due to the acquisition of PTA facility in Portugal together with the ongoing Gas Cracker project in the US.

Other Intangible Assets

As of December 31, 2018 and 2017, IVL reported intangible assets of THB 25,139.3 million and THB 18,027.2 million, respectively, representing 6.6% and 6.4% of total assets. Intangible assets increased 39.5% from last year which was mainly from customer contracts and relationships which were acquired through business combinations. Please refer to Note 17 – Other Intangible Assets in the Audited Financial Statements for further details.

Loan to related parties

IVL has given certain loans to related parties as per Note 5 – Related Parties in the Audited Financial Statements. There are various strategic reasons given and as of December 2018, these amounts are not material.

Total Liabilities

As of December 31, 2018 and 2017, IVL reported total liabilities of THB 227,339.5 million and THB 163,371.7 million, respectively. The increase in total liabilities resulted from an increase in loans from financial institutions, issuance of debentures, and higher trade accounts payable which were all in-line with the growth in volumes from business expansion and acquisitions.

Trade accounts payable

As of December 31, 2018 and 2017, IVL had trade accounts payable of THB 54,564.8 million and THB 39,301.4 million, respectively. This was in-line with the growth in volumes from business expansion and acquisitions. The payment days for the year ended 2018 and 2017 were 58.4 days and 57.3 days, respectively.

Interest-bearing liabilities

As of December 31, 2018 and 2017, IVL reported interest-bearing liabilities of THB 136,764.4 million and THB 95,785.1 million, respectively, representing 36.0% and 33.9% of total liabilities and shareholders' equity.

Our net operating debt-to-equity slightly increased from 0.54 times at the end of 2017 to 0.60 times at the end of 2018, after spending on capex and investments of THB 76,684.7 million in 2018. IVL's net operating debt increased from THB 64,015.0 million at the end of December 31, 2017 to THB 91,832.2 million at the end of December 31, 2018, mainly due to payments for acquisitions in 2018.

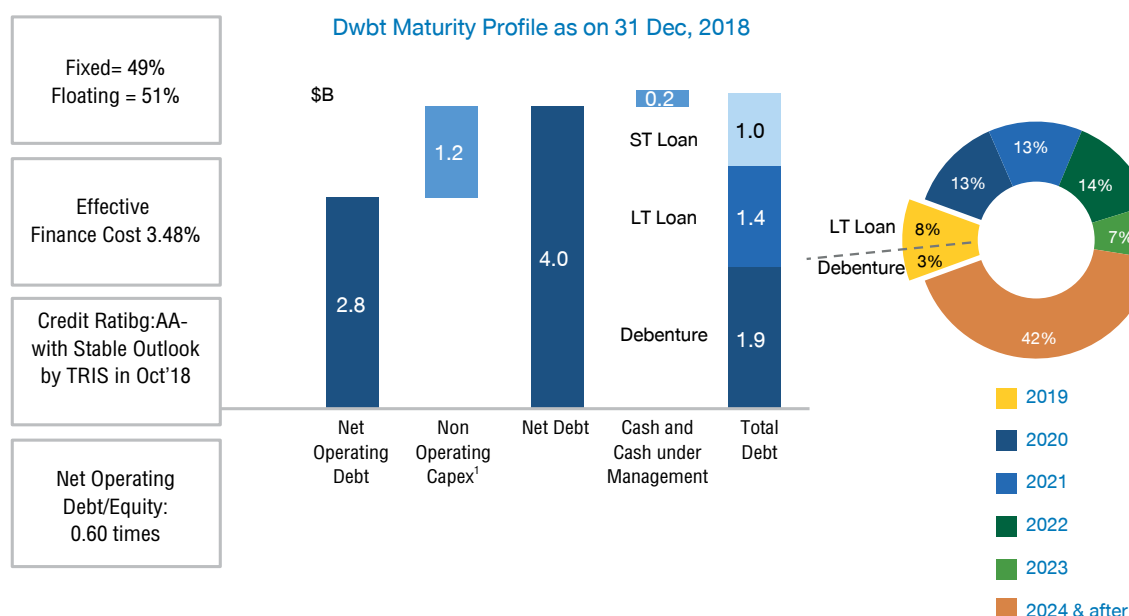


The table below describes total debt and net operating debt in THB billions:

THB billions	31-Dec-17	31-Dec-18
Total Debt	96	137
Bank overdraft and short-term loans	6	31
Long-term debt (Current portion)	6	9
Debentures (Current portion)	3	3
Long-term debt (Non-current portion)	43	35
Debentures (Non-current portion)	38	59
Cash & Cash under management	7	5
Cash and cash equivalents	7	6
Current investments and loans given	(0)	(0)
Net Debt	89	131
Non-operating Debt (Project Debt)	25	40
Net Operating Debt ¹	64	92
Net debt to equity (times)	0.75	0.87
Net operating debt to equity (times)	0.54	0.60
Debts with fixed interest %	58%	49%
Credit Rating by TRIS	A+	AA-

¹ Net debt after debt for capex and investments in progress that are not generating revenue and earnings as on the date given.

The graph below provides the repayment schedule for long-term debt and debentures in US\$ billions:



¹ Includes various underway which are not yet completed and have not yet started contributing to the earnings.

Shareholders' equity

As of December 31, 2018 and 2017, IVL reported shareholders' equity of THB 151,855.4 million and THB 118,986.7 million, respectively. The increase in shareholders' equity was mainly due to raising capital from warrants exercised, an increase in retained earnings resulting from the profitability of the Company, net of dividends paid and translation loss of overseas investments with the baht strengthening in 2018 over 2017. Please refer to "Statement of Changes of Equity" in the Audited Financial Statements for more details.

Cash Flow

IVL generated THB 31,980.6 million in cash flow from operating activities in 2018 compared to THB 28,906.8 million in 2017 due to improvements in our performance and an outflow of net working capital on higher absolute prices following the crude oil trend.

Cash flow used in investing activities of THB 56,227.3 million in 2018 was primarily paid towards the acquisitions of M&G Brazil PET, Corpus Christi JV in the US, Avgol, Dhunseri Egypt PET, Kordana, Medco, Sorepla and Schoeller as well as the ongoing gas cracker project. Capex and investments were funded by a mix of long-term loans and cash flow from operations.

Cash flow from financing activities of THB 22,566.7 million in 2018 was principally a result of cash proceeds from the issuance of ordinary shares due to the warrants exercised, the issuance of debentures, and short and long-term loans-net of repayment that were used to support business growth. In contrast, there was cash outflow for interest and dividend payments in 2018.

Liquidity

Strong cash flow from operations and a longer average loan maturity led to a high liquidity position for the Company. As at December 2018, IVL had liquidity of THB 80,540.3 million, in the form of cash and cash under management, plus un-utilized banking credit lines. The high liquidity provides us greater flexibility in business operations and allows us to finance accretive growth opportunities.

Key Financial Ratios

Current Ratio

Our current ratio is calculated by dividing total current assets by total current liabilities. The current ratio stood at 1.1 times at the end of 2018, decreasing from 1.4 times in 2017 partly from an increasing of bank overdrafts and short-term loans. This ratio above 1 illustrated the strong financial position and liquidity of the Company as well as assurance of IVL's ability to pay-off our short-term liabilities.

Return on Equity Ratio (ROE)

Our ROE ratio is calculated by dividing our profit attributable to owners of the Company for the period by the average of the total equity attributable to equity holders of the Company. IVL maintained a return on equity (ROE) of 20.2% and 20.3% in 2018 and 2017, respectively. In addition, IVL achieved core ROE of 21.1% in 2018 compared to 16.5% in 2017, a significant increase of 4.6%. ROE increased in-line with core net profit growth.

Note: For the Core ROE% calculation, we use the formula as follows: Core profit attributable to owners of the Company after interest on perp/average of the equity attributable to shareholders of the Company.

Return on Assets Ratio (ROA)

Our ROA ratio is calculated by dividing profit before finance costs and income tax expenses by the average total assets. For the year ended 2018 and 2017, our ROA ratio was 10.4% and 8.7%, respectively. IVL also achieved core ROA of 9.9% in 2018 compared to 8.1% in 2017, representing a 22.3% increase which was in-line with core net profit growth.

Net Debt-to-Equity Ratio (D/E)

Our Net Interest Bearing Debt-to-Equity Ratio is calculated by dividing our interest-bearing liabilities-less cash and cash equivalents by total shareholders' equity. As of December 31, 2018 and 2017, our net interest bearing debt-to-equity stood at 0.87 times and 0.75 times, respectively. The Company raised cash through the issuance of debentures and additional loans from financial institutions, which was used in acquisitions, ongoing expansions and working capital needs. However, the debt covenant for most of the debts is net debt to equity of at least two times.

Debt Servicing Coverage Ratio (DSCR)

Our DSCR is calculated by dividing core EBITDA by annual interest and principal payments on debt. As of December 31, 2018 and 2017, our DSCR was at 3.5 times and 3.7 times, respectively. The slight decrease comes from an increase in debt used in acquisitions. However, our DSCR is still in a good range which indicates that operations-generated income is sufficient to cover outstanding debt payments during the year. However, the debt covenant for most of the debts is at 1.1 times DSCR.

DIAPERS STAY DRIER WITH ULTRA-WICKING FIBERS FROM IVL

The world's premium diaper brands count on **bicomponent fibers from Indorama Ventures** to provide the performance and comfort that wins the hearts of consumers.



INDORAMA
VENTURES

> *Empowering potential.*

CHEMICALS | POLYMERS | FIBERS

INDORAMA VENTURES POTENTIAL RISK FACTORS



Risk monitoring and control mechanism at IVL:

The Enterprise Risk Management framework uses top-down and bottom-up approaches to identify and manage business risks at corporate and subsidiary levels around the world to identify and mitigate business risks at every level. This is led by the Board, the Committee and senior management. This covers the assessment and review of internal and external risks, including global risks and factors that may affect the Company's operations. Business heads in the Sustainability and Risk Management Committee, as well as the Business Risk Management Committees, monitor key risks and

ensure adequate preventive measures and mitigation controls. All significant risks identified are analyzed, recorded and reported. The risk management report and mitigation plan are reviewed quarterly by the committees at business segment and plant level. In addition, the Sustainability and Risk Management Committee reviews a sensitivity analysis of the business plan, Greenfield and M&A projects, to ensure sustainability especially with regards to the environmental and social impacts to business operations.

Emerging Business Risks

A cyber-security incident, data breach or a failure of a key information technology system could adversely impact our business or reputation

We rely extensively on information technology systems ("IT Systems"), including some which are managed, hosted, provided and/or used by third parties and their vendors, in order to conduct our business. Our uses of these systems include, but are not limited to:

- communicating within our company and with other parties, including our customers;
- ordering and managing materials from suppliers;
- converting materials to finished products;
- receiving and processing orders from and shipping products to our customers;
- marketing products to customers;
- collecting and storing customer, employee, investor and other stakeholder information and personal data;
- processing transactions, including but not limited to employee payroll, employee benefits and payments to customers and vendors;
- hosting, processing and sharing confidential and proprietary research, business plans and financial information;
- complying with legal, regulatory and tax requirements;
- providing data security;
- handling other processes involved in managing our business.



Information Technology System

Although we have a broad array of information security measures in place, our IT Systems, including those of third-party service providers with whom we have contracted, have been, and will likely continue to be, subject to computer viruses or other malicious codes, unauthorized access attempts, phishing and other cyber-attacks.

In general, cyber-attacks and other cyber incidents are occurring more frequently; are constantly evolving in nature; are becoming more sophisticated, and are being made by groups and individuals with a wide range of expertise and motives.

Such cyber-attacks and cyber incidents can take many forms, including cyber extortion, password theft or introduction of viruses or malware, such as ransomware through phishing emails. We cannot guarantee that our security efforts will prevent breaches or breakdowns of our, or our third-party service providers', IT Systems since the techniques used in these attacks change frequently and may be difficult to detect for periods of time. In addition, although we have policies and procedures in place to ensure that all personal information collected by us or our third-party service providers is securely maintained, data breaches due to human error or intentional or unintentional conduct have occurred and will likely continue to occur.

Although we have seen no material impact on our business operations from the cyber-security attacks and data breaches we have experienced to date, we may suffer a loss or disclosure of confidential business or stakeholder information as a result of a breach of our IT Systems, including those of third-party service providers with whom we have contracted. Moreover, we may suffer reputational, competitive and/or business harm; incur significant costs, and be subject to government investigations, litigation, fines and/or damages, which may adversely impact our business, results of operations, cash flows and financial condition.

Furthermore, while we have disaster recovery and business continuity plans in place, if our IT Systems are damaged, breached or cease to function properly for any reason, including the poor performance of, failure of or cyber-attack on third-party service providers, catastrophic events, power outages, cyber-security breaches, network outages, failed upgrades or other similar events, and if the disaster recovery and business continuity plans do not effectively resolve such issues on a timely basis, we may suffer interruptions in our ability to manage or conduct business.

Risk Mitigation Action:

- Our systems are protected with advanced Firewalls, Antivirus, Antimalware, latest system patch application, and Advance Threat protection to strengthen our system's security.
- We do have a guideline of user awareness, to educate our users on risks of cyber security and train them for safe system usage.
- We do have a backup policy to protect our system and data, such that in case of cyberattack, systems can be recovered from backup.
- We have the capability to reduce the impact and proliferation of an event; to identify and classify applications, databases, systems, and information. We can minimize insider risks by keeping a closer watch on user activities, analyzing user behavior, and regularly assessing risks to proactively spot weaknesses and improve their security position.

- By enhancing security and privacy capabilities across the company, we establish stricter control over user IT activities in order to keep sensitive information secure and prevent insider breaches.
- The ongoing assessment of security threats, balanced against the existence and adequacy of security controls, is to ensure that security controls and countermeasures in place are commensurate with potential risks.

Disruptive innovation/technology potentially leading to vulnerabilities such as Alternatives for PET

It is difficult to anticipate the nature of disruptive innovations or new technologies, which might outpace the company's ability to remain competitive. Resistance to change may restrict the company from making necessary adjustment to the business model and core operations.

In particular, the trend of eco-friendly substitutes for disposable plastic water bottles is increasing. While good for raising environmental awareness, this might be misunderstood to include recyclable PET, thus affecting the future use of PET. Advanced technology to invent alternatives for PET as such biodegradable plastic might make vulnerable our business position as one of the leading companies in the market.

Customers increasingly expect more personalized products and services. Sudden development might alter customer expectations and change the core business model. Innovation can be restrained by the organization's core business assumptions or structural limitations. The needs of customers may have evolved; new technologies and solutions may have become available, and/or regulation has changed. Together these can create discontinuities, potentially changing the structure of an industry.

Risk Mitigation Actions:

IVL revisits its approach to corporate strategy development toward introducing more agility, adaptability, and responsiveness to emerging threats. We must continuously monitor changes in the environment to determine which, if any, could be truly disruptive.



We see the strategic importance of Research & Development, choosing the appropriate level of investment while also effectively measuring return on those investments, which has meaningful impacts on our future positioning.

We work closely with brand owners to promote campaigns on recycling and provide education to differentiate PET from other plastics. We observe the trend and thus strategically increase investment in recycling plants; arrange more recycling factory visits and encourage recycling and end-use of rPET.

Embracing possible reward under disruptive trend is also opportunity

With business expertise, disruptive innovation can present opportunity for a company's growth. Disruptive drift may become business-as-usual, to which a firm needs to be flexible in embracing the trend and using it to its competitive advantage.

Combining artificial intelligence (AI) and sustainability matters can aid society and environmental issues. AI provides additional tools alongside physical models, economic models, and decision makers operating in complex constrained frameworks, deploying data science as a means to address climate change information or leverage machine-learning techniques to support management of sustainable clean water and energy production.

IVL invests in research and development, fostering innovation and encouraging our people to be proactive and develop capability to adapt and transform threats into opportunities. This aids the company in disrupting the market by producing innovative, game-changing products and ideas that fundamentally change the way people live and work.

We work closely with our customers globally, providing them with innovative and specialized solutions to meet their evolving needs. Our business is exceptional in producing innovative and High-Value Added (HVA) products.

Leveraging IVL's strong foundation in the PET market and geographic reach, we see vast opportunities to grow the POLYSHIELD® PET and OXYCLEAR® Barrier PET brands to their full potential by reaching out to both existing and new customers around the world.

We are already capitalizing on the opportunities in the U.S. market, one of the largest barrier resin markets in the world - through our existing OXYCLEAR® Barrier PET license in the Americas. The strategic acquisition in Germany will evolve IVL to the next level of success by taking advantage of opportunities worldwide. With this acquisition, IVL reinforces its commitment to deliver the highest value to our customers and create sustainable long-term value for our shareholders.

Water crises might result in disruption of business operations and economic activity

Water crises as significant decline in the available quality and quantity of fresh water has emerged consistently in many areas

globally which is interconnected environment-related risks with extreme weather events and climate change. Those risks lie in the higher-impact and the higher-likelihood across past several years. Continuing availability of water underpins action on food security, energy security, poverty reduction, economic growth, conflict reduction, climate change adaptation and biodiversity loss, while increasing global mistreatment of water resources across the world has led to significant degradation of ecosystems and the goods the industry provides.

As businesses, seek to secure long-term prosperity, to maintain competitive advantage and differentiation, and to secure stability and optimal in supply chains, increasing water scarcity can be challenge and uncertainty as physical, financial, regulatory and reputational risks. More severe climate change also lead to drought and flood which might impact the company in several entities as we operate in geographical locations. The company will come under greater pressure to reduce water use and increase efficiency.

Risk Mitigation Actions:

- The risk management committees of plants and business segments regularly monitors regulatory and potentials change and evaluate water risks and opportunities by conducting the Scenario analysis with those changes.
- We communicate on an ongoing basis and also work with local authorities to check ground water levels and levels in reservoirs in order to ensure the water supply and avoid the conflict with stakeholders nearby. The business continuity plans of our entities include water as one of the elements in their plans.
- We conduct a water sensitivity analysis using the AQUEDUCT Water Risk tool developed by World Resources Institute (WRI) to identify water stress locations. The tool helps us to evaluate change in water demand, water supply, risk from stakeholder and change in regulation based upon current and future condition. Given the tool enable us to foresee the changes to water risk forecasting on 2020, 2030 and 2040, these results had been analyzed and discussed during meeting of risk assessment committee to identify necessary mitigation measures or any initiatives on quarterly basis, where the plants locating in high risk water stress or locating under significant risks to water usage.
- We evaluate the possibilities and options to reduce water consumption, increase the recycle and reuse of wastewater, make water harvesting, to achieve our goal of zero liquid discharge as many as sites, and establish targets at the entity and group level.
- IVL commits to sustainable water management (including water withdrawal and discharge) by complying with all applicable environmental laws, international standards, and regulations in the countries where we have operations, and will be proactive in demonstrating leadership and responsibility in-line with our values.

Business Risks

Increasing Business and International Operations naturally exposes us to various challenges such as macro-economic, geopolitical, environmental, and regulatory risks

- IVL's business operations have been rapidly increasing globally year on year, presenting new challenges and risks. These include: political instability; the safety and security of employees; tangible and intangible property due to increased terrorist attacks in new countries; anti-national or communal activities; unanticipated economic developments, and rapid changes in legislation, regulations, standards, or pandemic diseases.
- We may also have to comply with inconsistent or unexpected changes in foreign laws; currency controls, tax regulations, and changes in international tax treaties; the imposition of duties on imports; anti-dumping duties; environmental and regulatory requirements, or import and export controls.
- Many of these could be beyond our control and could have an adverse impact on the Company.

Risk Mitigation Actions:

IVL has considered the likelihood and potential business impact of each risk and has undertaken the following mitigation actions:

- Long-term and short-term sensitivity analyses of the Company's business plans, and correlation of various risks to the business.
- Stringent due diligence process to benefit from opportunities and mitigate business risks including, but not limited to, an environmental and geopolitical risk analysis of every business opportunity before a decision is taken by the management and the Board.
- Close and continuous monitoring of political, economic and legislative conditions of each country, including threats from anti-national and terrorist activities; safety and security of employees, and the assets of the Company.

Climate Change Risk

Climate change is inevitable and is going to have potentially serious implications for businesses. Post-COP21, IVL anticipates more environmental, social, political, and economic repercussions. The Company has carried out Climate Change Risk and Opportunity analyses.

The following are some of the Climate Change related Risks:

- **Regulatory:** Increased operational costs due to direct climate change legislation (e.g. cost of carbon) and indirect legislation (renewable energy targets, efficiency upgrades, etc.) may affect the Company's operations.

As of December 31st 2018, IVL has 93 operating sites in 31 countries. Depending on the scope of any carbon levy, IVL could be directly and/or indirectly affected either through increased

production costs and/or through impacts from the supply chain and downstream customers.

There would be financial implications as the Company would be required to produce more energy efficient, less carbon intensive products for climate protection in the long-term.

- **Physical:** Extreme weather events, increasing frequency and severity of floods, droughts, cyclones, etc., may impact the Company's operations and supply chain.
- **Changing Consumer Preferences:** Changing consumption patterns towards increasing demand for environmentally-friendly products and technologies will most probably result in a declining demand for established or GHG-intensive products, particularly in Europe. A company that is lagging in this area could face the risk of being outmaneuvered by companies that have positioned themselves more favorably with eco-friendly or green products/services.
- **Reputational:** This is another important risk as laggards on climate action risk may face damage to their reputation and brand image.

The management has nominated one senior executive at corporate level to closely monitor both climate change risks and opportunities. This executive will report to all concerned, including the Sustainability and Risk management Committee (SRMC). They in turn, will report to the Board.

Risk Mitigation Actions:

IVL has increased its focus on efficiency improvements; adherence to GHG reduction goals and targets as defined and disclosed in its [Sustainability Reports](#) and on our [website](#).

The Company has also participated in the assessment of Dow Jones Sustainability Indices, CDP's Climate Change and Supply Chain, FTSE and other external sustainability assessments in 2018. These assessments are helping the company to:

- Identify financial savings
- Prepare for changes in regulations
- Improve risk awareness and long-term resilience
- Enhance reputation and shareholder confidence
- Continue our focus on accelerating innovation, recycling and developing a circular economy
- Increase focus on renewable energy
- Reduce our Carbon footprint in all our operations through life cycle assessment and management, greenhouse gasses accounting, energy and environment management
- Produce low carbon products, improve operational eco-efficiency within IVL operations and in value chain, lowering product toxicity
- Carry out water risk assessment globally in all our operations and initiate water management
- Light weighting of our products

- Strategically move to be in closer proximity to our customers and suppliers to avoid supply chain risks
- Explore opportunities for more post-consumer recycling of our products and increase usage of bio-based raw materials

Climate Change is an opportunity

At the same time, climate change is perceived as an opportunity as changes in regulations will drive the Company towards using more renewable energy. Increasing innovation and production of low-carbon products will lead the Company to become one of the customers' and consumers' preferred companies, which also brings financial gain through lowering overall cost of production.

Possible climate change opportunities include:

- Tax incentives for increased use of renewable energy
- Tax incentives for increased recycling of PET waste; carbon credits for lowering emissions through recycling and reusing as compared to virgin PET
- Savings from global carbon and emission trading schemes due to reductions in carbon emissions
- An enhanced reputation for being an environmentally-friendly company by recycling more and more
- Becoming the preferred company to our consumers

We operate in highly competitive industries and the actions of our competitors could impact our profitability and market share.

- The industries in which we operate are characterized by price and other competition.
- The majority of our products are commodities – necessities – with a growing number of high value-added (HVA) products, and it may be difficult to have product differentiation and pass on increased costs to customers.
- Other competitive factors include product quality, specifications or product performance; continuity and reliability of supplies to customers, and sustainable long-term customer relationships.
- We often compete with large multinational companies as well as regional and/or specialized producers in the markets for our polyester fiber products. Margin pressure could arise from, for instance, limited demand growth and overcapacity in a market.

Risk Mitigation Actions:

Greater integration and diversification of our manufacturing facilities across geographies, product innovation, product diversification, cost reductions and other operational excellence measures.

How continuous demand growth in PTA, Oxide and Glycols, PET resins, and Polyester fiber and yarn and Non-Polyester fiber and yarn industries could result in overcapacity

- Our operating results reflect the historically cyclical pattern of the PTA, MEG, PET resin, Polyester and Non-Polyester fiber

and yarn industries, with periodic overcapacity and the resulting pressure on pricing.

- This cyclical nature arises, in part, from investments made at the top of the cycle (when margins are high and funds are available), thereby creating a demand-supply imbalance.
- The industry has experienced periods of overcapacity, when new plants become operational, and there can be no assurance that this will not recur in the future.
- In the absence of sufficient economic growth to generate increased demand, or the closure of facilities to mitigate the effect, new capacity causes a period of regional or global overcapacity might leading to downward pressure on profit margins.

Risk Mitigation Actions:

Diversification of customer portfolio, adding high value added product portfolio, recycled products etc. to create customer loyalty and differentiation.

Crude oil and commodity price volatility affects the valuation of inventories and the capital employed distorting the reported performance to an extent.

- Volatility of crude oil prices brings the risk of markdowns or mark-ups of inventories that we carry at any point in time and can impact our performance adversely or positively.
- Our reported capital employed might also be affected as working capital requirements change with movements in our products or raw materials prices.
- Natural gas price volatility affects cash conversion costs in countries where we operate. As we consume natural gas at certain locations the volatility of natural gas prices can benefit or hinder our performance.

Risk Mitigation Actions:

The losses or gains due to marking-to-market fluctuation in our inventories are largely mitigated by respective cash inflows, in our net working capital. The natural gas hedging tool is used to keep a check on price volatility by a partial fixed price contract of natural gas.

With the external factor our cost might be impacted from market conditions or uncontrollable factors

- Cost of our products may increase due to various external factors such as an increase in labor costs due to inflation, changes in minimum wage regulations; unplanned or prolonged shutdowns; raw material shortages; natural disasters; strikes; technical failures and regulatory rulings for environmental non-compliance.
- In such events we may not be able to fulfil our product delivery obligations and could therefore be exposed to claims for damages, suffering loss of reputation.

Risk Mitigation Actions:

Insurance coverage including, but not limited to, loss from business interruption caused by accidents, natural disasters, damage to property, plant and machinery breakdowns, etc. Geographical diversification of business operations to minimize the risk of disruption from natural disasters or unexpected events.

We may not be able to protect our intellectual property rights and we could be impacted adversely should we infringe on the intellectual property rights of others.

- Fibers and Yarns (both Polyester and non-Polyester) and PET resins operate in industries where our competitors have substantial intellectual property portfolios. The continued success of this business depends on our ability not only to protect our own technologies and trade secrets, but also to develop and sell new products that do not infringe on existing patents or threaten existing customer relationships.
- Intellectual property litigation can be very costly and could result in substantial expense and diversions of resources, both of which could adversely affect our businesses, financial conditions and results.
- There may be no effective legal recourse against infringement of our intellectual property by third parties, whether due to limitations on enforcement of rights in foreign jurisdictions or as a result of other factors.
- An unfavorable outcome in any intellectual property litigation could have a materially adverse effect on financial conditions; results of operations in the fibers and yarns business, and to a lesser extent in PET resins.



Risk Mitigation Actions:

We take measures like patent and trademark registrations to protect our intellectual property (IP) rights. Moreover, we conduct FTO studies wherever appropriate to ensure that we do not infringe on the intellectual property (IP) rights of others.

Operational Risks

Our operations are dependent on the availability and cost of raw materials

- Our operations are fundamentally dependent on the availability and costs of our primary raw materials. We procure PTA and MEG for our PET and fibers businesses; also PX for our PTA business; Ethylene for our Oxide and Glycols business; other types of raw materials for our Non-Polyester fibers business and recyclable bottles and flakes for our recycling business.
- Our financial conditions and operational results are thereby influenced by the market prices of these items, which are then subject to supply and demand, as well as other factors beyond our control.
- The markets and prices for petroleum products may be influenced by aggregate demand for such products (which can fluctuate with changes in economic conditions and cycles, seasons and weather patterns), the level of domestic and regional production, the prices and availability of imports, the prices and availability of substitute fuels and the extent and nature of government regulations and taxation.
- Any increase in raw material costs without a corresponding increase in the sale price would reduce our operating results. Our ability to pass on raw material price increases is dependent upon market conditions and our relative cost position compared to competitors.
- There may be periods of time in which we may not be able to fully recover increases in the cost of raw materials due to contractual arrangements or weaknesses in demand for, or oversupply of, our products.

Risk Mitigation Actions:

Entering into long-term purchase agreements with suppliers where possible, and hedge prices when it makes economic sense.

Our production facilities are subject to operational risks that may adversely affect our operations

- We are dependent on the continued operation of our production facilities, which are subject to hazards associated with the manufacturing, handling, storage and transportation of chemical materials and products. These include pipeline leaks and ruptures; explosions, fires, inclement weather and natural disasters; mechanical failure, unscheduled downtime, labor difficulties, transportation interruptions, remediation

complications, chemical spills, discharges or releases of toxic or hazardous substances or gases, storage tank leaks and other environmental risks.

- These hazards can cause personal injury and loss of life, severe damage to, or destruction of, property and equipment, environmental damage, fines and liabilities.
- Indorama Ventures Europe BV; Indorama Polyester Industries' Map Ta Phut polyester; TPT Petrochemicals PTA, Indorama PET Nigeria Limited, Guangdong IVL PET Polymer Company Limited, Indorama Ventures Poland Sp. Z.o.o., and some others are co-located at sites where our neighbors face the same operational risks and, in some cases, they provide critical supplies and/or services, and any disruption in those supplies and/or services could also affect our operations.

Risk Mitigation Actions:

- We ensure readiness by having emergency evacuation procedures and mock drills for catastrophes internally and Emergency Response Teams.
- Regular reviews of safety equipment on site and annual training programs on safe work practices are carried out for the awareness of all concerned.
- All new employees, contractors and visitors are given mandatory safety training before they are allowed to enter the factory premises.
- At the production facilities, we do regular inspections, preventive maintenance and replacement of obsolete parts or equipment to avoid breakdown incidences.
- We closely monitor plant stocks as per inventory norms thus planning to ensure continuous availability of required materials.

Our business could be affected by an information technology system failure

- We rely on information technology (IT) systems to handle our businesses. Any systemic failure for whatever reason could disrupt our operations and prevent us from being able to process transactions with our customers, operate our manufacturing facilities, prepare internal MIS reports and properly report those transactions in a timely manner.
- A significant, protracted IT system failure may result in a materially adverse effect on our financial condition, operational results, or cash flow.

Risk Mitigation Actions:

- Adopting IT policies, processes and procedures to manage and protect IT risks. These policies and procedures are implemented as guidelines for the IT team and users. All policies and processes are reviewed and revised, as and when appropriate.
- IT Infrastructure and IT Applications are provided to ensure adequate resource allocation and optimal system function that supports the strategies and goals of the company.

- IT assessment by external as well as internal auditors. Moreover, we conduct internal IT assessment of all sites in accordance with IT general controls (ITGC) and report to senior management and SRMC.

Management Risks

The costs and difficulties of integrating future acquired businesses and technologies could impede our future growth and adversely affect our competitiveness

- As part of our strategy, we may seek further growth through acquisitions of manufacturing facilities producing PTA, PET, Fibers, Oxides and Glycols or other products in our product chain in order to maintain a competitive position within the industries in which we operate and to enhance our position in our core areas of operation.
- Unidentified or unanticipated liabilities or risks in the operations of the companies which we may acquire;
- Potential failure to achieve the economies of scale, synergies or other benefits sought;
- Greater than expected costs, time and effort spent by management in completing and integrating the acquisitions;
- Inability to successfully integrate the services, products and personnel of the acquisitions into our operations or the inability to realize any expected cost savings or other synergies from the acquisitions;
- Inability to retain employees, customer or supplier relationships;
- Lack of return on our investment.

We may not be able to identify attractive acquisition opportunities or make acquisitions on attractive terms, or obtain the financing necessary to complete and achieve such acquisitions. Regulations on mergers and acquisitions by the European Union, the United States, Thailand or other national regulators may also limit our ability to make future acquisitions or mergers.

Risk Mitigation Actions:

We do detailed due diligence for acquisitions, and seek appropriate production in the acquisition agreement.

The Indorama name is used by other companies that we do not control

The 'Indorama' trade-name belongs to Lohia Global Holdings Limited. IVL has a non-exclusive license for its use pursuant to a License Agreement with Lohia Global Holdings Limited and pays a royalty fee to Lohia Global Holdings Limited for the use of the 'Indorama' trade-name.

The business groups of other Lohia family members use the 'Indorama' wordmark. We do not control the usage of the trade-name by such business groups nor any adverse impact due to their actions on our reputation associated with the Indorama trade-name.

Risk Mitigation Actions:

IVL differentiates itself by presenting the Company as Indorama Ventures Pcl; listed and headquartered in Thailand.

The risk of a shareholder group that holds the majority of outstanding shares

The Lohia family holds around 64.75% of outstanding shares and may affect voting results on significant agenda items.

Risk Mitigation Actions:

All agenda items put to the Shareholder's meetings are always discussed and approved at the board meeting, having an equal representation of independent and non-Independent directors including representation from the major shareholders. Notice of the shareholder's meeting together with the Board opinion is well circulated to the shareholders prior to the meeting.

Financial Risks

Significant capital investments including the future development of new facilities have been, and may in the future continue to be, necessary to achieve our growth plans, which carry project and other risks

Our growth plans have required, and may continue to require, significant capital investments to expand, renovate, convert or upgrade existing facilities, develop new facilities or make major acquisitions or investments

- Failure to complete a project within the outlined project timetable and/or within budget
- Failure of the project to perform according to prescribed operating specifications following its completion
- Any significant increase in costs that were unforeseen in the project plan, and any inability to sell the products produced at volumes and/or price levels envisaged in the project plan could affect the success of our projects.
- Due to the significant amount of capital required and the long time period between the planning and completion of such projects, project delays could have an effect on our business and future prospects
- Acquired businesses may not achieve the required level of revenue, profit, cash flow or other financial benchmarks.
- Acquisitions may involve risks associated with potential assumption of unanticipated liabilities and contingencies; difficulties in integrating acquired businesses, and achieving planned operational synergies.
- While our strategy is to acquire businesses that will improve our competitiveness and profitability, acquisitions may not be successful or accretive to earnings.

Risk Mitigation Actions:

Project Cell works on each project with experienced individuals having technical, commercial, legal and requisite skills. They may use the resources of external consultants for strengthening the planning and execution of each project

Exchange rate and/or interest rate fluctuations may have a significant adverse impact on our business, financial condition, prospects and operational results

- As a result of the global nature of our business, changes in foreign currency rates could have an adverse impact on our business; financial condition, prospects and operational results. Currency fluctuations affect us because of mismatches between the currencies in which operating costs are incurred and those in which revenues are received. We sell products that are typically priced by reference to prices in US dollars or euros, while a portion of operating costs are incurred in local currencies.
- The floating interest rates are impacted by macro-economic conditions and the monetary policy of each region. Interest rate risk is the risk that future movements in market interest rates will affect the results of the Company's operations and its cash flows.
- 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 Company as and when they fall due.
- Our reported earnings may also be affected by fluctuations between the baht, which is our reporting currency, and the non-baht currencies in which some of our overseas subsidiaries report their results.

Risk Mitigation Actions:**Currency risk:**

- IVL primarily utilizes forward exchange contracts with maturities of less than one year to hedge certain financial assets and liabilities determined by foreign currencies.
- Our operating subsidiaries instigate loans in their principle currencies. Generally, long-term loans are borrowed on floating interest rates and are linked to the benchmark interest rates for each currency.

Interest rate risk

- IVL has mitigated the interest rate risk by using derivative financial instruments. Principally, interest rate swaps, contracting a fixed interest rate, and the issuance of debentures including Perpetual Debentures in the Thai Bond market, are used to manage exposure to fluctuations in interest rates on borrowings.
- There is a natural hedge to a large extent where foreign currency liabilities are supported by same currency assets wherever possible.

Credit risk

- IVL has a credit policy in place and the exposure to credit risk is monitored on an ongoing basis.
- Credit evaluations are performed on all customers requiring credit over a certain amount.
- The Company does take credit insurance in specific regions to cover credit risk. Our exposure to credit risk is represented by the carrying amount of the receivables in the Statement of Financial Position.

Liquidity risk

- The Company monitors and maintains a level of cash, and cash equivalents, deemed adequate by management to finance the Group's/Company's operations, and to mitigate the effects of fluctuations in cash flows.

The Company is a holding company and is dependent on the receipt of dividends to make dividend payments on our shares

- As a holding company, the Company is dependent on the receipt of dividends from its subsidiaries and associated companies, for which payment will depend on their future financial performance. This, in turn, depends on successfully implementing their strategies as well as on financial, competitive, regulatory, technical and other factors; general economic conditions, demand and selling prices for their products, and other factors specific to their respective industries or specific projects, many of which are beyond our control.
- The subsidiaries have dividend policies to not pay over 80% of net profit after tax and legal reserves. However, the board of those subsidiaries will approve dividends paid from time to time by considering some factors i.e.; cash reserved for loan repayment; expansion investment, or to support the cash flow of the Company in case of impact by changes in market conditions.
- The ability of our direct and indirect subsidiaries to pay dividends to their shareholders, including the Company, is subject to applicable laws.
- Although we intend to pay dividends with respect to shares, our ability to pay dividends in the future will depend on a decision of the Board of Directors and/or the approval of the shareholders at a general meeting; results of operations; as well as cash flows; financial conditions; contractual restrictions and restrictions imposed by applicable laws and other factors which the Board of Directors deems relevant.

Risk Mitigation Actions:

IVL received dividend income of 10.79 billion THB in the year 2018 from its direct and indirect subsidiaries while it paid dividends of 8.92 billion THB to its shareholders. The dividend received is 1.21 times the dividend paid. At the end of the year 2018, the retained earnings have increased to 14.72 billion THB from 12.78 billion THB.



Annual planning is done for receipt of interim and final dividends from direct and indirect subsidiaries. The respective CFO/ Financial Controllers plan for required corporate approvals and take their cashflow plan into consideration for payment of dividends.

Risk that the Company cannot comply with debt covenants

IVL and its subsidiaries has total outstanding debts of THB 135.80 billion at the end of 2018. The total outstanding debt includes short term loans, long term loans, debentures/bonds and financial leases. The net debt-equity ratio at the end of 2018 is around 0.86 times, compared to what is required under financial covenants of equal to or less than 2.00 times.

The financial position has strengthened over the years with a larger equity base and increase in cashflow from operations. The total shareholders' equity at the end of 2018 is 151.62 billion THB (including perpetual debentures of 14.87 billion THB). In addition, syndicated bank loans at regional level and subsidiaries have standalone financing which are required to meet financial obligations and comply with financial covenants.

In October 2018, the domestic credit rating of IVL has been upgraded from A+ to AA- by TRIS. IVL would like to maintain a business profile and financial profile which maintains or enhances its rating profile.

Risk Mitigation Actions:

Financial policy is to maintain a long term net debt-equity ratio of around 1.00 and Board guidance, is not to exceed 1.50 times.

- Diversified sources of financing through long term loans, debentures, short term loans, working capital financing solutions and others in multiple currencies such as Thai Baht, US Dollars, Euros and others.
- Surplus unutilized credit lines from the banks/institutions to have surplus liquidity.
- Monitoring of financial position, cashflows and covenants on a monthly/quarterly basis.

Compliance & Legal Risks

The lawsuits against Indorama Petrochem PTA facility may have an adverse effect on our business

Lawsuit regarding the project to increase production efficiency and improve the air pollution treatment system

- On June 19th, 2009, a lawsuit was filed in the Thai Central Administrative Court (the CAC) against various Thai governmental entities and Ministers (the Respondents) by various Claimants requesting that the CAC render a judgment ordering the Respondents to revoke an environmental impact assessment report (the EIA Report) and to revoke their approvals of projects or activities, required to prepare the EIA Report, located in Map Ta Phut, Ban Chang and the surrounding area in Rayong Province, Thailand. The lawsuit alleges that 76 projects in such areas may have a serious impact on the community with regard to the quality of the environment, natural resources and health. One of the projects named in the lawsuit is a project to increase the production efficiency and improve the air pollution treatment system of Indorama Petrochem PTA facility, which was approved by the Minister of Industry.
- On September 2nd, 2010, the CAC issued a judgment revoking the permission granted that had not completely complied with the provision of Paragraph 2 of Section 67 of the then Constitution. According to the judgment, the Indorama Petrochem project was not classified as a project for which permission to operate was revoked.
- However, on October 1st, 2010, the Claimants filed an appeal to the Supreme Administrative Court (the SAC) requesting the SAC reverse the judgment of the CAC and not rely on the Notification of the Ministry of Natural Resources and Environment, and rule that the Respondents be required to revoke the environmental impact assessment reports and grant permission to the projects or activities which were approved or obtained from August 24th, 2007 onwards until the study and assessment of the impact on the quality of the environment and health is completed as

required by the then Constitution. On December 7th, 2010, the Respondents submitted the statement of defense against the appeal of the Claimants. As of December 2018, the SAC has not yet issued a judgment on this case.

- While Indorama Petrochem was not considered a project for which permission was revoked by the CAC; it therefore can operate its PTA facility. However, the Company cannot ensure that the judgment to be rendered by the SAC will not have an impact on the project of Indorama Petrochem to the extent that the permission will be revoked or the construction of buildings or the business operation of Indorama Petrochem will be suspended.
- Indorama Petrochem's plant has never been affected by this lawsuit and the operation of the plant is continuing normally.

Lawsuit regarding the project to improve the reverse osmosis (RO) system

- On March 10th, 2010, Claimants filed a lawsuit in the CAC against the Respondents (above). This requested the CAC to order the Respondents to revoke the EIA Report and to revoke their approvals of projects or activities, required to prepare the EIA Report, located in Map Ta Phut, Ban Chang and the surrounding area in Rayong Province, Thailand. The lawsuit alleges that nine projects in those areas may have a serious impact on the community with regard to the quality of the environment, natural resources and health.
- The Claimants requested that the CAC suspend such projects, activities or operations of applicants or owners because they may have breached relevant procedures specified under the then Constitution and other relevant laws, including the commissioning of a HIA Report, the holding of a public hearing and the hearing of opinions from independent environmental organizations, prior to operating such projects or activities.
- One of the projects named in the lawsuit is the project to improve the reverse osmosis (RO) system of Indorama Petrochem's PTA facility, which was approved by the Minister of Industry.
- On February 28th, 2011, the CAC issued an order dismissing the petition for an injunction on the grounds that the facts made by the Claimants were insufficient to issue a court injunction and that there was no evidence to prove that the Claimants would be damaged by the operation of the projects. At present, the CAC has not yet issued a final judgment on this case. The operation of the plant is continuing normally.
- As of December 31st 2018, there is no material litigation against the Company or its subsidiaries which could have a negative effect on our assets exceeding 5% of shareholders equity.
- Apart from this, there is no lawsuit, which could have a significant effect on our business. However, the above litigation could have an adverse effect on a subsidiary of the Company, the impact of which cannot be estimated.

Changes in laws and regulations relating to beverage containers and packaging could reduce demand for such end use products

- Legal requirements have been enacted in the United States and elsewhere requiring that deposits or certain eco-taxes or fees be charged for the sale, marketing and use of certain non-refillable beverage containers.
- Other proposals relating to additional beverage container deposits, recycling, and eco-tax and/or product stewardship have been or may be introduced in various jurisdictions in the United States and elsewhere.
- Increased consumer concerns and changing attitudes about solid waste, environmental responsibility and related publicity could result in the adoption of such legislation or regulations. This has encouraged some of our PET customers to reduce the amount of PET resin they use in their bottle production process, known as light weighting, which has achieved this goal and has impacted the demand for PX, PTA and PET resin.
- However, PET can be recycled and IVL has made investments in PET recycling projects in Mexico, the US, Europe and Thailand.

Risk Mitigation Actions:

- We are closely monitoring New Product development and R&D departments' performance. Continuous improvement in Operational efficiency to maintain quality standards.
- Increase recycling PET (rPET) capacity in Asia and looking at acquisition/expansion of the existing NPT facility and Green field Projects in the Philippines and Indonesia.
- We also do market studies for suitable rPET acquisitions and/or joint ventures with existing recyclers and follow through to close the deals.

Environmental regulations may cause us to incur costs and liabilities

- Our operations are subject to environmental laws and regulations by central and local authorities in the countries in which we operate. These requirements are complex, subject to frequent changes and have tended to become more stringent over time.
- We have incurred, and will continue to incur, costs and capital expenditures in complying with these laws and regulations and in obtaining and maintaining all necessary permits.

Risk Mitigation Actions:

We have procedures in place to enable us to comply with environmental laws and regulations; however, there can be no assurance that we will at all times be in compliance with all of our obligations in the future or that we will be able to obtain or renew all licenses, consents or other permits necessary to allow us to continue to operate our businesses. Any failure by us to comply with such laws and regulations could subject us to fines, penalties and other liabilities.

INTERNAL CONTROL AND RISK MANAGEMENT



The Board of Directors has assigned the Audit Committee (“AC”) to review the financial reporting process of the Company and its subsidiaries in accordance with generally accepted and consistently applied accounting standards in-line with the rules and regulations of the Securities and Exchange Commission (“SEC”) and the Stock Exchange of Thailand (“SET”) as well as concerned legislation. The responsibilities of the AC include reviewing the Company’s performance in compliance with corporate governance principles, maintaining suitable, effective, and well-recognized internal control and audit systems, the selection and recommendation of external auditors, and any other tasks assigned by the Board of Directors.

The Company’s in-house Internal Audit Department (“IAD”) reports to the AC. The IAD is responsible for reviewing the adequacy and effectiveness of the Company’s internal control systems for IVL and its subsidiaries. The department reports its findings and

recommendations to the management and the AC. The internal control reviews are performed to ensure the existence of an effective system of internal controls which provide reasonable assurance for achievement of the Company’s objectives. Risks at all levels of the Company are managed through an effective internal control system and documented in IVL’s Internal Control System Evaluation Form of Sufficiency.

The Board of Directors of the Company in Meeting No. 2/2019 held on February 26, 2019, which was attended by all members of the AC, considered the recommendations of the Committee, evaluated its opinion on the internal control systems of the Company and its subsidiaries for 2018 and found the internal control systems to be adequate. The internal control systems in use at the Company generally conform to the internal control model as advocated by the Committee of Sponsoring Organizations of the Treadway



Commission ("COSO"). The summary of IVL's internal control systems in-line with the COSO is detailed below.

Control Environment

IVL prepares annual and five-year business plans which are approved by the Board of Directors. These plans form the basis of arriving at employee goals and objectives at all operating units and the steps to be followed to achieve the Company's objectives. These objectives are reviewed from time to time. The Company has a well-structured organization in place that delineates the individual's responsibility for key businesses and other functions. All employees have been provided the IVL Policies Handbook which contains all of the policies that facilitate in improving the control environment. IVL has detailed Code of Conduct, namely the Code of Conduct for Directors,

and the Code of Conduct for Employees. These Codes of Conduct are applicable to all Directors and Employees of Indorama Ventures PCL and its subsidiaries and affiliates. The Code of Conduct for the Company has been announced to all employees and is signed off by them. All new employees are provided with a copy of the Code of Conduct as part of their orientation program and their agreement is obtained. All employees are required to sign the Code of Conduct in case of any revision in the code. The Code of Conduct for employees and Directors is published on the website of Indorama Ventures Public Company Limited.

The Company has a Policy on Internal Information Control and Use of Insider Information to regulate the conduct of all directors, executives and employees in keeping the Company's information confidential and not to divulge any confidential information with the aim of benefitting themselves or other persons, directly or

indirectly. The Anti-Corruption Policy has been implemented by IVL to conduct the Company's global business operations honestly, fairly, without corruption or bribery, and with accountability. These policies are also published on the website of Indorama Ventures Public Company Limited.

Risk Assessment

IVL has a Sustainability and Risk Management Committee ("SRMC"). The Company's SRMC reviews the Company's performance on sustainability, assesses the risks associated with aspects on sustainable development and apprises the Board of risks with potentially significant impacts to ensure the institutionalization of robust business processes, procedures and policies. In addition, there is an effective process to evaluate and advise the Board on significant risks and uncertainties that could adversely impact sustainable and profitable growth. The Committee reports to the Board periodically on its activities and evaluates its performance on an annual basis by reference to its charter and current best practices.

Respective business heads who are members of the SRMC also closely monitor key business risks. The Committee reviews the sensitivity analysis of the business plan, green field and M&A projects.

Control Activities

IVL operating units have policies and procedures with regards to general management, procurement, sales and marketing, and the financial activities for all its units. These, together with the financial authority manual, ensure that adequate controls and checks are exercised by management to operate efficiently and to mitigate the risk of fraud or misappropriations. There is an adequate segregation of duties with respect to the authorization, recording and custody of assets at all units. There is an internal policy on connected transactions which very clearly stipulates what is a connected transaction, who is a connected / related party and the procedure to be followed in case the Company enters into a connected transaction. All connected transactions have to follow the rules and regulations of the SEC/SET. Under said regulations of the SEC/SET, depending on the size of the transaction, a new connected transaction is reviewed by the AC and recommended to the Board for its approval. Every quarter, a statement of all connected transactions is submitted to the AC and the Board. All subsidiaries and associates of IVL have common directors who regularly monitor the operations of the subsidiaries and ensure

that they are in-line with the overall objectives of IVL. The IVL Board is briefed regularly on the performance of the subsidiaries. The minutes of subsidiary units are provided at each quarterly meeting of the Board. Compliance confirmation is obtained from the respective Plant Head confirming or informing the status of compliance with all applicable laws and regulations, and statutory filings are reported to the AC on a quarterly basis and to the Board on an as-needed basis. The Company has a Disaster Recovery Plan for IT processes to bring the IT system back to normal within a specified timeframe.

Information and Communications

The Company and management ensure that adequate and sufficient information is provided to the Board for their review and consideration. The minutes of the meeting of the Board of Directors are prepared by the Company Secretary. The minutes cover all aspects of discussions held during the Board meeting. The minutes of the meeting are reviewed by all directors and signed off by the Chairman of the Meeting. The Company Secretary and the AC Secretary fulfill any requirements or provide any information needed to provide assistance to the Directors as requested. IVL has a Whistleblower Policy which provides channels for employees to lodge any anonymous complaints. The website of the Company provides various communications channels for external parties, e.g. Company Secretary, Investor Relations, HR Department, etc. The Legal & Secretarial Department of the Company is authorized to communicate with regulatory agencies. IVL provides a communications channel to external parties who may contact the Company's independent directors by sending an email to: independentdirectors@indorama.net or ethics@indorama.net

Monitoring

The annual operational and performance budgets of the Company and its subsidiaries are reviewed and approved by the Board of Directors.

The Company's quarterly consolidated financial statements are reviewed and approved by the AC. In addition, the AC reviews the annual audited financial statements and makes recommendations to the Board for its consideration and approval. IVL Management evaluates the capability of the corporate internal control system on an annual basis and updates it accordingly to reflect the evolving needs of the business.

The Company's in-house IAD formulates the annual internal audit plan which is approved by the AC. The risk-based audit plan considers several risk factors and the results of previous internal audit reviews. The annual Internal Audit plan is also discussed with Senior Management of the Company and ultimately approved by the AC. The IAD reviews the internal control system throughout the various business processes and across all subsidiaries according to its Annual Internal Audit Plan. The Deficiencies and Recommendations are communicated to the parties responsible for implementation. The audit reports and findings are presented to the AC on a half-yearly basis. From time to time, the AC also reviews a management letter from the external auditors. The AC also periodically reviews the status update on the implementation of outstanding recommendations. The IAD has rolled out the Control Self – Assessment Questionnaires (CSAs) for varied business processes to IVL and its subsidiaries and affiliates. The CSAs for Payment & Collection, Procurement, CAPEX & Fixed Assets Management, Sales & Marketing and Inventory Management business processes have been rolled-out to all the sites for their control self-assessment. In addition, the CSAs for Finance & Accounting, Human Resource & Payroll and Operations and Waste Management processes will be rolled-out to all the units during the current year. The IAD reviews the CSAs as completed by the business units and reports on their compliance to the AC. The CSA approach will further facilitate the "Risk Awareness Culture" among employees working across all IVL entities.

Head of Internal Audit and Head of Compliance

1. Head of Internal Audit

The Company has its own Internal Audit Department, Internal Audit Manual and Internal Audit Charter. The AC has the authority to approve the appointment, transfer and dismissal of the Head of Internal Audit. Mr. Narayanaswamy Subramanian heads the Internal Audit Department at IVL.

2. Head of Compliance

The Company has appointed the Company Secretary, Mr. Souvik Roy Chowdhury, as the Head of Compliance in order to review and evaluate the various statutory and legal compliances for all business units and to ensure that they are in accordance with the applicable rules, regulations and Company policies.

CONNECTED TRANSACTION

The connected transactions occur in the normal course of business and the pricing is akin to market prices or at arm's length basis that would normally be charged to/by any other customers/suppliers with comparable and reasonable terms and conditions. The following is a summary of such transactions as at 31st December 2018.

Connected Party & Relationship	Type of Transaction	(Amount in MB)	
		2017	2018
PT. Indo-Rama Synthetics Tbk., Indonesia (PTIRS)	Sale of raw materials/products/services/utilities	1,699.70	1,778.54
<ul style="list-style-type: none"> The majority shareholding of PTIRS is ultimately controlled and held for the benefit of Mr. Sri Prakash Lohia and his immediate family. Mr. Sri Prakash Lohia is the President Commissioner and Mr. Amit Lohia is a Vice President Commissioner of PTIRS. Mr. Sri Prakash Lohia is Chairman and Non-Executive Director and Mr. Amit Lohia is Non- Executive Director of Indorama Ventures Public Company Limited (IVL). 	Purchase of raw materials/products/services/utilities	1,628.35	2,133.94
PT. Indorama Petrochemicals, Indonesia (PTIP)*	Sale of raw materials/products/rendering of services	4.67	522.13
Jointly controlled company – IVL and PT. Indo-Rama Synthetics Tbk. (PTIRS) indirectly and directly hold 50 of the shares of PTIP, respectively.	Purchase of raw materials/ products/services	7,320.57	9,234.25
Indorama Eleme Petrochemicals Ltd., Nigeria (IEPL)	Purchase of utilities/services	88.67	64.05
<ul style="list-style-type: none"> The majority shareholding of IEPL is ultimately controlled and held for the benefit of Mr. Sri Prakash Lohia and his immediate family. Mr. Sri Prakash Lohia is the Chairman and Mr. Amit Lohia is a Director of IEPL. 			
Pacific Resources Ltd., Thailand	Service expense (Office Lease)	7.70	8.20
Mr. Anuj Lohia, a son of Mr. Alope Lohia, is the major shareholder of Pacific Resources Ltd.			
Cryoviva (Thailand) Ltd., Thailand	Service income (Office Lease)	1.13	0.93
Mr. Alope Lohia, Director of IVL is an indirect shareholder of Cryoviva (Thailand) Ltd.			

Connected Party & Relationship	Type of Transaction	(Amount in MB)	
		2017	2018
PT. Irama Unggul, Indonesia (IU)	Service expense (Office Lease)	1.23	1.06
<ul style="list-style-type: none"> The majority shareholding in IU is ultimately controlled and held for the benefit of Mr. Sri Prakash Lohia and his immediate family. Mr. Sri Prakash Lohia is the President Commissioner of IU. 			
Lohia Global Holdings Limited, Hong Kong	Service expense (Royalty Fee for Indorama trade name)	184.47	165.51
Lohia Global Holdings Limited is owned by Ms. Shruti Lohia, daughter of Mr. Sri Prakash Lohia.			
Vega Aviation Limited, British Virgin Islands	Service expense (Aircraft Lease)	94.84	80.81
Vega Aviation Limited is a Company which is 100% owned by Canopus International Limited, Mauritius, a company owned by the family of Mr. Sri Prakash Lohia and Mr. Alope Lohia.			
Thai Plaspac Public Co., Ltd, Thailand	Sale of products	19.30	17.16
<ul style="list-style-type: none"> Mr. Anuj Lohia son of Mr. Alope Lohia is a major shareholder. Mr. Kevin Kumar Sharma, son-in-law of Mr. Alope Lohia, is CEO. 			
Yayasan Pendidikan Indorama, Indonesia (YP)	Service Expense (Job work)	17.42	14.91
The sole trustee of YP is Mr. Sri Prakash Lohia and Mr. Amit Lohia is Chairman of the Advisory Board of YP.			
PT. Tigadya Minergy	Purchase of coal	0.00	102.80
<ul style="list-style-type: none"> The majority shareholding in PT. Tigadya Minergy is ultimately controlled and held by PT. Indo-Rama Synthetics Tbk., Indonesia (PTIRS) through its subsidiary PT Unggul Jaya Indonesia for the benefit of Mr. SP Lohia and his immediate family; Mr. SP Lohia is the President Commissioner and Mr. Amit Lohia is a Vice President Commissioner of PTIRS. 			

* IVL through its indirect subsidiary acquired the 50% stake of PTIP from PTIRS in 2018. The first tranche of 24% was acquired in May 2018 (approx. THB 1,752 Million) and the balance 26% in November 2018 (approx. THB 1,978 Million). The November transaction closed in early 2019. Both the transactions were approved by the Audit Committee and Board of Directors and reported to the SET in the prescribed format. From 2019, PTIP will no longer be a connected party.

The Audit Committee Opinion on the Connected Transaction

The above connected transactions have been considered and opined by the Company's Audit Committee that the aforesaid connected transactions are reasonable and undertaken in the interest of the Company's business. While entering into these transactions, the Committee considers the best interest of the Company. No additional benefit has been transferred between the Company and the persons who have the conflict of interest.

Policy and Procedure to Approve the Connected Transaction

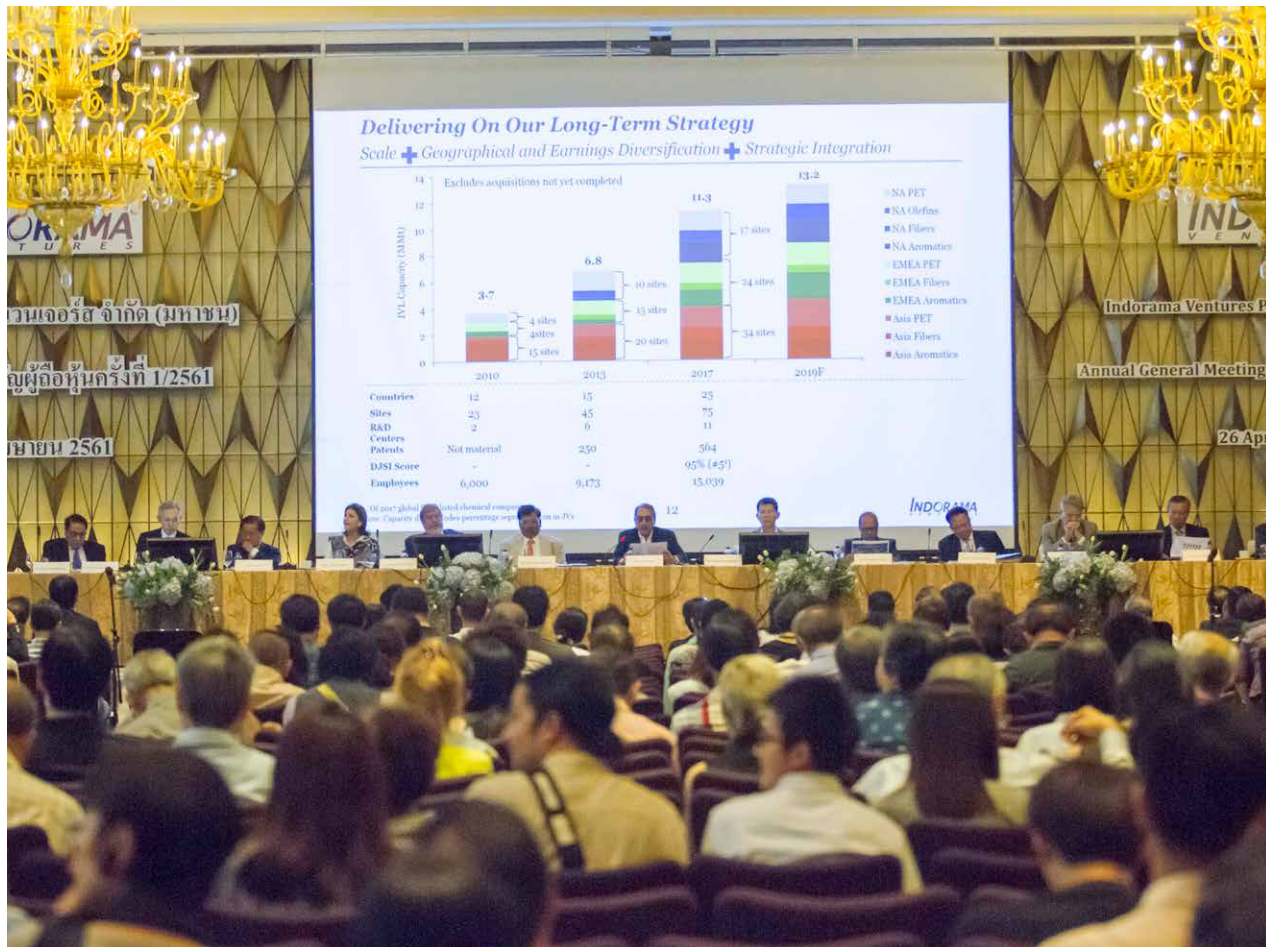
In the event that the Company carries out its business with the connected persons who may have a conflict of interest with the Company, the Audit Committee will express its opinion regarding the necessity of such transactions. The Audit Committee will ensure that terms and conditions of these transactions are consistent with market practice and prices charged for these transactions are evaluated and compared with market prices. In the event that market price is not available, the Audit Committee must ensure that these prices are reasonable and the transactions are carried out in the best interest of the Company. If the Audit Committee is unable to evaluate connected transactions due to lack of expertise in certain areas, the Company will arrange an independent expert

to evaluate and give opinion on such transactions. The Board of Directors or Audit Committee or the Company shareholders, as the case may be, will use this opinion from the independent expert as a supplement to form their own conclusion. Those directors who may have conflict of interest with the Company are prohibited from either voting or attending the meeting on matters regarding to the said connected transactions and disclose in Annual Report and Annual Registration Statement (Form 56-1).

Policy on the Entering into a New Connected Transaction

For any new connected transaction, the respective unit would need to contact the Secretary of the Audit Committee and inform about the proposed transaction, its rationale, value of transaction, pricing, terms and conditions in order for the Secretary of the Audit Committee to classify under which category of connected transaction it would fall into and to get necessary approval from the Management/Audit Committee/ Board/Shareholders as required. Moreover, the Company will ensure that such transactions are carried out in compliance with the SEC Act, Rules, Notifications and Regulations of the Capital Market Supervisory Board, SEC and SET. In addition, the Company must also comply with the disclosure rules related to connected transactions and the Company's policy. All connected transactions are reviewed and confirmed by the Internal Audit department.

DIVIDEND PAYMENT POLICY



Indorama Ventures Public Company Limited

IVL has a policy to pay a total dividend of not less than 30% of the net profit after tax and appropriation to legal reserve. However, the Board of Directors shall have the authority to consider waiving or amending such dividend policy subject to the condition that it will bring the greatest benefit to the shareholders, such as to use such portion of the net profit as reserve for debt repayment, capital investment for production expansion or as a support in case of changing market conditions which would affect the company's future cash flows.

Subsidiary Companies

The payout of dividend by the IVL subsidiaries to IVL is up to 80% of their net profit after tax and after appropriation to legal reserve. However the Board of Directors of the subsidiaries will consider the dividend payment, and may amend the dividend policy, by taking into account the reserves for debt payment, capital investment for production expansion or as a support in case of changing market conditions or as required to manage the future cash flows.

CORPORATE GOVERNANCE REPORT 2018



The Board of Directors and the management of Indorama Ventures is firmly committed to implementing and practicing good corporate governance in pursuit of its long term sustainable business goals and will continue to cover Corporate Governance Code for listed Companies 2017 and recommendations of the Securities Exchange Commission (SEC), Stock Exchange of Thailand (SET), Institute of Directors, Thailand (IOD) and others. The Company will always strive to ensure that all employees of IVL are aware of the Governance principles and practices that IVL promotes.

Corporate Governance Policy

IVL has a Corporate Governance Policy that follows the guidelines set out by the SET and the criteria for Corporate Governance under OECD principles. It covers the following: a) the rights of shareholders b) equitable treatment of shareholders c) the role of stakeholders d) disclosure and transparency e) the responsibility of the Board of Directors. The Policy defines the framework of duties and responsibilities of the Board of Directors, managements and employees.

Furthermore, the Board of Directors performs its duties as suggested in the Corporate Governance Code for listed companies 2017 (the Code) issued by the SEC. It consists of 8 principles: 1). Establish clear leadership role and responsibilities of the Board 2). Define objectives that promote sustainable value creation 3). Strengthen Board effectiveness 4). Ensure effective CEO and people management 5). Nurture innovation and responsible business 6). Strengthen effective risk management and internal control 7). Ensure disclosure and financial integrity 8). Ensure engagement and communication with shareholders. 97% of recommendations under each principle have been implemented. The Board of Directors will consider how it can apply the rest of the suggestions appropriately.

In addition the Board oversees and enforces the Company to follow the rules and regulations of Listed Companies issued by the SEC and Capital Market Supervisory Board (CMSB) and implement the recommendations as stated in the Corporate Governance Report of Thai Listed entities (CGR) issued by IOD, ASEAN Corporate Governance Scorecard and Transparency International.

IVL Corporate Governance Awareness Campaign 2018

IVL has had a Corporate Governance Policy Awareness Campaign (CGPAC) since 2013. The CGPAC Committee has continuously monitored progress through a dedicated resource and provided its guidance and support in establishing a strong awareness amongst all IVL associates in not only understanding all the Corporate Governance related policies but also its implementation in the true spirit that they were created.

CGPAC is a continuous program of communicating, training, seminars and monitored implementation. To ensure clear understanding by all, the Company has been encouraging translation of all the policies into the local language. Currently we have translations in 18 languages and they are all uploaded on the Company website www.indoramaventures.com and can be accessed to by all employee. A Policies handbook, containing all the company's policies, has been made available to all employees. In 2018, our policy Handbook was distributed to all plants acquired during the year to translate into their local language and provide to their employees. All site heads are responsible for the implementation of CGPAC and will report results of the implementation to the CGPAC committee who in turn reported the status to the Nomination, Compensation and Corporate Governance Committee and Board in November 2018. Site/HR heads ensure that all employees are informed about IVL policies as soon as they join the Company. The new employees are required to acknowledge that they have read and understood the policies and sign the Code of Conduct. This initiative has ensured that all new employees are aware of the program.

To strengthen the understanding of employees about policies and Code of Conduct of the Company, training courses are imparted both in the form of live seminars and online self-learning courses,

82% of all IVL employees have attended such training sessions in the past three years with 76% of the sites having achieved 100% training coverage to their employees.

To pursue the embedding of corporate governance policies and principles into the minds of employees, a Corporate Governance department has been set up under an experienced person to implement training in CG and anti-corruption/bribery across the business and review CG policies annually or as required. Training materials are disseminated to all subsidiaries.

All Corporate Governance Policies are reviewed annually. The CGPAC Committee will submit their recommendations to the Board for changes to policies each year.

Currently the CGPAC team is developing a Corporate Governance Manual to bring together all our governance policies and codes of conduct in one combined document in order to provide a clear focus for the directors and employees for better understanding, reference, training and implementation. It will be rolled out early 2019.

For the continued practice of good Corporate Governance in 2018 the Company received the following assessment and awards:

1. **A score of 100 percent for the 2018 Annual General Meeting** of Shareholders, judged by the Thai Investors Association. This was the seventh consecutive year in succession.
2. An **"Excellent - 5 Star" CG score** in the practice of Corporate Governance of Thai Listed Companies which was carried out by Thai Institute of Directors (IOD) in conjunction with the Stock Exchange and Security Exchange Commission of Thailand. An excellent CG scoring is the highest possible scoring and is awarded to firms with a score of 90-100 percent. IVL again scored 94 percent. This is the sixth consecutive year that IVL received the "5 star" rating.
3. The Company successfully renewed its certification for **Thailand's Private Sector Collective Action Coalition Against Corruption (CAC)** in May 2018. IVL received its first certification in October 2014.
4. The company has been listed in the **RobecoSAM's Sustainability Yearbook 2019**.
5. The company participated in the **CDP's Climate Change Assessment** for third consecutive year and achieved "B" Rating in 2018
6. The company was awarded **SET Sustainability Awards 2018** in the category of Outstanding by Stock Exchange of Thailand.
7. The company received the **Thailand Sustainability Investment (THSI)** award from the Stock Exchange of Thailand for the fourth consecutive year.
8. The company won a **Sustainability Report** award from SET in 2018 for the fifth consecutive year.

9. The company has been listed in a constituent of the **FTSE4Good Index Series** and received the Best ESG Score at the Top of the group.
10. The company received a **Gold Recognition level for sustainability from EcoVadis**. The achievement places the company at the top 3% of the companies in manufacture of basic chemicals.
11. The company has been listed in the **Leading SET Index 2018 Bloomberg ESG Disclosure Scores**.
12. **The ESG100 Certificate** for outstanding sustainability performance on the basis performance on the basis of Environmental, Social and Governance (ESG) from Thaipat Institute for the fourth consecutive year.

Sub-Committees

The IVL Board has appointed the following three sub-committees: (a) Audit Committee; (b) Nomination, Compensation and Corporate Governance Committee; and (c) Sustainability and Risk Management Committee.

Audit Committee

The Audit Committee consists of three members with Mr. Rathian Srimongkol as Chairman, Mr. Maris Samaram and Dr. Siri Ganjarerndee as members. All members are Independent Directors and have the requisite experience and knowledge to review financial statements. The present Audit Committee whose term expired on September 18, 2017 was appointed for another two years until September 19, 2019 by the Board at its meeting no. 5/2017 dated August 10, 2017. The Audit Committee held six meetings during the year with the attendance of members as follows:

Name	Attendance
Mr. Rathian Srimongkol *	6/6
Mr. Maris Samaram *	6/6
Dr. Siri Ganjarerndee *	6/6

* Mr. Rathian Srimongkol, Mr. Maris Samaram and Dr. Siri Ganjarerndee have accounting knowledge to review Financial Statements.

The role and responsibility of the Audit Committee is specified in the Audit Committee Charter which is available on the Company's website www.indoramaventures.com under "Our Company"-Corporate Governance Section.

The Chairman of the Audit Committee reported on the Committee's activities to the Board, immediately following its meetings. Between meetings, the Committee reviewed emerging issues with the management team, Chief of Internal Audit and with the statutory auditors.

The Audit Committee Report on its performance to the shareholders is separately disclosed in the Annual Report.

Internal Audit

The Company has its own Internal Audit Department, Internal Audit Manual and Internal Audit Charter. The Head of the Internal Audit Department is Mr. Narayanaswamy Subramanian. The Internal Audit Department is entrusted to carry out internal audit activities of the Company and its subsidiaries under the supervision of the Chief of Internal Audit. The Internal Audit Department reports functionally to the Audit Committee. A detailed plan for the year is formulated for the units and approved by the Audit Committee which then periodically reviews the work of the Internal Audit Department against the plan and makes recommendations to management. In 2018 audits were carried out for all Thai units and several overseas units. The Secretary of the Audit Committee follows up on the implementation of recommendations and reports the progress to the Audit Committee and undertakes periodic checks to ensure compliance with statutory and regulatory requirements.

Nomination, Compensation and Corporate Governance Committee (NCCG)

The Board at its meeting No. 4/2018 held on May 11, 2018 approved the reconstitution of the NCCG Committee by appointing Mr. Russell Leighton Kekuwa, independent director as the fifth member of the NCCG Committee with effect from May 2018. All members on the Committee are independent directors. The term of the Committee expires in May 2020.

Mr. Alope Lohia, Group CEO, is an advisor to the NCCG Committee.

The Nomination, Compensation and Corporate Governance Committee held four meetings during 2018 with the attendance of members as follows:

Name	Attendance
Mr. William Ellwood Heinecke	4/4
Dr. Siri Ganjarerndee	3/4
Mr. Kanit Si	4/4
Mr. Chakramon Phasukavanich	4/4
Mr. Russell Leighton Kekuwa*	3/3

* Mr. Russell Leighton Kekuwa was appointed as member on the NCCG Committee on May 11, 2018.

The role and responsibility of the NCCG Committee is specified in the NCCG Committee Charter which is available on the Company's website www.indoramaventures.com under "Our Company"-Corporate Governance Section

A report from the NCCG Committee is separately disclosed in the Annual Report.

Sustainability and Risk Management Committee (SRMC)

The SRMC Committee is chaired by Mr. Alope Lohia, the Group CEO and Vice Chairman of the Board and other members of the Committee are Mr. Rathian Srimongkol, Independent Director, Vice Chairman of the Board and Chairman of the Audit Committee, Mr. Maris Samaram, Independent Director and Member of the Audit Committee, Mr. Dilip Kumar Agarwal, CEO of the Feedstock and PET Businesses, Mr. Udey Paul Singh Gill, CEO of the Fibers Business and Mr. Russell Leighton Kekuewa, Independent Director. The current term of the SRMC Committee expires in August 2019.

The Board at its meeting No. 4/2018 held on May 11, 2018 approved the reconstitution of the SRMC Committee by appointing Mr. Kanit Si, independent director as the seventh member to the Committee.

The SRMC Committee held two meetings during the year with the attendance of members as follows:

Name	Attendance
Mr. Alope Lohia	2/2
Mr. Rathian Srimongkol	2/2
Mr. Maris Samaram	2/2
Mr. Dilip Kumar Agarwal	2/2
Mr. Udey Paul Singh Gill	1/2
Mr. Russell Leighton Kekuewa	2/2
Mr. Kanit Si*	0/1

* Mr. Kanit Si was appointed as member on the SRMC Committee on May 11, 2018.

The role and responsibility of the SRMC Committee is specified in the SRMC Charter which is available on the Company's website www.indoramaventures.com under "Our Company"- Corporate Governance Section.

A report from the SRMC Committee is separately disclosed in the Annual Report

Selection and Appointment of Directors and Group CEO

Directors

The selection, appointment and the withdrawal of the Board of Directors of Indorama Ventures PCL shall be as prescribed by the Articles of Association, which can be summarized as follows:

1. To conduct the business of the Company, the Board of Directors shall consist of at least five directors. Not less than one-half of all directors shall have residence in the Kingdom of Thailand.
2. The appointment of a director shall be made by a majority vote of the shareholders meeting in accordance with the following conditions and procedures:
 - a. A shareholder shall have one vote for each share;
 - b. The shareholder shall vote for the election of each director in turn, person by person;
 - c. Each shareholder may exercise all the votes he or she has (a) to elect one or several persons as a director or directors, but the shareholder cannot divide his or her votes to any nominated director by any an allotment of shares of any number;
 - d. The persons receiving the most votes are those who are elected to be directors, in descending order, to the number of directors who are to be elected. If there is a tie in the last to be elected and this exceeds the said number of directors, the presiding chairman shall have the casting vote.



3. At every annual general meeting, one-third of the total number of the directors shall vacate office. If the number is not a multiple of three, then the number nearest to one-third must retire from the office. The directors to retire during the first and second years following the registration of the Company shall be drawn by lots. In subsequent years, the director who has been in office for the longest term shall retire. A retiring director is eligible for re-election.
4. Any director wishing to resign from the director's position shall submit a resignation letter to the Company. The resignation shall take effect upon the date on which the resignation letter reaches the Company.
5. The Shareholders' Meeting may pass a resolution removing any director prior to retirement by rotation, by a vote of not less than three-fourths of the number of shareholders attending the meeting and having the right to vote, and the shares held by them shall not, in aggregate, be less than one half the number of the shares held by the shareholders attending the meeting and having the right to vote.

Qualifications of a Director

1. Meets the stipulations under various regulations and those prescribed by the Company's Articles of Association.
2. Have at least a Bachelor's Degree in any field.
3. Be knowledgeable of the Company's business and provide adequate time and inputs to the benefit of the Company.
4. Has adequate experience to meet the company's business strategy.
5. Be an individual with honesty, integrity and high morals.

A Non-Executive Director and an Independent Director shall not take a position as a director in more than five other listed companies.

The Executive Directors shall not take a position as director in more than three other listed companies or in any company having conflict of interest with IVL. However, the Executive Directors can take up any number of Directorships in the IVL Group Companies including Joint Ventures.

In the case that a director takes directorship positions in excess of the criteria, the Board of Directors shall consider the effectiveness in the performance of the said directors' duties and shall report the reasons for the appointment in the corporate governance report in the annual registration statement (Form 56-1) and the annual report (Form 56-2).

Qualifications of an Independent Director

1. Shareholding not exceeding 0.75% of the total shares with voting rights of the Company, its parent company, its subsidiary company, its associated company, major shareholder or

controlling person of the Company (to be calculated by including the shares held by any related persons of said independent director);

2. Not being, nor having been, a director who participates in the management, or as an employee, staff member or advisor who receives a regular salary, or a controlling person of the Company, its parent company, subsidiary company, its associated company, its subsidiary company at the same level, major shareholder or controlling person of the Company unless the holding of the aforementioned positions has been discontinued for at least two years before the date of submission of the application for the issue of newly issued shares to the SEC. However, such prohibition shall not apply in the case where the independent director has been a government official or consultant of the government sector, which is a major shareholder, or controlling person of the Company;
3. Not being a person who has a blood relationship or registration under law, as father, mother, spouse, sibling and child, including spouse of a child, of its executives, its major shareholders, its controlling person or the person who will be nominated to take up the position of executive or controlling person of the Company or its subsidiary;
4. Not having, or not having had, any business relationship with the Company, its parent company, its subsidiary company, its associated company, major shareholder or controlling person of the Company in a manner which may obstruct its independent judgment, and not being or not having been a substantial shareholder or controlling person of a person who has a business relationship with the Company, its parent company, its subsidiary company, its associated company, major shareholder or controlling person of the Company, unless such business relationship has been discontinued for at least two years before the date of submission of the application for the issue of newly issued shares to the SEC;

Please note that the aforementioned business relationship and transaction size shall have the same definition as in the notification of the Thai Capital Market Supervisory Board Re: Application for and Approval of Offer for Sale of Newly Issued Shares.

5. Not being, or not having been, an auditor of the Company, its parent company, its subsidiary company, its associated company, major shareholder, controlling person of the Company, major shareholder or controlling person of the partner of the audit company for which the auditor of the Company, its parent company, its subsidiary company, its associated company, major shareholder or controlling person of the Company has worked therein, unless such holding of the aforementioned positions has been discontinued for at least two years before the date of submission of the application for the issue of newly issued shares to the SEC;

6. Not being or not having been a professional service provider, including service provided as legal counsel or financial advisor which is retained for a fee exceeding Baht two million per annum from the Company, its parent company, its subsidiary company, its associated company, major shareholder or controlling person of the Company, and not being controlling person of the partner of such professional service provider, unless such business relationship has been discontinued for at least two years before the date of submission of the application for the issue of newly issued shares to the SEC;
7. Not being a director nominated to be a representative of a director of the Company, major shareholder or shareholder who are related persons to the major shareholder;
8. Not undertaking business of the same nature as and materially competing with that of the business of the Company or its subsidiary company or not being a partner of the partnership or a director who participates in the management, an employee, a staff member, or advisor who receives a regular salary or holds shares exceeding 1% of the total shares with voting right of other companies which undertakes business of the same nature as and materially compete with that of the business of the Company or its subsidiary company; and
9. Having no other qualifications causing any inability to express independent judgment in respect of the Company's business operation.

The qualification of the Independent Directors is more stringent than the requirement of the Thai Capital Market Supervisory Board.

Lead Independent Director

In continuation of good governance recommendations and practices, the Board at its meeting in February 2018, approved the appointment of a Lead Independent Director.

The Role and responsibility of the Lead Independent Director:

- Serving as a liaison between independent directors and management
- Having authority to call meetings of the independent directors
- Presiding at, and preparing the agenda for, all executive sessions of the non-management directors and the independent director meetings and providing feedback to senior management.
- Communicating with other independent directors whether they would like to have any items to be included in meeting agendas.
- Working with the Chairman of the Board of Directors and members of management to set up the Board agenda and ensure the adequacy and timing of information provided to the Board of Directors
- Retaining outside advisors to the Board of Directors, if necessary or desirable
- Being available for consultation and direct communication with major stockholder if requested.

As part of Good Governance the Lead Independent Director assumes the role of the Chairman of the Board in the absence of the Chairman at any Board meeting.

Mr. Rathian Srimongkol, Independent Director and Chairman of Audit Committee is the Lead Independent Director.

Group CEO

The Board of Directors will appoint the Group CEO. The Group CEO will be a person with the highest personal and professional integrity, with demonstrated and exceptional ability and judgment and who shall be most effective in serving the long-term interests of the Company and have knowledge in the industry in which IVL operates.

Role and Responsibility of Group CEO

- Designated as authorized person in administering the Company's business and/or day-to-day operation to be in line with the objectives, articles of association, policies, rules, regulations, instructions and resolutions of the Board of Directors Meeting and/or resolutions of the Shareholders' Meeting.
- Arrange to prepare the Company's business policies, business plans and budget to be proposed to the Board of Directors for approval and has a duty to report the progress on such approved business plans and budget to the Board of Directors according to the period specified by the Board of Directors.
- Manage the Company's business operations in line with the Company's business policies, business plans and budget, and to meet financial goals as approved by the Board of Directors.
- Establish performance goals, allocate resources and comply with the policies for management.
- Ensure the Company's overall business growth in accordance with the Company's objectives and business plans.
- Maintain good relationship with the Company's stakeholders.
- Ensure compliance with the law and ethical standards and maintain transparency.
- Ensure the organization's public standing.
- Be the leader in marketing strategy.
- Determine, monitor and strengthen organization's standards that are essential to keep its competitive edge and create organization value through continuously working on the people and products.
- Analyze the current and potential overall global industrial condition for hints of future changes within the industry and adjust the Company's strategy.
- Ensure appropriate returns to all stakeholders
- Work closely with chief executive officers, chief financial officers and chief operating officers of various business groups to deliver organization value.

- Set up the employee performance evaluation standards and review such standards periodically.
- Ensure effective implementation of the Board of Directors' resolution.
- Recruit, appoint, remove, relocate, adjust, reduce or deduct salary or wages, impose disciplinary sanctions on officers and employees as well as dismiss officers and employees from their positions in accordance with the rules prescribed by the Board of Directors, except for executive officers or those in comparable or higher positions, which shall require prior approval from the Board of Directors.
- Approve the Company's normal financial transactions and debt restructuring transactions of short-term debts in the amount of not exceeding Baht 500 million or long-term debts in the amount of not exceeding Baht 250 million.
- Be authorized to delegate authority to others to perform specific duties on his behalf. Such delegation of authority shall be within the scope of and in accordance with the power of attorney granted and/or shall be in accordance with the internal regulations, rules or instructions given by the Board of Directors and/or the Company. The authorization of duties and responsibilities of the CEO shall not constitute an authorization or sub-authorization which may cause the CEO or his authorized person(s) to be able to approve any transaction in which they, or any person who may have a conflict of interest (as defined in the notification of the Securities and Exchange Commission or the notification of the Capital Markets Supervisory Board), may have an interest or may gain benefit in any manner, or in which they may have any other conflict of interest with the Company or its subsidiaries, unless the approvals of such transactions are consistent with the policies and criteria approved by the Shareholders' Meeting or the Board of Directors Meeting.

Governance in Subsidiary and Associated Companies

It is the policy of the Company to have at least one experienced representative from Thailand to be a director of its operating subsidiaries and associated companies; who has the requisite qualification suitable for such business with no conflict of interest directly with the business of those subsidiaries. Such representative shall manage and administer the business of such subsidiaries according to the regulations and procedures provided in the Articles of Association of the Company and of such subsidiaries and relevant laws and also implement the policies, procedures, guidelines and recommendations of IVL parent Company.

The Corporate Secretarial department keeps a summary of the corporate by-laws of all IVL subsidiaries and regularly monitors their compliance with those laws.

Moreover key information of each subsidiary and associate company is maintained by the Corporate Secretarial department and regular updates taken and changes to records made as required.

Every Quarter confirmation and updates are taken from all units on their compliances with various regulations and litigations if any. A summary of the same is presented to the Audit Committee.

The Corporate Secretarial department at Thailand has a dedicated senior staff to follow up on all IVL subsidiary companies quarterly Board and Shareholder meetings as applicable. In this regard they monitor by a global meeting control statement.

The core subsidiary Companies of IVL held 425 Board's and Shareholders' meetings in 2018 which are summarized below:

Region	No. of Companies	No. of Meetings
Asia	38	163
Europe	55	162
Americas	54	78
Africa and Middle East	8	22

Apart from those meetings, there were also management and executive committee meetings of respective businesses regularly to review the business performance of the various subsidiaries.

The Use of Internal Information of the Company

The Company has in place a written policy on the use of confidential and/or internal information so as to prevent any illegal use. The statement is prominently displayed at the head office and at the offices and the working places of all its subsidiaries, for the knowledge of all employees.

The code of conduct prohibits Directors and employees from buying, selling, transferring or accepting the transfer of Company securities by using confidential and/or internal information in any manner that may take advantage of outsiders by using inside information.

All Directors, senior management, auditors and employees having access to financial statements of the Company are required to make a declaration of their movement in shareholding including their spouse and minor children, to the Company Secretary. A summary of the shareholding is presented to the Board on a quarterly basis.

Each year, the IVL Directors and executives submit to the Company Secretary a report, in the form as approved by the Board, on their interest or a related person's interest in the Company or its subsidiaries.

The Regulations on the Use of Internal Information of the Company

The regulations on the use of internal information of the Company are as follows:

1. All Directors, executives, staffs and employees of the Company shall keep confidential and/or internal, all information of the Company except for the purpose of the operation of the Company's businesses;
2. All Directors, executives, staff and employees of the Company shall not disclose confidential and/or internal information of the Company with the aim to seek benefit for oneself or for other persons either directly or indirectly regardless of whether or not such benefit is to be received; and
3. All Directors, executives, staff and employees of the Company shall not sell, purchase, transfer or take the assignment of securities of the Company by using confidential and/ or internal information of the Company and/ or enter into any transactions by using confidential and/or internal information of the Company in a manner that could possibly cause damage to the Company either directly or indirectly. This provision shall also apply to spouses and minor children of the Directors, executives, staff and employees of the Company. Violators of the regulations shall be deemed as committing a serious offence.

Following the listing of IVL's shares on the Stock Exchange of Thailand (SET), all Directors, executives, managers, any persons

responsible for the operation, auditors, staffs or employees of the Company may not purchase or sell, offer to purchase or sell or invite any other person to purchase, sell or offer to purchase or sell the shares of the Company in such a way as to take advantage of other persons by using internal information material to changes in the prices of the shares of the Company which has not yet been disclosed to the public and to which information he has access by virtue of his office or position, and whether or not such act is done for his own or another person's benefit, or to disclose such information so that he will receive consideration from the person who engages in the aforesaid acts, such person shall be liable under the applicable laws with respect to insider trading as a result of such contravention.

In case, Directors, executives, managers, any persons responsible for the operation, auditors of the Company acquire or dispose of shares or other securities (if any) of the Company, such person have to report on such acquisition or disposal to the SEC within the time described by SEC Act B.E. 2535. The said acquisition or disposal by the abovementioned person shall include the holding of shares and other securities in the Company (if any) by his spouse and minor children.

These regulations have been informed to all employees.

Audit Fee

The total audit fee and non-audit fee paid during 2018 for IVL and all its subsidiaries, jointly controlled entities and associates globally were as following:

Unit: Million Baht		
Particulars	2017	2018
1. The total audit fees for IVL and all its subsidiaries, jointly-controlled entities and associates globally	148	171*
a. <i>Payment to KPMG Phoomchai Audit Ltd and other members firms of KPMG Phoomchai Audit Ltd.</i>	137	151
b. <i>Other Audit firms</i>	11	20
2. The total non-audit fees paid to member firms of KPMG International other than KPMG Phoomchai Audit Ltd **	76	91

* There were seven new acquisitions complete during 2018

** The amount of non-audit fees relates to tax advice, due diligence in relation to the acquisitions, restructuring and other advisory services

The Practice of Corporate Governance in 2018

The company has adopted and consistently complied with the principles of good corporate governance as recommended by the SET as explained in the various sections below. However, the following may be noted.

1. The company has a Chairman of the Board who is a Non-executive Director and a major shareholder, who was chosen because of his vast experience in what is a very complex

industry. The Chairman has no role in the management of the Company but his experience is called upon to advise the Board as necessary.

2. The Board of Directors has not limited the terms of an independent director to not more than nine consecutive years starting from the day of the first appointment. The reason for the same is explained below in the section "Retirement of Directors." The Board however decided to fix the retirement age of Independent Directors to be 72 years at their meeting no. 6/2018 in November 2018.

3. The Company has formalised the appointment a Lead Independent Director in February 2018.
4. The Institute of Directors, Thailand carried out an independent assessment on the practices of Corporate Governance and performance of the Board during the year and presented their report to the Board in November 2018. The overall report was more than satisfactory and some recommendations were given for more effectiveness.
5. The Nomination Compensation and Corporate Governance Committee has the Group CEO as an advisor along with five Independent Directors in order to ensure quick response and implementation of recommendations made by the Independent members. An additional Independent Director was appointed in May 2018.
6. The Sustainability and Risk Management Committee appointed an additional Independent Director in May 2018 thereby taking the total number of members to 7.
7. Currently the Board does not have any independent female directors. The Board of IVL has declared it does not have any gender bias and shall appoint a qualified female Independent Director as and when the opportunity arises.
8. A new Whistle blower reporting channel through an independent website was undertaken in order to facilitate an additional communication channel. This is detailed in the later part of the report.
9. Charters and other governance policies were reviewed and amendments made as required. This is discussed in later part of the report.
10. The Company has opted not to use "Cumulative Voting" for the election of Company directors.

Rights of Shareholders and Equitable Treatment of Shareholders

It is the Company's top most priority to protect shareholders' rights, irrespective of their shareholding, and encourage them to exercise those rights as spelt out in relevant laws.



The Company recognizes the basic legitimate right of shareholders whether major or minor, local, foreign or institutional to participate in Shareholders' Meetings; They have the right to appoint a proxy to participate and vote at the such meeting; the right to vote for the appointment or removal of Individual Directors; the rights to vote on the annual appointment of statutory auditors and fix their remuneration and the right to vote on various other businesses of the Company. IVL implemented all these rights of the shareholders at their Annual General Meeting of Shareholders No.1/2018 held on April 26, 2018

Shareholders rights also include the eligibility to receive dividend payments, the right to give opinions and enquire into business matters of the Company at the Shareholders' Meeting.

Apart from the above, IVL also recognizes the equal rights of all shareholders to obtain accurate, adequate and timely information from the Company, for their decision-making and will always strive to provide the same.

IVL has no agreement of any kind with any of its shareholders and has a straight forward structure with its subsidiaries, affiliates and joint venture partners with no joint holding and cross holding of shares.

The IVL Group structure is uploaded on the Company website under "Our Company" and updated every quarter.

a) General Rights and Equality

IVL provides the opportunity to minority shareholders to propose agenda items and to nominate qualified individuals to be elected as Directors of the Company before the AGM for a period of over 90 days. Such notification to the shareholders was informed to SET website and posted on the Company's website on September 4, 2018. The notification clearly mentioned the procedure and criteria. The Company has not received any proposal from any shareholder and the same was informed to the Board in February 2019.

IVL will continue to provide opportunities for the minority shareholders to participate in fundamental corporate decisions.

In order to ensure that the shareholders receive the annual audited financial statements and the quarterly reviewed financial results on time, IVL disclosed the annual audited financial statements (2017) and the three reviewed quarterly financial statements of 2018 on the same day of its approval by the Board of Directors and or Audit Committee through the website of the Stock Exchange of Thailand and also through its website - www.indoramaventures.com, both in English and Thai.

IVL ensures regular and timely disclosures through its website and also through the SET about all relevant information like the Annual Report, Form 56-1, Shareholders' Meeting resolutions, important Board resolutions, acquisition updates, opportunity day presentations, analyst reports, press releases and other relevant information about the Company and its subsidiaries in an effort to keep the shareholders timely and adequately informed.

IVL strongly believes in the participation of its shareholders and the vital need for them to understand the operation and business activities of the Company and its subsidiaries and to interact with the management. Like previous years, the Company organized visit by the Shareholders' to its plants. The trip was organized on November 28, 2018 to visit the factories at Rayong Thailand. Such annual visits shall continue to be organized in future.

Shareholders were notified more than 30 days before the Shareholders' Meeting. Each shareholder received complete and adequate information on the criteria and procedure of the meeting. The Annual General Meeting of Shareholders No. 1/2018 was held on April 26, 2018 and the Notice was issued out on March 23, 2018.

All information sent to the shareholders was posted on the Company's website both in English and Thai on March 7, 2018 more than 30 days before the meeting date. The shareholders were provided the facility to download the relevant information including the proxy forms.

Notice of the meeting was also communicated through the SET on the March 7, 2018 and local newspapers to remind the Shareholders to participate at the Shareholder meeting.

The shareholders were given the opportunity to submit questions in advance regarding the agenda, together with comments if any, from the date they were notified of the meeting. The procedure for submitting such questions was clearly mentioned in the Notice to the meeting.

IVL shareholders were encouraged to attend the AGM in person or by proxy. In case of proxy, shareholders could appoint either their authorized person or any one of the three Independent Directors nominated by the Company in this regard. The profiles of the Independent Director(s) were attached to the notification of the meeting.

The venue of the AGM was at a central location easily accessible to all and a map of the location was provided in the Notice to the Meeting. The meeting was held from 2.00 pm in the afternoon.

On the meeting date the Company arranged for the shareholder registration to start more than two hours before the meeting. Preparation of the venue, greeters and appropriate number of registration staffs were arranged to assist the shareholders in the registration process. The registration continued even after the meeting started in order to ensure the participation of all shareholders who came to attend the meeting.

The Company had detailed which documents were necessary for shareholders to present on the meeting date in order to have the right to attend the meeting, including the designated proxy form and shareholders were assisted by the Company staffs.

A barcode scanning system was used for registration, allowing for a quick and efficient registration process. Barcoded ballots were handed out to each shareholder for voting.

To enable shareholders to make decisions, IVL provided adequate information in the Notice to the meeting on the agenda items.

The Company deployed simultaneous translation into Thai language at the Shareholders' Meeting.

Re-appointment of retiring Directors

In 2018, five Directors on the Board retired by rotation and agreed to be re-appointed for another term. In this regard they signed a consent form to the NCCG Committee to consider their re-appointment. The NCCG Committee after considering the experience and contribution of the Directors retiring deemed it appropriate to re-appoint them for another term and recommended the same to the Board.

Profiles of the five Directors retiring and offering themselves for re-appointment include the following information, in order to facilitate the voting by the shareholders. Their name, age, type of directorship, family relationship with other directors, educational background, director training, working experience, positions held in other listed organizations, position in competing company/connected business that may cause conflict of interest, number of years as director of the Company, shareholding, legal disputes, meeting attendance and the opinion of the Board.

No Director of the Board has been proposed by major shareholders.

The re-appointment of retiring Directors was approved by the Shareholders based on the "One share one vote" method.

Minority shareholders were given the opportunity to nominate qualified individuals to be elected as Directors of the Company before the AGM for a period of over 90 days but the Company did not receive any proposal from them.

b) Approving Directors Remuneration

Independent and Non-Executive Directors

The Board reviewed and recommended to the shareholders the remuneration of the Independent and Non-Executive Directors for 2018 and the annual bonus for all IVL Directors payable for 2017 performance as recommended by the NCCG Committee.

The Policy followed by the NCCG Committee to recommend to the Board and Shareholders' the compensation and benefits of Independent and Non-Executive Directors are as follows:

- Compensation should fairly pay directors for work required in a company commensurate with the size and scope of the work;
- Compensation should, if possible, align directors' interests with the long-term interests of shareholders;
- Structure of the compensation should be simple, transparent and easy for shareholders to understand.
- Compensation for Non-executive Directors and Independent Directors is inclusive of monthly retainer fee and annual bonus based on the previous year's Company performance.

- Additional compensation will be paid to directors serving on various sub committees.

To implement the policy, the Committee designs an appropriate compensation package based on comparable listed companies with the following criteria:

The remuneration of the Chairman of the Board and Chairmen of the sub-committees who are either independent or Non-Executive Directors is calculated at approx. 1.5 times of the other members.

In determining the bonus payable to all Directors, the NCCG Committee assesses the individual performance annually based on their contribution, responsibilities, expertise and attendance. This assessment is undertaken by way of a Director Self Evaluation Form.

The total bonus is determined in relation to the profit of the Company and uses a point system to allocate amongst the directors as approved by the Board. There was no change in the retainer fee in 2018. No retainer fee is paid to the Executive Directors on the Board of IVL.

Details of remuneration in 2018 paid to the Independent Directors and Non-Executive Directors and the bonus for 2017 performance to all Directors is in the latter part of this report under Director Performance.

The Chairman of the NCCG Committee explained the above policy and basis of calculation of the remuneration of Independent and Non-Executive Directors to shareholders at the 2018 Annual General Meeting.

Executive Directors and Management

The policy and criteria for Executive Directors and Management is elaborated in Board of Directors Performance in the later part of this report.

c) Appointing the external auditor and approving the audit fee

To facilitate the shareholder voting, the Notice of the meeting detailed the name of the audit firm, the auditors' names, the independence of the proposed auditors, the number of years they acted as the Company's auditor, the total audit and non-audit fees paid in 2017 and 2018 and separately Company audit fee proposed in 2018, together with the opinion of the Board based on the recommendation of the Audit Committee.

d) Payment of Dividend

The dividend policy of the Company states that a dividend will be paid at not less than 30% of the net profit after tax and appropriation to the legal reserve.

In compliance with the dividend policy of the Company, the Board proposed a final dividend payout for 2017 performance at Baht 1.00 per share. Out of the said final dividend, an interim dividend of Baht 0.45 per share was paid by the Company on September

06, 2017 and the Company paid the remaining dividend of Baht 0.55 per share on May 25, 2018.

e) Shareholders' Meeting

It is IVL's policy to conduct Shareholders' Meetings properly in accordance with the Articles of Association of the Company and related laws to allow shareholders to exercise their rights fully and in an informed manner.

The annual general meeting of shareholders was organized within four months from the closure of the fiscal year of December. For the fiscal year 2017, the AGM was held on April 26, 2018. The meeting started with 3,178 shareholders in person or proxy and representing 82.12% of the total shares sold. At the close of the meeting there were 3,407 shareholders in person or proxy and representing 82.16%. The meeting started at 2.00 pm and ended at 4.30 pm.

During the meeting, all the shareholders were encouraged to ask questions, express their opinions, suggestions, recommendations and request for additional information to clarify any issues relating to the Meeting.

Prior to starting the meeting, the Chairman and his representative briefed the shareholders on the criteria governing the meeting including the voting procedure. The legal counsel from The Capital Law Office, the Company's legal counsel was nominated to inspect the voting and voting counting procedure. In order to make the voting process fast and accurate, the Company used an electronic voting system. For each agenda/sub-agenda separate ballots were provided. After every agenda item was discussed and put to the vote, the ballots were collected and scanned. The results of the voting for each agenda were declared during the meeting and a summary of the results was presented at the close of the meeting.

The vote counting was carried out in a transparent manner with one share being equal to one vote. Approval of a resolution was based on majority of votes as there was no special resolution that would require three fourths of the eligible votes.



During the meeting, the Company did not introduce any unexpected important information or any new agenda items that were not notified to the shareholders earlier. Directors who were to be re-appointed at the meeting left the meeting room when the agenda on their re-appointment was taken up.

The Company ensured that all shareholders were accommodated to attend the meeting even beyond the specified time limit. The Chairman of the Board chaired the meeting. There were 13 out of 14 Directors present including the Group Chief Executive Officer (GCEO), Chairman of the Audit Committee, Chairman of NCCG Committee, the external auditors, the internal auditor of the Company, the legal counsel of the Company and senior management team members attending the meeting.

The Chairman gave the shareholders sufficient opportunity to ask questions and make recommendations about the operations, financial matters and other issues of the Company without prejudicing the rights of any Shareholder. The Chairman, GCEO, Chairman of the Audit Committee, Chairman of the NCCG Committee, Chairman of the Sustainability Committee and the management team provided clarifications during the meeting and met the shareholders informally after the meeting.

All the agenda items were passed by an average of around 99% of the total eligible votes. The resolution of the meeting including the number of votes cast was disclosed through the SET website on the same day of the meeting.

Comprehensive Minutes of the meeting were recorded. They included names of Directors who attended and who did not attend the meeting, summary of questions asked, important explanations and clarifications, and the voting results of each agenda and sub-agenda divided into for/against/ abstained. The Minutes were submitted to the SET within the required period of fourteen days after the AGM date. A copy of the Minutes was also posted on the Company's website at the same time.

f) Reporting of and Trading in IVL Securities

The Company has a written policy in place on reporting of and trading in IVL securities. Under this policy no director or management shall directly or indirectly trade in IVL securities during the period of 15 working days prior to and two working days subsequent to the date of filing with the SET of the quarterly and annual financial statements of the Company. Further, if any director or management trades in IVL securities, they have to report to SEC in the prescribed form within three working days and inform the Company Secretary Department. Every Quarter a summary of the shareholding of Directors and management is reported to the Board.

g) Code of Conduct for Directors and Employees

The Company has a Code of Conduct for Directors and employees, approved by the Board and communicated to everyone. The Company through this Code of Conduct strives to achieve

observance of ethical practices, honesty, and accountability, as well as a responsibility to all stakeholders and external agencies. As mentioned earlier an exercise is underway to have a single code under a Corporate Governance Manual for Directors and employees which is expected to be rolled out in 2019.

In 2018, all employees have been made aware of the Code of Conduct and all new employees are given a copy of the company's policies including the code during their induction.

The Board of Directors of IVL have all read and signed the Directors Code of Conduct.

h) Anti-Corruption and Bribery

The Company's Code of Conduct for Directors and Employees explains among other things the company's strong position against bribery and corruption. As a global company, IVL would like to ensure that it reaches the highest level of governance and for this reason, the Company has stipulated that it will abide by strict policies regarding corruption and bribery.

To demonstrate its firm commitment against corruption and bribery the Board of Directors approved the Anti-Corruption Policy of the Company. The policy provides definition of corruption and explains the key practices in order to avoid engagement in any form of corruption.

The Company also adheres to all local, national and international laws where appropriate.

The CAC Certification was first received by the Company in 2014 and successfully renewed in 2018 for another three years.

The company has adopted an anti-corruption framework, including policy awareness and implementation of compliance that has led the company to create an anti-corruption culture in the company and helped it to become one of the Collective Action Against Corruption (CAC) certified companies in Thailand.

To provide employees with straightforward communication regarding our firm's zero tolerance of corruption, as well as to address practical guidelines and specific forms of corrupt activities that may arise in the course of the company operations, the Company continuously enforces training in the local languages.

Anti-corruption educational materials and policies have been uploaded on the company's intranet and disseminated to overseas units to ensure that our policies are well communicated, and the same standard practice made available worldwide. Details on training provided in IVL Corporate Governance Awareness Campaign 2018.

To support the continued effort and monitor the implementation of the anti-corruption policy, the Internal Audit Department conducts checks across all units and functions and reporting its findings to the Audit Committee.

The Chief Risk Officer of the Company oversee all risks, including the risk of corruption and bribery, and has been tasked with

monitoring, evaluating and recommending actions related to the anti-corruption and anti-bribery efforts of the company.

The CGPAC Committee continuously monitors the progress of training and awareness at all IVL sites.

i) Connected Transactions

The Company has in place a detailed policy on connected transactions, which is stringently followed. The policy states who is a connected party and what constitutes a connected transaction, the various types of connected transaction and their threshold criteria/values for approval and disclosure purpose and what procedures to follow when there is a new connected transaction. The guideline is circulated at the beginning of each year in order to remind all concerned about the compliance requirements regarding connected transactions. The Internal Audit Department ensures all connected transactions follow the rules and regulations as prescribed by SEC/SET and the internal policy guidelines. Any proposed new connected transaction is brought to the notice of the Internal Audit Department who after their verification forwards to the Audit Committee with their recommendation through the Secretary of Audit Committee. The Audit Committee after their review will recommend to the Board. Without IVL Board approval, no new connected transaction can be made effective. At every quarterly meeting of the Audit Committee and Board of Directors, a statement of all the continuing connected transactions of the Company and its subsidiaries is submitted for acknowledgement.

However, the Company and its subsidiaries may have connected transactions with their Directors, management or potential connected persons. As a result, the Board of Directors Meeting approves, in principle, that the management is empowered to approve such transactions under reasonable, transparent and non-corrupt conditions, provided that such transaction is categorized as a transaction with the same commercial terms as those an ordinary person would agree with any unrelated counterparty under similar circumstances, on the basis of commercial negotiation (general trading conditions) and without any dependent interest resulted from the status of director, management or connected person, as the case may be.

Any Director who is directly or indirectly interested in any transaction abstains from discussions and voting. The Company has not given any financial assistance or guarantee to any external party.

Summary of Connected Transactions is reported separately in the Annual Report.

Role of Stakeholders

IVL gives equal importance to all of its stakeholders both internal and external such as shareholders, personnel, business partners, customers, competitors, creditors, communities, the environment and society. The Company is fully aware that support from each stakeholder will sustain and reinforce its competitive advantage and profitability.

It is the policy of IVL to safeguard their rights by strictly complying with applicable laws and regulations and to take into consideration their interests.

IVL has issued the following Stakeholder policies:

- Policy on the Treatment of Shareholders
- Policy on the Treatment of Customers
- Business Partners and Competitors Policy
- Environment Policy
- Human Rights Policy
- Intellectual Rights Policy
- Trading Partners and Creditors Policy
- HIV-AIDS Policy
- Health and Safety Policy
- UK Bribery Act
- Whistleblower Policy
- Anti-Corruption Policy
- Supplier Code of Conduct
- Diversity Policy

The Supplier Code of Conduct has been implemented in order to encourage the Company's supply chain to acknowledge and implement universal standards.

The CGPAC Committee receives periodical reports from business units on the implementation status.

These policies have been circulated globally and uploaded to the Company's website.

As part of the CGPAC initiative and in order to develop and improve the relationship between IVL and its stakeholders, the management will on a continuous basis reinforce that everyone working at IVL is aware of and understands all the stakeholder related policies and that they are implemented in the spirit that they were created through continuous program of training, seminars and monitored implementation.

The policies are reviewed annually and changes are implemented as required.

The Company publishes a sustainability report every year. This is available on the Company's website in the corporate document section.

• Shareholders:

IVL and its subsidiaries strive to conduct its business in a transparent and efficient manner with a view to enhancing shareholder value and returns. We will seek new businesses and projects that are accretive to shareholder value only.

• Customers:

IVL and its subsidiaries will strive to maintain and strengthen its long-term and loyal relationships with its customers and is determined to ensure customer delight by providing high quality

products and services that best fit customer needs at competitive prices, supported by a high standard of service and accurate information regarding our operations and products.

The Company believes in and will strive to keep communication channels open for constant customer feedback.

The Company hired J.D. Power to perform a customer satisfaction survey during the year. The customer satisfaction index average score for 2018 is 86.01% an increase of 0.55% over 2017.

- **Personnel:**

All personnel of IVL and its subsidiaries are considered valuable assets, critical to the growth and profitability of the Company and its subsidiaries, and strive to provide a conducive and quality oriented work environment with utmost emphasis on safety along with fair and equitable compensation compatible with similar businesses.

The Company gives importance to developing skills, knowledge and potential of its employees, and strives to build a work environment that is rich in diversity and will attract and retain high performance employees.

The Company and its subsidiaries provide an orientation program for all new employees and development programs thereafter to develop and refresh their skills. All employees receive training in environmental issues and encouraged to involve themselves in local environmental conservation and preservation projects in the local area.

As the Company operates globally, each of its facilities has its own employee welfare policy, which is in line with local laws and regulations.

The Company has comprehensive policies on compensation and welfare for employees across all its global locations. These follow the local rules and regulations of the country where they are situated.

Indorama Ventures strongly believes that its employees are the foundation of its success and therefore their continued development is a key to its sustainability as a business. Among other issues, the company develops employees to have a keener understanding of the environment and their impact on it.

The details of Indorama Ventures' compensation and training activities are provided below in the section on "**People**" at the end of this report.

- **Suppliers:**

IVL and its subsidiaries foster symbiotic, long-standing and growing relationships with all its suppliers, based on mutual benefit and guided by good business ethics. We also want to work with our suppliers who operate in a fair, honest, and socially responsible manner. We feel strongly that we have a responsibility to ensure that consumers can trust the safety and quality of our products. Suppliers are expected to provide goods and services that meet all government and agreed-upon quality and safety standards.

Just as we have set standards for our business through our policies, we expect our suppliers, in addition to complying with all environmental regulations, to share our commitment to use resources responsibly; eliminate and reduce waste; minimize their carbon footprint; offer a selection of natural, organic and eco-friendly products and develop facilities that align environmental, community, and business needs.

They should ensure that they adopt and implement acceptable safety, product quality, labor, human rights, social and legal principles in line with our own policies and to ensure these issues are adequately managed within the business for any goods or services supplied to us.

We have set ethical boundaries for ourselves and expect our suppliers to comply with them, acting with integrity and lawfully in the handling of competitive data, proprietary information and other intellectual property, and complying with legal requirements regarding competition, antitrust, and accurate and truthful marketing.

- **Intellectual Property:**

The Company is aware of the importance of intellectual property and strictly forbids the use of illegal software and any misuse of the intellectual property of others.

- **Creditors:**

IVL and its subsidiaries attempt to provide its creditors with all full and accurate information about the progress of the Company, as required for smooth business dealings and to comply with all its obligations.

Moreover, we want to see our creditors adhere to business principles consistent with our own and ensure that their products and services are produced and delivered to comply with all legislation relevant to their business in the areas where they operate.

- **Community, Environment and Society:**

IVL and its subsidiaries care about the safety of society, the environment, and the quality of life of people associated with all its operations and strives to comply with applicable laws and regulations. IVL and its subsidiaries try to actively participate in all activities that support and care for the environment and society and promote the cultures in which the Company operates.

IVL and its subsidiaries treat and dispose of waste in a manner that will have the least impact on society, environment and people.

IVL has taken various steps towards the sustainability of not only the Company, but of the community as a whole. We want to ensure:

- A consistent supply high quality products and services to our customers
- That we create value for our investors
- That we provide a favorable working environment
- That we are a good community neighbor
- That we minimize the environmental footprint we leave behind

We are committed to meet and surpass the environmental laws and regulations pertaining to each business and region, with periodic analysis and third party inspection conducted in each plant.

- **Competitors:**

IVL and its subsidiaries will act within the rules with respect to its competitors and employ best practices in dealing with them, as well as working towards market development and growth for the benefit of the industry as a whole.

- **Whistleblower Policy:**

The Company has a “Whistleblower” policy that allows all employees the opportunity to raise issues on any unethical practice (whether or not a violation of law), to a Whistleblower Committee without necessarily informing their line managers and without revealing their identity. The Policy has been communicated to all employees globally and uploaded to the Company website. Employees may contact the committee via e-mail to ethics@indorama.net, or by telephone or conventional mail directed to the Whistleblower Committee at the Head Office in Bangkok. In return, the committee guarantees the protection of whistleblowers in that their identities remain confidential under all circumstances and no action will ever be taken against a whistleblower for any reason whatsoever. This information has been delivered to all business units. During 2018, two contacts were made to the Whistleblower Committee. One has been resolved while another is still under an investigation. The results of the investigations and the actions taken were reported to the NCCG Committee and the Board of Directors.

Moreover, during the year, the CGPAC team initiated another Whistleblower reporting channel by way of an independent website. The main objective was to provide another anonymous reporting option that would be more convenient, secure and easy to use and for better communication between the reporter and Ethics Committee. This will be launched in early 2019.

The Whistleblower Policy and the reporting website are EU General Data Protection Regulation (GDPR) compliant.

- **Complaint Filing Channel for Stakeholders**

The company has opened a channel for all stakeholders to bring concerns to independent directors via the e-mail independentdirectors@indorama.net. This channel may also be used by internal and external stakeholders to raise complaints or comments on any issues.

Both the Whistleblower Committee and Independent Directors contact details are prominently given on the company website under the Corporate Governance section.

Disclosure and Transparency

It is IVL's policy to deliver all-important information relevant to the Company, both financial and non-financial that may have an impact on the interests of the shareholders or any decision to invest in the company or not. All such information is disclosed sufficiently, accurately, on a timely basis and transparently through

easy-to-access channels that are fair and trustworthy and all such information complies with the relevant rules of the SEC/SET.

The communication channels used are: the Annual Report, Form 56-1, Management Discussion and Analysis (MD&A), press releases, the SET's website, shareholders' meetings, analysts' meetings and the Company's own website.

The designated executives that can disclose information about IVL include the Group Chief Executive Officer (Group CEO), the Company Secretary Department and the Investor Relations and Corporate Communications Department. They provide information to interested parties on various occasions such as one-on-one meetings with shareholders, creditors, analysts, quarterly meetings with analysts to discuss the recent financial performance, road shows and others.

The Nomination, Compensation and Corporate Governance Charter defines the policy on nomination of Directors of the Company and the policy on remuneration of Directors and management of the Company which is followed by the NCCG Committee and management team.

In the section above on **Re-Appointment of Retiring Directors and Approving Remuneration of Directors** the key highlights of the policy and criteria of nomination and remuneration are stated.

For remuneration of management the policy and criteria is stated below in the “remuneration” section under Board Performance.

The Charters and Policies of the Company are reviewed annually by the Board in order to ensure alignment with Best Practice. The following were revised and approved by the Board based on the recommendation of the Nomination, Compensation and Corporate Governance sub-committee.

- Charter of the Board of Directors- February 20, 2018 and November 19, 2018
- Nomination, Compensation and Corporate Governance Committee Charter- February 20, 2018

They uploaded on the Company website.

The Board reviewed the Vision, Mission and Values Statement of the Company and were of the opinion that no change was required to the current statement.

The Company gives utmost importance to its website, which is both in Thai and English, and regularly reviews it to ensure all information provided is current and up-to date.

In 2018 and all previous years, the Company has never been accused by the SEC/SET of breaching any disclosure rules and regulations.

The following information on the Company website is regularly updated:

Vision, Mission, Value Statements, financial statements, analyst reports, press and SET releases, annual report, corporate policies, corporate structure, details of subsidiaries, IVL Board

and management structure, shareholding structure and major shareholders. Form 56-1 is updated every year and includes detailed information on business operation, financial status, risks, litigations, capital structure, including information on ultimate shareholding. The Company maintains a calendar of all major events that investors or shareholders may wish to attend.

The Company implements all recommendations made by the SEC, SET and IOD.

The Company has a designated department for Investor Relations for disclosing essential information to investors on matters relating to financial reporting and others. An annual investor relations plan is established and the executive in charge is involved in various investor relations activities including but not limited to periodical plant visits for the benefits of shareholders, investors and analysts etc. Also regular investor meetings are organized.

To contact the Company's Investor Relations Department, the general public may call (+66) 2 661 6661 ext. 145 or email to strategy&ir@indorama.net. The details are provided on the Company's website.

A statement on the Board's responsibility concerning the Company's financial report is disclosed in the Annual Report, which mentions among other things that the Company complies with generally accepted accounting principles and that accounting standards and practices used are appropriate and consistent to the nature of the business. It also states that all information presented in the financial reports is accurate, complete and adequate. The Chairman of the Board and the Group CEO sign the statement.

The individual shareholding of Directors, Management including their spouses and minor children for the period January 1, 2018 to December 31, 2018 is as follows:

Report of Changes in Securities Holding of the Company's Directors and Executives as at 31st December 2018

No.	Name	Ordinary Shares (shares)				
		As at 31 Dec 2017	Changes in 2018		As at 31 Dec 2018	
		No. of Shares		No. of Shares	No. of Shares	%
1	Mr. Sri Prakash Lohia	-	Acquisition/Disposition	-	-	-
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
2	Mr. Aloke Lohia	10	Acquisition/Disposition	-	10	0.000
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
3	Mrs. Suchitra Lohia	-	Acquisition/Disposition	-	-	-
	Spouse and Minor Children	10	Acquisition/Disposition	-	10	0.000
4	Mr. Amit Lohia	-	Acquisition/Disposition	-	-	-
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
5	Mr. Dilip Kumar Agarwal	51,570	Acquisition/Disposition	145,061	196,631	0.004
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
6	Mr. Udey Paul Singh Gill	36,346	Acquisition/Disposition	14,976	51,322	0.001
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
7	Mr. Sanjay Ahuja	30,004	Acquisition/Disposition	11,019	41,023	0.001
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
8	Mr. Rathain Srimongkol	265,000	Acquisition/Disposition	-	265,200	0.005
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
9	Mr. Maris Samaram	-	Acquisition/Disposition	-	-	-
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
10	Mr. William Ellwood Heinecke	2,994,932	Acquisition/Disposition	-	2,994,932	0.053
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
11	Dr. Siri Ganjarerndee	-	Acquisition/Disposition	-	-	-
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
12	Mr. Kanit Si	300,000	Acquisition/Disposition	-	300,000	0.005
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
13	Mr. Chakramon Phasukavanich	-	Acquisition/Disposition	-	-	-
	Spouse and Minor Children	102,000	Acquisition/Disposition	354	102,354	0.002
14	Mr. Russell Leighton Kekuewa	489,000	Acquisition/Disposition	50,000	539,000	0.010
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-

No.	Name	Ordinary Shares (shares)				
		As at 31 Dec 2017	Changes in 2018		As at 31 Dec 2018	
		No. of Shares		No. of Shares	No. of Shares	%
15	Mr. Manoj Kumar Sharma	9,803	Acquisition/Disposition	5,932	15,735	0.000
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
16	Mr. Souvik Roy Chowdhury	12,117	Acquisition/Disposition	6,587	18,704	0.000
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-

Reporting

IVL has in place a reporting policy for all directors and management, that they report their shareholding every quarter to the Company Secretary, who in turn writes a summary for the Board. The shareholding includes themselves, their spouses and minor children. Any trading of IVL securities must be reported immediately to the Company Secretary, who then arranges for a filing to the Securities Exchange Commission within the specified time period.

IVL has set a black out period for trading in IVL securities. Every quarter, the Company Secretarial Department informs the Directors and Management of the blackout period.

All IVL directors and management are required to report their interest, if any in the designated "Declaration of Interest" Form of the Company beginning of each year. Such forms are kept at the Company Secretarial department.

Responsibility of the Board

1. Responsibility and Duties of the Board of Directors

The Board of Directors of IVL has the vision, mission, value statement, plans, strategies, key policies and budgets of the Company with a view to effectively and efficiently managing the business for maximum shareholder value. Detailed budgets and plans are formulated for the Company and its subsidiaries. The Board closely monitors the management and implementation of business plans to achieve targets. The Board also sets internal controls and audit procedures, including risk management. All major CAPEX requires the approval of the Board. Detailed presentations are made by the respective business segment head.

At the beginning of each year the Board holds a "Strategy and Annual Business Plan" meeting and at the meeting the Vision and Mission statement is reviewed along with the Strategy as presented by management. At the strategy meeting key executives from all IVL units participate and discuss their performance and strategies both in the short and long term with the senior management and Board members. Such meetings give the Board and especially the Independent Directors ample opportunity to interact and discuss with the respective executives about their business plans and performance and also to understand the various businesses that IVL operates. Where necessary suggestions are made by the Board.

After presentation of all Business segments' plans, the Annual Plan for the year is thereafter approved by the Board of Directors. At the Board meetings and the many informal meetings with the Group CEO and senior management the Board gets updated on the business performance, strategy vis-à-vis targets and industry trends. Based on such meetings, the Board provides their thoughts and recommendations. The management updates are based on the regular Executive Committee meeting that each business segment holds on the operating performance.

The detailed role and responsibility of the Board is clearly set out in the Board of Directors Charter which is uploaded on the Company website.

Board approvals

The average attendance for the Board meeting held during 2018 has been approx. 96.43% (over 2/3rd). For the Annual Budget approval and four quarterly meetings the attendance was 100%. For each Agenda items at Board meetings, detailed discussions take place and approvals are given unanimously.

The Board requires each business head to explain the details of why their business fell below target and the plans to improve performance. The Board follows up on the action plan status in subsequent meetings.

The Board has guidelines on Stakeholder business ethics as a part of the policies issued by the company and monitors the effective implementation of good business practice and ethics using several tools such as customer and supplier surveys, results of employee training feedback surveys and others.

The Board through the Audit Committee, internal auditor, and compliance department reviews potential conflicts of interest. The internal guidelines of the Company on related party transactions and the relevant rules and regulations of SET/SEC provide a basis for avoiding conflicts of interest. Details of all related party transactions are updated in Form 56-1 and reported in the Annual Report. Those Board members who have an interest in a matter that might involve a conflict of interest must abstain from voting and other involvement, as prescribed by the Board. Company policy prohibits personnel at all levels from using inside information for personal benefit with all business decisions based on achieving the maximum benefit for the Company and its subsidiaries.

The Board every year evaluates the efficacy and sufficiency of the Internal controls of the Company by reviewing the Evaluation Form of Sufficiency of Internal Control Systems for IVL and its subsidiaries which is reviewed by the Audit Committee and forwarded to the Board.

The Board held a special session in January to consider and approve the Strategic Plans of business units in the group. This provided the opportunity to meet and interact with senior executives from around the World including executives from new acquisitions.

The Company held its annual Capital Markets Day in January 2018 to apprise investors from both buy and sell side of the work completed by the management over the course of the year. Senior management from global business units was introduced to investors, who had the opportunity to raise questions about the business.

2. Board Structure

There are 14 Directors on the IVL Board comprising of five Executive Directors, two Non-Executive Directors and seven Independent Directors. The Board has a diversity of nationalities, genders, ages and skills. It does not discriminate against female directors and hires according to availability and qualifications.

The Board structure is appropriate in relation to the size of the Company, number of Executive, Non-Executive and Independent Directors and qualification in terms of knowledge and expertise and provides a fair balance of power and effective management monitoring. The Company intends to maintain this broad base of knowledge and experience when it searches for new Directors in future. The Board has a policy to seek the services of a professional search firm when necessary to replace or nominate a new director.

Role and Responsibility of Chairman

The principle role of the Chairman of the Board is to ensure that the Board is effective in its tasks of setting and implementing the Company's direction and strategy.

The Chairman plays a pivotal leadership role in ensuring that the Board works effectively. The key roles of the Chairman are:

- Determining the composition, size and structure of the Board in order to create a balance between executive directors and independent directors.
- Ensuring the Board and its committees are properly established, composed and operated.
- Ensuring the effective operation of the Board and its committees in conformity with the highest standards of corporate governance.
- Ensuring the participation of the executives, non-executives and independent directors in the Board's decision processes and activities.
- Ensuring the whole Board plays a constructive part in developing and determining the Company's strategy and objectives.
- Ensuring comprehensive induction programs for new directors.
- Acting in the key role of governing the Board and fostering teamwork and mutual dedication for the sustainable success of the organization.
- Engaging the Board regularly in assessing and developing its performance and communicating expectations to directors and manage directors' performance.



- Ensuring that the company has succession plans for senior executives.
- Acting as Chair at the Board's and Shareholders' meetings together with setting the agenda in consultation with the directors, management and the Company Secretary.
- Ensuring that Board members receive accurate, timely, and sufficient information for Board meetings.
- Ensuring that there are sufficient channels for effective communication between the Board members, management and shareholders.
- Providing independent advice to the management and Board.
- Appointing the Company Secretary to assist with Board functions.

In the Directors' profile, IVL discloses its director's names, profiles, qualifications, experience, and shareholding in the Company to demonstrate the Board's knowledge, competence, qualification and experience via the Annual Report and its website. It also mentions which Director is independent, executive, non-executive or represents a major shareholder.

The profile mentions the Board membership(s) of other companies held by the Directors.

The Board has appointed the Company Secretary in order to meet the requirements of the SEC/SET regulations. The Company Secretary is responsible for matters connected with meetings of the Board and shareholders and to advise the Board on law and regulations that the Board must know to effectively perform its duties and to administer the Board's activities and ensure Board and Shareholders' resolutions are complied with. During the year the role and responsibility of the Company Secretary was revised as per the recommendations of the SEC and the revised role and responsibility was uploaded on the Company's website.

3. Charters

The Company has in place the following Charters:

- Board of Directors
- Audit Committee
- Nomination, Compensation and Corporate Governance Committee (NCCG)
- Sustainability and Risk Management Committee (SRMC)

The Charters are all uploaded on the Company website under the Corporate Governance section.

4. Other Directorships

The Board Charter specifies the outside Directorship for Executive, Non-Executive and Independent Directors. Details are provided in the section "Selection and appointment of Directors" at the beginning of this report.

None of the Directors of IVL have breached the above Directorship criteria in 2018.

5. Retirement of Directors

One third of the Directors retire by rotation at every Annual General Meeting as specified in the Articles of Association of the Company. A retiring director is eligible for re-election. Voting for appointment/re-appointment of Directors is done individually. The Company provides a detailed profile of the retiring Director who has given his consent to be re-appointed in the Notice to the Shareholders' Meeting.

The Board and the NCCG Committee after due deliberation has acknowledged that the industry is extremely complex and takes many years of study in order to be able to play a role in the Board. The current independent directors have shown their value over the years and will continue to play an important role in the company. Replacing directors with many years of our industry experience would seriously hinder the Board's ability to operate at an optimal level. However, they all take their independence seriously and play their role as an independent director. The NCCG Committee and the Board will take into consideration the IOD recommendation of independent directors term of service as published from time to time and will annually decide if certain director/s will retire based on additional criteria i.e. expertise in our business, contribution by the director, health of the individual as well as the availability of a suitable replacement director.

The NCCG Committee and the Board at their meeting in November 2018, approved to fix the retirement age of Independent Directors at 72. This was done to facilitate succession planning. Independent Directors may not stand for election if they have reached the age of 72. Necessary changes were made to the Board of Directors Charter.

6. Evaluation of Performance

The Board and sub-committee members carried out a self-evaluation on the Board and sub-committee performance in 2018. The results were summarized and discussed at the Board meeting held in February 2019. The Board and subcommittee members were evaluated as having given very good performance rating in 2018.

For the self-evaluation on the Board, the Company follows the guideline prescribed by the SET which is based on the following six criteria namely a) structure and characteristic of the Board b) role and responsibility of the Board c) Board meetings d) the Board's performance of duties e) relationship with management f) self-development of directors and executive development.

Similar evaluation is done by the Sub Committees.

The Chairman of the Board through the NCCG Committee does an individual assessment of all Directors based on the following criteria.

- Supports the mission, vision and aims/objectives of this organization.
- Understands IVL's main business and does not intervene in the objectives or work for any competitor

- Understands the role of the Board and the legal and ethical responsibilities of a Board member
- Usually attends regular and special board meetings and other events requiring board participation.
- Studies the agenda items before attending the meeting and ensures that information is sufficient to proactively consider the agenda
- Carefully reviews all the minutes of the each Board of Directors and Shareholder meetings
- Examines all documents relating to all matters that concern the board of directors. If something is not clear, he/she asks the management to explain as quickly and clearly as possible
- Raises questions on important matters and gives suggestions and recommendations to the management
- Carry out other committee responsibilities in an effective and timely manner.
- Ensures management's accountability to shareholders; preserves their rights and interests; clearly and fully discloses information
- Attends all Board meetings and makes decisions on significant activities by the Company concerning the acquisition and disposition of assets, investment project expansion, policy implementation, and/or risk management etc.
- Avoids participation in board issues where it may be perceived there is a conflict of interest.
- Avoid other positions or jobs that may have led to conflicts of interest with the Company.
- Accepted only those positions as director or non-executive director on the Board of listed companies that allow sufficient time to attend meetings.
- Willing to participate in development opportunities, including workshops, information sessions and conferences, and in taking on new roles.
- Enjoys service as a Board member in the organization or actively works to change the issues or activities which are a barrier, or reconsidering commitment to the organization.

For Independent Directors

- Demonstrates independence of thought and judgment in order to protect the interests of all Shareholders.

7. Functional Performance

The Board of Directors held six meetings during 2018. The Company generally proposes to schedule a minimum of five meetings a year. Typically, a meeting is convened every three months with extra meetings convened as and when necessary to review operations, financial matters, plans, or other matters. Prior to the close of each year a schedule of meetings for the next year is circulated to the members to fix the meeting dates well in advance and also to ensure maximum participation.

Under the Chairmanship of Mr. Rathian Srimongkol, Lead Independent Director, all the independent Directors met on January 23, 2018 to review and discuss the Company's performance and other matters. A similar meeting of the Independent Directors will be held on January 22, 2019. The Lead Independent Director updated the Group CEO on the outcome of their meeting.

The Chairman, Group CEO, Lead Independent Director and Company Secretary set the Board meeting agenda and the Company Secretary sends invitation letter together with the agenda and relevant documents to the Directors at least seven days prior to the meeting to allow adequate time for the Directors to study the information.

At each Board Meeting, the Chairman allows each Board member to express his or her views and management to answer all queries in full. If desired, Directors can request for additional information from a designated person.

Detailed minutes are prepared for each meeting, which includes

- the meeting date
- time of meeting commencement and completion
- name of Directors who attended or were absent from the meeting
- summary proposals to the Board on each issue,
- a brief report of the discussion
- each Director's observations
- the person authorizing the minutes

The Minutes are circulated within 14 days of the Board meeting.

The summary of Minutes of subsidiary companies are provided to Board members as required.

The following are the details of attendance of the Board of Directors' meeting in 2018:

Name	Attendance*/ Total Meetings
1. Mr. Sri Prakash Lohia	6/6
2. Mr. Alope Lohia	6/6
3. Mrs. Suchitra Lohia	6/6
4. Mr. Amit Lohia	4/6
5. Mr. Dilip Kumar Agarwal	6/6
6. Mr. Udey Paul Singh Gill	6/6
7. Mr. Rathian Srimongkol	6/6
8. Mr. William Ellwood Heinecke	5/6
9. Mr. Maris Samaram	6/6
10. Dr. Siri Ganjarende	6/6
11. Mr. Kanit Si	6/6
12. Mr. Russell Leighton Kekuewa	6/6
13. Mr. Chakramon Phasukavanich	6/6
14. Mr. Sanjay Ahuja	6/6

*The average attendance of 12 out of the total 14 Directors for the year 2018 was 100% and the average for all Directors was 96.43%.

8. Performance Measurement of Executive Directors, Group CEO and Management

The Group CEO and other executive Directors have their Key Performance Indicators (KPI) set by the Board on the recommendation of The NCCG committee. This takes the form of a Balanced Scorecard. At the end of each year their performance is used in the calculation of their compensation by the NCCG Committee.

For Senior Management Executives the NCCG Committee reviews and approves on an annual basis the evaluation process and compensation structure and assigns the Human Resources department to approve the annual compensation, including salary, bonus and non-equity incentive compensation. Similarly, the line managers will follow the same principles when evaluating their staffs.

Details discussed in the section “Executive Director, Group CEO and Management Remuneration” below.

9. Remuneration

The current remuneration of Independent Directors and Non-Executive Directors, including bonus, is established based on assignments and responsibilities. Such remuneration proposed by the Board and recommend by the NCCG Committee requires the approval of the Shareholders’ Meeting.

The Policy and criteria followed by the NCCG Committee has been explained above in the section on Approving Directors Remuneration.

In 2018, the total annual remuneration approved at the Annual General Meeting of Shareholders No. 1/2018 held on April 26, 2018 was an amount of not exceeding Baht 26,000,000.

The actual remuneration paid in 2018 is Baht 25,419,990 against the approved amount of Baht 26,000,000. The details of the remuneration paid are hereunder:

As Directors of the Company

No.	Independent/ Non-Executive Directors	Amount Approved (Baht)	Actual Paid (Baht)
1	Mr. Sri Prakash Lohia	75,000 per month	900,000
2	Mr. Rathian Srimongkol	50,000 per month	600,000
3	Mr. William Ellwood Heinecke	50,000 per month	600,000
4	Mr. Chakramon Phasukavanich	50,000 per month	600,000
5	Mr. Amit Lohia	50,000 per month	600,000
6	Mr. Maris Samaram	50,000 per month	600,000
7	Dr. Siri Ganjarerndee	50,000 per month	600,000
8	Mr. Kanit Si	50,000 per month	600,000
9	Mr. Russell Leighton Kekuwa	50,000 per month	600,000
Total			5,700,000

As Audit Committee members

No.	Members	Amount Approved (Baht)	Actual Paid (Baht)
1	Mr. Rathian Srimongkol	75,000 per month	900,000
2	Mr. Maris Samaram	50,000 per month	600,000
3	Dr. Siri Ganjarerndee	50,000 per month	600,000
Total			2,100,000

As Nomination, Compensation and Corporate Governance Committee Members

No.	Members	Amount Approved (Baht)	Actual Paid (Baht)
1	Mr. William Ellwood Heinecke	35,000 per month	420,000
2	Dr. Siri Ganjarerndee	25,000 per month	300,000
3	Mr. Kanit Si	25,000 per month	300,000
4	Mr. Chakramon Phasukavanich	25,000 per month	300,000
5.	Mr. Russell Leighton Kekuwa*	25,000 per month	200,000
Total			1,520,000

* Mr. Russell Kekuwa joined the Committee from May 2018.

As Sustainability and Risk Management Committee Members

No.	Members	Amount approved (Baht)	Actual Paid (Baht)
1	Mr. Rathian Srimongkol	25,000 per month	300,000
2	Mr. Maris Samaram	25,000 per month	300,000
3	Mr. Russell Leighton Kekuewa	25,000 per month	300,000
4	Mr. Kanit Si*	25,000 per month	200,000
Total			1,100,000

*Mr. Kanit Si joined the Committee from May 2018

Bonus to Directors for the performance of 2017

No.	Directors	Actual Paid (Baht)
1	Mr. Sri Prakash Lohia	1,111,110
2	Mr. Alope Lohia	1,666,670
3	Mrs. Suchitra Lohia	833,330
4	Mr. Amit Lohia	555,560
5	Mr. Dilip Kumar Agarwal	1,111,110
6	Mr. Udey Paul Singh Gill	1,111,110
7	Mr. Sanjay Ahuja	1,111,110
8	Mr. Rathian Srimongkol	1,666,670
9	Mr. Maris Samaram	1,111,110
10	Mr. William Ellwood Heinecke	833,330
11	Dr. Siri Ganjarendee	1,111,110
12	Mr. Kanit Si	1,111,110
13	Mr. Russell Leighton Kekuewa	833,330
14	Mr. Chakramon Phasukavanich	833,330
Total		14,999,990

Remark: The Executive Directors on the IVL Board and Sub-Committees are not paid any retainer fee.

10. Executive Director, Group CEO and Management Remuneration

The key principles followed by the NCCG Committee in determining the compensation are:

- To review and approve on an annual basis the evaluation process and compensation structure for the Company's Executive Directors. The Committee evaluates the performance of the Company's executive directors and approves the annual compensation, including salary, bonus and non-equity incentive compensation for them based on initial recommendations from the Group CEO. Moreover, the Committee maintains regular contact with the leadership of the Company.
- To review and approve on an annual basis the corporate goals and objectives (KPI) with respect to compensation for the Group Chief Executive Officer. The Committee shall evaluate at least once a year the Group Chief Executive Officer's performance in light of these established goals and objectives and based upon these evaluations shall set the Group Chief Executive Officer's annual compensation, including salary, bonus and non-equity incentive compensation (if any).
- To review and approve on an annual basis the evaluation process and compensation structure for the senior executives. The Committee shall approve or may assign the Human Resources department to approve the annual compensation, including salary, bonus and equity and non-equity incentive compensation for senior executives.
- Base salaries for the Company's Group CEO and Executive Directors depend on the scope of their responsibilities, their capabilities, and the period over which they have performed those responsibilities.
- Annual bonuses for the year and the percent change from the prior year's bonus for senior executive officers are determined after an evaluation of the overall performance of the Company, the performance of the business or function that the officer leads and an assessment of each officer's performance against expectations, which were established at the beginning of the year. The bonuses also reflect (and are proportionate to) the annual financial results of the company.
- Other non-equity compensation is paid as per the HR manual of the Company which is reviewed from time to time.

The Remuneration paid to the IVL Management team in 2018 was approx. Baht 182.96 million out of which the Remuneration paid to the Group CEO, the CEO of PET and Feedstock business and the CEO of Fibers business was as follows:

No.	Name / Positions	Actual Paid (Million Baht)
1	Mr. Alope Lohia, Group CEO	49.45
2	Mr. Dilip Kumar Agarwal, CEO of PET and Feedstock business	43.62
3	Mr. Udey Paul Singh Gill, CEO of Fibers business	24.93

The remuneration above includes salary, bonus and perquisites in accordance with the Company's rules and regulations. The Board/NCCG Committee sets the long and short term KPI for the Group CEO, CEO of PET and Feedstock business, and CEO of Fibers business.

No compensation was paid to Directors in the form of shares.

11. Succession Planning

The NCCG Committee has put into place a Succession Plan for the Group CEO and Key Management team in consultation with the Board taking into consideration the knowledge, potentiality and performance evaluation.

For all other employees the Global HR department works with line management to create succession plans. To ensure that the succession plans are effective, the Global HR implements employee development and training and also implements a fast track process for those it believes have high potential.

12. Strategy Meeting

The Company holds one Board meeting every year to approve the Company's strategy and Annual Business Plan. This allows the senior management to interact with the Members of the Board for free and frank discussions on future direction of the Company. The Strategy meeting for 2018 was held from January 29-30, 2018 in Bangkok.

13. Professional Development of Directors

Directors who join the Company during the year are given a Directors Orientation folder with complete information about the Company and its subsidiaries to assist them in getting well acquainted with the business, practices and procedures of the Company and their rights, duties and obligations as Director. In addition orientation meetings are arranged with the management team members.

Apart from the periodic informal meetings with the management teams, the Directors are invited to attend the various business meetings held during the year.

Continual knowledge expansion

The Board encourages the Board members, Audit Committee members, management team members, Company Secretary and Internal Auditor to attend seminars, training and courses which would assist in further improving their contribution/performance in the Company. IVL encourages the members of the Board to undergo applicable training programs.

During the year the following Directors attend the below training programs at Institute of Directors, Thailand:

1. Mr. Maris Samaram attended IT Governance and Cyber Resilience Program (ITG) Class No. 8/2018 and Risk Management Program for Corporate Leaders (RCL) Class No. 13/2018.
2. Mr. Russell Leighton Kekuwa attended Strategic Board Master Class (SBM) Class No. 3/2018.
3. Mr. Chakramon Phasukavanich attended Board Matters and Trends Agenda (BMT) Class No. 6/2018.

The details of all courses attended are in the Directors profiles.

Our Company's policies, integrity, ethics and disclosures always seek to emulate the best practices in Corporate Governance.

HIGHLIGHTS 2018



93.75% Participation in Global Employee Engagement Survey

Employee participation level has gone down by 0.32 point basis as compared to 2017.



3.85 Employee Engagement Score

This score is calculated on a scale of 1 to 5, and shows shift of +0.5% as compared to 2017.



94.02% Retention Rate

Retention rate has increased by 0.01 point basis as compared to 2017.



74 Nationalities

We had 63 nationalities in 2017.



22.38% Female Employees

The female proportion has increased by 1.73% as compared to year 2017.



30.80 Average Training Hours

Average Training Hours per employee is 35.62% higher than 2017.



Development Program

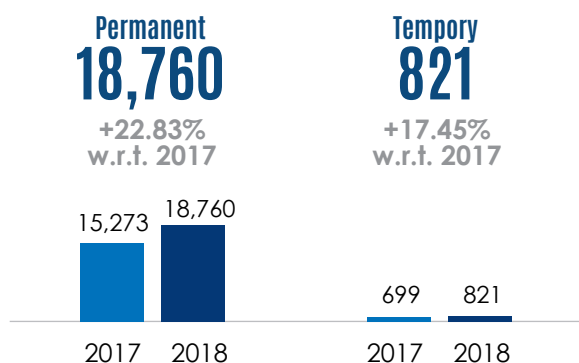
38 participants in the i-Lead leadership development program to prepare the next-generation of leaders
27 participants for the v-Lead leadership development program to develop cross functional expertise
18 high potential managers participated in the "Shadow Development" program meant to develop local talent.

When it comes to our people, we believe in creating a culture where the workplace is a home away from home. Where together, we dream, aspire, create and celebrate a better everyday life for ourselves, our customers and society.

Working with Indorama Ventures is so much more than just a job. Some would call it an "extended family," while others would say "passionate teams." But regardless of these descriptions, at Indorama Ventures, we live by our values which means creating a valuable workplace proposition. With 19,581 colleagues from 74 nationalities, we are a living entity working together in 31 countries to build trust, learn and grow in addition to delivering. One of the vital differentiating factors that nurtures this culture is our people strategy.

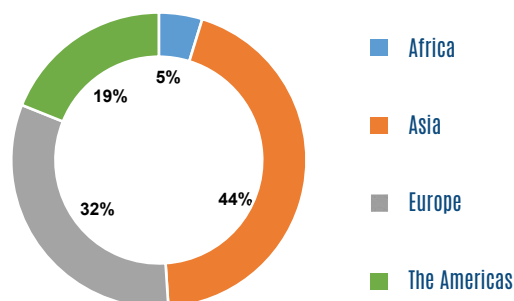
Our people strategy is premised on creating business relevant fit-for-purpose capabilities which help us to remain close to our vision, mission and values. The first lever of our people strategy is to enable the organization to adapt to future change by ensuring leaders at all levels are nimble and innovative in ways that deliver sustainable market value. The second lever is strengthening systems and processes that help people to demonstrate differentiating potential and performance. The third lever is enabling these leaders to deepen their competence through developmental initiatives, mentoring and coaching. By offering such diverse experiences and challenges in various business contexts, Indorama Ventures has an unparalleled advantage in delivering on our people strategy. Essential highlights of the outcome of our people strategy for 2018 are available in above picture.

1. People choose Indorama Ventures because of what we stand for



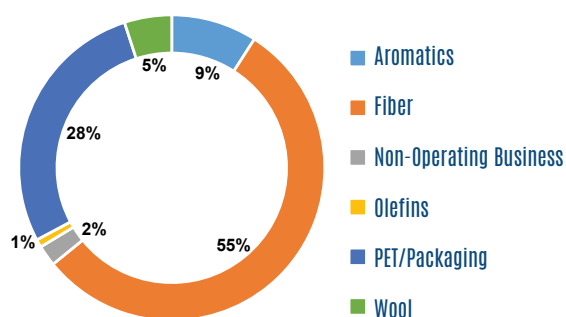
Our headcount grew by +22.83% to 19,581. Acquisitions contributed 98.45% of the growth in headcount.

Permanent employees by region



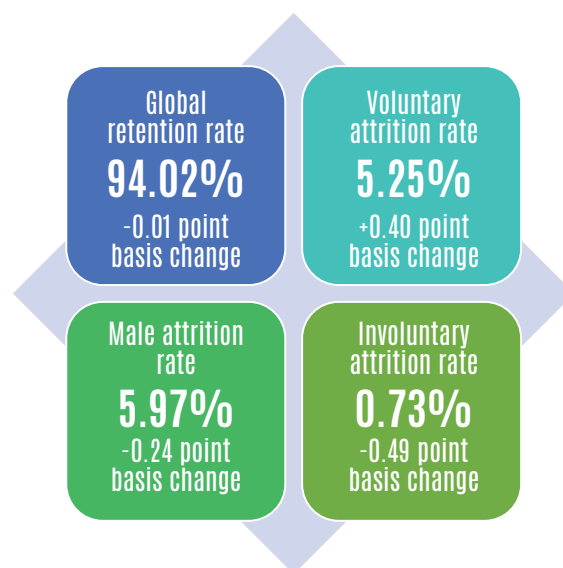
72.95% of the permanent headcount increase was in EMEA followed by 13.82% in America and 13.22% in Asia.

Permanent employees by segment



48.63% of the permanent headcount increase was in Fiber followed by 30.32% in PET/Packaging, 13.88% in Wool and 6.22% in Aromatics.

We put our talent analytics at center stage throughout the employee lifecycle. With the insights gathered from strategy meet sessions by the senior leadership team, Global Employee Engagement Survey, and focused group discussions, we calibrate the employee lifecycle processes underpinned by data analytics to attract and retain talent. *Launch of global platform in 2019 to learn and adopt the best retention interventions prevailing across all business units was a major enabler to understand the levers of retention.* This approach has reinforced our focus and imperatives to retain our talent in a sustainable way.



Campus connect programs in countries such as Thailand are an important way to infuse fresh talent from engineering and management institutes by offering motivated students with internships. This program not only provides special training to the interns but also helps them fully apply their learning to practical experiences with a special emphasis on teamwork, project management, cross functional networking and effective communications. In 2018, 16 paid interns from the best universities in Thailand completed the live projects report and returned to their universities to continue their formal education. After completing their studies, job offers will be given to these prospective employees.

2. Creating value through diversity

When people with different ideas and viewpoints work together, they create value by enabling a platform to communicate and execute on ideas. Our diversity and inclusion efforts are focused on leading and managing inclusively - embracing different cultures, ethnicities, genders and sexual orientations; creating a work environment that fosters growth and advancement, and engaging with our audiences in a way that reflects and respects their unique perspectives and experiences. We provide equal opportunity in recruitment, career development, promotion, training and rewards for all employees, including those with disabilities. Where possible, we make reasonable adjustments in job designs and provide appropriate training for employees who have disabilities. Some of our diversity indicators are as follows:

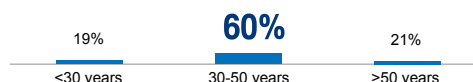
Gender Diversity

Female constitute **22.38%** of permanent employees. The proportion of female has increased by 1.73% as compared to 2017.

Nationalities

Our teams across the globe include **74** nationalities compared to 63 nationalities in 2017.

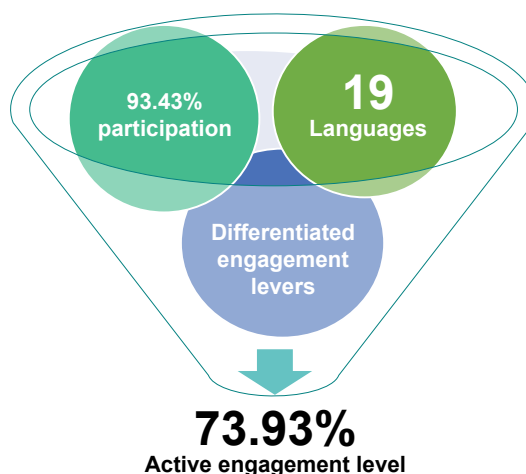
Age Diversity



3. Engaged people

Looking back on 2015 which was the launch for our first Global Employee Engagement (GEE) Survey, the headways we made in our employee engagement journey till now is impressive. The year-on-year improvements both in terms of employee participation and engagement scores has been significant. The GEE for year 2018 was conducted in 19 languages. The shift of +0.5 point basis in active engagement scores testifies that we are well on track in exploring and setting of ways to engage our workforce in a more meaningful way.

Results of the 2019 GEE Survey



The increase in the overall engagement score attributes to engagement interventions underpinned by data analytics that combines multiple parameters like tenure, gender, and age. We promote the disclosure of any misconduct or views about our processes and practices. In addition to local channels, an email address is given on our website for employees to report potential breaches of Indorama Ventures' Values and Code of Conduct. The Ethics Council takes immediate action on these cases by maintaining the confidentiality of the whistleblower, and at the same time reporting on such disclosures to the Nomination, Compensation & Corporate Governance (NCCG) Committee, which consists of Independent Board of Directors.

4. Trailblazing learning and development

At Indorama Ventures, learning takes place every day with an effort towards enabling capability and talent development. The focus is on experiential learnings associated with career conversations, stretch roles, discreet rotations/shadowing and cohort-based leadership development programs. We created multiple forums, channels, and e-Learning platforms to facilitate experiential learnings. Apart from the strategic leadership development programs such as i-Lead, v-Lead and shadow development, the following are some of the initiatives we put in place in 2019.

Learning & Development facts	Learning domains																
<ul style="list-style-type: none"> • 30.80 training hours per employee. Shift of +35.62% • 88.16% training coverage. Shift of +7.26% • 573,130 hours of training. Shift of +73.79% • 38 participants in the i-Lead leadership development program to prepare the next-generation of leaders • 27 participants for the v-Lead leadership development program to develop cross functional expertise • 18 high potential managers participated in the "Shadow Development" program meant to develop local talent. 	<table> <tr> <th>Focus Area</th><th>Training Hours</th></tr> <tr> <td>EHS & Quality</td><td>192,306</td></tr> <tr> <td>Functional</td><td>172,083</td></tr> <tr> <td>Technical</td><td>96,567</td></tr> <tr> <td>Leadership</td><td>69,171</td></tr> <tr> <td>Induction</td><td>31,424</td></tr> <tr> <td>Language Skills</td><td>11,578</td></tr> <tr> <td>Total</td><td>573,130</td></tr> </table>	Focus Area	Training Hours	EHS & Quality	192,306	Functional	172,083	Technical	96,567	Leadership	69,171	Induction	31,424	Language Skills	11,578	Total	573,130
Focus Area	Training Hours																
EHS & Quality	192,306																
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Leadership	69,171																
Induction	31,424																
Language Skills	11,578																
Total	573,130																

- "Share" forum: This forum was launched to identify, share and adopt the best training programs across all business units. The program's originators conducted global webinars for targeted participants. A few of them were further trained to impart the same training with their respective participants.
- In collaboration with edX, a leading MOOC platform (Massive Open Online Course), we crafted 250 e-Learning programs across all facets of the business. These programs were from Ivy League universities including Harvard and Yale, and were made available to i-Lead and v-Lead participants to step-up their cross functional understanding.
- The nine-month "Shadow Development" program was co-developed between Indorama Ventures and Sasin Institute, one of the most well-regarded business schools in Thailand. This program offers a unique blend of learning through a traditional classroom setting, site visits, projects and peer learning.

5. Compensation and rewards

The compensation system is designed to follow country specific requirements. Our incentive program is linked at three levels which are the Company, Business Unit, and Individual. We also assess our compensation packages against industry standards and seek to match or exceed them.

Employee Joint Investment Program (EJIP): This program began in 2017. The EJIP allows employees to become shareholders in Indorama Ventures, aligning their interest with the Company's performance through share ownership. Employees and the Company invest in existing listed shares in the name of participating employees on monthly basis for a period of time.

Award for excellence: Award for excellence serves as an inspiration for our employees to challenge all boundaries and produce outstanding results, and is based on stellar performance across 12 criteria, mainly in finance, operations and sustainability. The best business units are identified by benchmarking their performance across these criteria. These units are then provided with awards at the Global Strategy meet. Cash incentives are also given to all of the employees of these units as a recognition of their great team work.

GCEO remuneration to average employee remuneration Ratio:

The ratio is as follows

	Remuneration -2018
GCEO (in 000 THB)	49,452.00
Average Employee Remuneration (in 000 THB)	1206.34
Ratio	40.99

6. Succession Planning

In consultation with the NCCG committee, the Board reviews both the adequacy of the succession planning process and the plan for the Group CEO and the Executive Board positions. For other key positions, the Company ensures successful leadership transitions through a constant process of developing the next generation of leaders.

7. Human Rights

Business succeeds in societies where human rights are respected, upheld and advanced. In support of these principles, in 2017, IVL formalized its commitment to the UN Guiding Principles on Business and Human Rights. We started a yearly global survey in 2015 on Human Rights and continue to work on action plans to mitigate perceived risks. We also engage with our suppliers on their commitment to address human rights issues. Our respective units have taken the initiative of getting SA8000 certification or its equivalent to ensure there are no human rights violations across our organization.

8. Health and Safety

“Committed to Zero” is our top priority, with a target of having zero lost time injuries. Our senior leadership team believes in promoting a safe working environment across the organization and has taken the onus of being a role model to showcase the vital importance of workplace safety. The safety of our work force is our utmost priority. We continuously strive towards achieving our goal of zero accidents in the workplace as well as eliminating injuries and occupational diseases across the Company. During the year, we further mechanized some of our operations, implemented rigorous safety line walks, strengthened the deployment of contractor safety management, and embraced digital interventions to reduce workplace risks.

9. Material Labor Disputes

Since the inception of Indorama Ventures, we have never had any material labor disputes.

SUSTAINABILITY AND CORPORATE SOCIAL RESPONSIBILITY



Indorama Polyester Industries (Nakhon Pathom) is a PET recycling facility in Thailand.

Our Vision and Commitments

Indorama Ventures has set itself a very clear ambition “**to be a world-class chemical company making great products for society.**” Our vision is rooted in our **shared responsibility** to build and operate a company that contributes to the **well-being of every member of society**. We recognize that with an **increased global presence** comes even **greater responsibility** to operate in an **environmentally and socially** responsible way.

Sustainability remains a **core commitment** for Indorama Ventures in both our approach and values. With our deep commitment, we drive a comprehensive strategy through structures and processes

which are implemented by employees at all levels. Our **long-term focus** incorporates sustainability at all levels of the Company, and we continue to invest in opportunities that enhance our earnings and operations, and support our employees who have enabled us to move from **better to best**. The Board oversees and advises on **significant strategic activities and policies** regarding **sustainability practices** and initiatives through the **Sustainability and Risk Management Committee**. Our Sustainability and Risk Management Governing Structure can be found at <http://www.indoramaventures.com/en/sustainability/our-sustainability>.

Our Principles of Responsibility

Indorama Ventures fully recognizes that the sustainable development of our business requires a responsible approach to social and business issues, as well as environmental concerns. Our focus on building a **stronger and recyclable PET** has resulted in our continuity in **leveraging our size, scale and global presence to pursue selective strategic acquisitions in promising businesses, especially high value-added and high-performance business**. This remains a **firm part of our strategy in supporting a circular economy**. Meanwhile, the investments we are making to drive growth were evident throughout our portfolio, and throughout the world, as various new sites opened, a total of **19 new sites in 2018**, in addition to **the expansion of several locations** including in China and the United States.

We conduct our business and operations with a **responsibility to our stakeholders**. Ethics and commitment form the core of best business practices. We **regularly engage** with both internal and external stakeholders to maintain excellent working relationships and to understand, prioritize and incorporate their expectations, interests and concerns into our business operations. **A multi-faceted approach** allows us to effectively absorb **feedback** from stakeholders which further drives our **business strategy and policies** together with **sustainable development**, in addition to exploring opportunities and continuing to build relationships with the communities where we live and work through trust, mutual understanding and respect.

We publish our **Sustainability Report annually** as part of our commitment to **transparency** and strengthening our engagement with stakeholders regarding our sustainability practices. We use the **Global Reporting Initiatives (GRI) Standards** as a framework for reporting our sustainability activities. Content and data disclosed in our sustainability report is **independently verified** by external assurance auditors. Indicators were selected for assurance based on the material topics from **materiality assessments** and the concerns that are **most significant to the sustainability performance** of the business, as well as **key risks identified** by IVL Group.

Key Focus Areas

The focus areas and the strategic measures we adopt in terms of sustainability are based on a **Materiality Assessment**. In accordance with the GRI Standards, we are constantly evaluating material issues that have an impact on the sustainable development of the Company from both internal and external stakeholder perspectives.

In 2018, the materiality assessment process was extended to more external stakeholders, such as customers, suppliers, bankers, investors and the media. The feedback was incorporated in defining the key material issues and focus areas for our sustainability management and reporting.

As a result of the assessment, our stakeholders and IVL consider the following to be the top economic, environmental and social issues:



Further details on the materiality assessment process, key material issues and performance on all material issues are provided in the [2018 Sustainability Report](#).

Throughout 2018, we continued to deliver great products and services for our customers, develop new and exciting products, grow the business, and increase our operational efficiency. Key highlights of our solid progress include:

- Revisiting and reviewing **operational eco-efficiency target setting** plans in accordance with sustainability mega-trends and organic business growth.
- Encouraging and developing **initiatives on climate strategy and environmental protections** in-line with the operational eco-efficiency targets.
- Studying the potential for increasing **renewable energy use** at all of IVL's operating sites.
- Continuing to promote the **efficient and increased use of renewable resources** through greater reuse and recycling to support the **circular economy**.
- Introducing **internal carbon pricing** to IVL management to encourage awareness and consider **mitigation measures** in future business plans.
- Developing our **Green Product Classification** approach and methodology to be applied with our existing **product portfolio throughout the value chain**.
- Continually **reducing our environmental footprint** by improving the environmental performance of our production processes including targets for energy and water use, greenhouse gas (GHG) emissions and waste reduction.
- Encouraging **environmental awareness and an understanding of the risks** related to **climate change** and the need for

environmental protections, including greenhouse gas accounting, life cycle assessments, renewable energy sourcing, a carbon tax, water scarcity and conservation and plastic waste.

- Progressively obtaining and maintaining **Environmental Management** based on ISO 14001 certification, **Energy Management** standards based on ISO 50001, **Occupational Health and Safety Management Systems** based on ISO 45001/OHSAS 18001 and **international quality management standards**, e.g. ISO 9001.
- Implementing a **Process Safety** approach and **reporting scheme** at all IVL operating sites.
- Ensuring best practices through **human rights assessments** in every context **throughout the value chain including all vulnerable groups**.
- Continuing to improve the **customer satisfaction survey** through broader and more open communications channels that result in improved customer feedback.

- Developing **Diversity and Inclusion Programs** to support an exceptional corporate culture that **respects diversity** and fosters cooperation and synergies.

Details of our sustainability initiatives, performance and metrics are provided in our 2018 Sustainability Report, which is available at <http://www.indoramaventures.com/en/downloads/sustainability-report>.

Indorama Ventures encourages **independent external sustainability assessments and evaluations** of our sustainability performance through participation in initiatives such as the Dow Jones Sustainability Indices (DJSI), CDP, FTSE4Good, and EcoVadis, among others.

Our **achievements and recognitions** speak to the focused efforts of management, together with the outstanding commitment and efforts of our employees. It is important that we build on these successes and continue to aspire be “a **world-class chemical company making great products for society**.” The following are some of our key sustainability achievements:



Indorama Ventures was **recognized in RobecoSAM's Sustainability Yearbook 2019 and was listed in the Dow Jones Sustainability Indices (DJSI)**.

We are **ranked among the top 10% of Global Chemical Companies and one of only two companies in the DJSI Emerging Markets Chemical Industry**.

This inclusion confirms our excellent performance among the world's leading companies in the chemicals sector and our commitment to leadership in sustainability.



Indorama Ventures **achieved a B Rating in CDP's Climate Change Assessment and B- (B Minus) in CDP's Supply Chain Assessment**.

CDP's international platform measures, discloses, manages and shares vital environmental information in order to prevent climate change, value natural resources, and encourage a sustainable supply chain.



FTSE4Good

Indorama Ventures PCL **remains a constituent of the FTSE4Good Index Series following the June 2018 index review**.

We received a **Best ESG score** and stand at the **top of the group with a 100% percentile rank**.

The index is designed to measure the performance of companies demonstrating strong and excellent Environmental, Social and Governance (ESG) practices based on publicly available data.



In 2018, Indorama Ventures **achieved Gold Recognition, ranking in the top 3% of companies** rated by EcoVadis in the **manufacture of basic chemicals**.

The EcoVadis CSR Rating assesses global corporate sustainable procurements practices in four themes: Environment, Labor and Human Rights, Ethics and Sustainable Procurement.

Bloomberg

We achieved the highest Bloomberg ESG disclosure score, and were ranked number one among companies on the Stock Exchange of Thailand (SET50).

Bloomberg evaluates companies on an annual basis, collecting publicly disclosed ESG information disclosed by companies as well as through direct company contact.

MSCI

ESG rating - Chemical Commodity

Indorama Ventures was **graded BB for the ESG rating in 2018.**

MSCI is an independent provider of research-based indices and analytics. The research is conducted in order to facilitate the world's leading institutional investors in managing their portfolios.



SUSTAINALYTICS

Indorama Ventures achieved an overall ESG score of 68.

Sustainalytics ESG Ratings measure how well companies proactively manage the environmental, social and governance issues that are the most material to their business.







Indorama Ventures was presented with the **SET Sustainability Awards 2018** in the Outstanding category, received the **Thailand Sustainability Investment (THSI) Award** for the fourth consecutive year, and also received the **Best Sustainability Report Award** from the Stock Exchange of Thailand (SET).

IVL's external sustainability ratings are available on our website at: <http://www.indoramaventures.com/en/sustainability/external-ratings>

Integration of the Sustainable Development Goals (SDGs) into IVL's business operations

We will continue to create value and improve our performance for our stakeholders in economic, environmental and social dimensions, and link the United Nations Sustainable Development Goals (SDGs) with our own business imperatives. We have prioritized and are acting in support of the SDGs and remain committed to bridging existing global environmental gaps. We also aligned our material topics with the SDGs, and will use relevant corporate information to prioritize our contributions to sustainable development. Considering the nature of our business, IVL is committed to playing a positive role by working to achieve the following SDGs:

3 GOOD HEALTH AND WELL-BEING 	<ul style="list-style-type: none"> • Environmental Stewardship • Innovation Management • Product Stewardship • Recycling Business • Light-weighting and Low Carbon Products • Health and Safety 	4 QUALITY EDUCATION 	<ul style="list-style-type: none"> • Recycling Education • Science Technology Engineering Mathematics (STEM) Education
5 GENDER EQUALITY 	<ul style="list-style-type: none"> • Diversity and Inclusion • Equality • Women's Workforce Participation 	6 CLEAN WATER AND SANITATION 	<ul style="list-style-type: none"> • Product Stewardship • Innovation Management • Water Management
7 AFFORDABLE AND CLEAN ENERGY 	<ul style="list-style-type: none"> • Renewable Energy • Energy Management • Climate Strategy 	8 DECENT WORK AND ECONOMIC GROWTH 	<ul style="list-style-type: none"> • Product Stewardship • Innovation Management • Recycling Business • Circular Economy • Health and Safety

12 RESPONSIBLE CONSUMPTION AND PRODUCTION 	<ul style="list-style-type: none"> • Product Stewardship • Innovation Management • Environmental Stewardship • Recycling Business • Light-weighting and Low Carbon Products • Health and Safety 	13 CLIMATE ACTION 	<ul style="list-style-type: none"> • Climate Strategy • Product Stewardship • Recycling Business • Circular Economy • Light-weighting and Low Carbon Products • Innovation Management
14 LIFE BELOW WATER 	<ul style="list-style-type: none"> • Recycling Business • Climate Strategy • Water Management • Product Stewardship • Innovation Management 	15 LIFE ON LAND 	<ul style="list-style-type: none"> • Recycling Business • Climate Strategy • Waste Management • Water Management • Innovation Management

Corporate Social Responsibility at IVL

We strongly believe in the need to balance the interests of our business with those of society and the environment. Corporate social responsibility (CSR) is a key strategy in demonstrating the integrity of our business. Our actions demonstrate the positive effect we have as a company on society and the environment which in turn, is vital to achieving sustainability.

Our mission, “to be a world-class chemical company making great products for society,” can be achieved by integrating our business goals and CSR activities and focusing on our group-wide corporate citizenship and philanthropic contributions, which focus on three major priorities:

1. Economic growth – improving the quality of life of the communities where we operate.
2. Innovation – creating new products for customers that enhance their own sustainability objectives while providing us with an advantage over our competitors.

3. Social license – being a positive force for development and change by supporting communities, adhering to all local and national regulations, and through the ethical operation of our business.

Our CSR activities are also fully committed to the UN Sustainable Development Goals (SDGs), specifically SDG Goal 3 - Good Health and Well-being, SDG 4 - Quality Education and SDG 8 - Decent Work and Economic Growth. Our CSR efforts focus on further supporting our three major priorities by incorporating these SDGs into our CSR activities by concentrating on:

i Community health and well-being

We believe in strengthening communities by ensuring they have access to health awareness programs and community care facilities so they can remain vibrant and self-sustaining. This year, IVL helped through a number of initiatives, including:

- Arranging health education training courses for communities focused on adopting practices geared towards maintaining a healthy lifestyle and improved well-being.



The International Yoga Day 2018 (Thailand)

- Providing a mobile medical clinic to communities for free health checks, including tests for breast and cervical cancer, dental check-ups, and vaccines for pets.
- Holding several staff fundraising campaigns in support of children, patients with breast cancer, hospital equipment purchases, and support for the underprivileged.
- Supporting foundations such as the Red Cross, Decatur Morgan Hospital Foundation, Operation Smile Thailand and the United Way.

ii Education for a better future

We recognize the growing demand for high-level skills, and support programs and instruction in Science, Technology, Engineering and Mathematics (STEM). A solid education provides better career opportunities and an improved quality of life. To help reduce the skills gap, we:

- Provided internships, training, career, and technical vocation programs, and university and college scholarships.
- Collaboration with schools, universities, customers to provide and support education programs.
- Donated funds for various new equipment and resource needs for schools, colleges, and universities.

iii Supporting a sustainable ecosystem

We encourage increased recycling, engage in numerous campaigns to promote its value and support circular economy. By focusing on schools, we hope to encourage awareness among children and youth, and demonstrate how PET can be recycled and recycled plastic waste can be made into a variety of useful products, which can protect the environment, reduce energy use, and create jobs. Our activities included:

- A flagship Recycling Education program in Thailand and the United States.
- Sponsoring Keep America Beautiful (KAB), a national non-profit organization that helps communities end littering and improve recycling through education.
- Partnering with schools in the US, Mexico and Thailand to encourage inventive competitions to boost recycling.

To protect and conserve the environment we support Wetlands Edge Environmental center, sponsor the Asheboro Zoo to contribute the zoological society, release turtles and snappers to increase marine population.

More details on CSR performance and activities are provide in the 2018 Sustainability Report.



Recycling education program, Thailand



Summer Welding & Electrical Technical Camp for Girls, USA



Recycling education program "Keep America Beautiful", USA

AUDIT COMMITTEE REPORT TO THE SHAREHOLDERS FOR THE YEAR 2018

The Audit Committee comprised of Independent Non- Executive Directors with a minimum requirement of three such members. The Audit Committee of Indorama Ventures Public Company Limited consists of three Independent Directors of the Company, who possesses appropriate qualifications to serve on the Audit Committee, namely;

1. Mr. Rathian Srimongkol Chairman
2. Mr. Maris Samaram Member
3. Dr. Siri Ganjarendeep Member

During the year 2018, the Committee held 6 meetings, with the attendance of the Audit Committee Members as under:

Sr: No.	Name of Audit Committee Member	Meetings Attendance
1	Mr. Rathian Srimongkol	6/6
2	Mr. Maris Samaram	6/6
3	Dr. Siri Ganjarendeep	6/6

The Audit Committee independently performed its duties, in accordance with the Audit Committee Charter which has been reviewed and approved by the Board of Directors and in alignment with the regulations of the Stock Exchange of Thailand (SET).

During the year 2018 the Committee held 6 meetings with Management, Internal Audit and External Auditors.

Significant activities of the committee during the year are summarized here under:

1. Review and approval of Financial Statements:

The Audit Committee reviewed the quarterly and annual consolidated financial statements of the Company and its subsidiaries which were prepared in accordance with Thai Financial Reporting Standards (TFRS) which is in conformance with the International Financial Reporting Standards (IFRS). The Committee reviewed material issues and exceptional items and obtained sufficient clarification from the external auditors and the management, and confirms that the financial statements and the disclosure in notes to the financial statements were in compliance with the relevant laws and financial reporting standards. The Audit

Committee also reviewed Key Audit Matters (KAMs) as presented by the Auditors of the Company.

The Audit Committee approved quarterly consolidated financial statements and reviewed annual consolidated financial statement before the same is approved by the Board of Directors.

Based on the review and discussions with the external auditors of the Company, the Committee believes that the company's financial statements are accurate, complete, presented fairly with adequate information in compliance with generally accepted accounting standards and relevant regulations. The committee also held meeting with external auditor's in the absence of management to review external auditor's scope of work, audit approach and any issues they might be facing.

2. Review and approval of Management Discussion and Analysis:

Each quarter of the year, the Committee deliberated on the Management Discussion and Analysis (MD&A) in consultation with the Management. The Committee approved the quarterly MD&A reports and reviewed the annual MD&A reports before recommending the same to the Board of Directors for approval. The Committee believes that the Management Discussion and Analysis (MD&A) is presented fairly with adequate information.

3. Review of Internal Control Systems' Effectiveness

The Audit Committee assessed the adequacy of internal control systems with the Company's management, external and internal auditors. The Committee works together with the Internal Auditor and Management to streamline the internal control systems and procedures as a continuous process. The Committee also reviewed the progress of Control Self-Assessment (CSA) tool developed by Internal Audit and distributed to business process owners which assist in setting Business Self Audit team and helps to fill control gaps as deemed appropriate for each business both domestic and overseas, in accordance with the relevant laws, regulations and business readiness. Control Self-Assessment of Sales & Marketing and Inventory Management processes have been rolled out to the Businesses during the year 2018. The Audit Committee reviewed the Evaluation Form of Sufficiency of Internal Controls Systems for

the year 2018 and based on its review, the Committee in agreement with Management and Internal Audit, believes that the company's internal control systems are adequate, suitable and adaptable to evolving circumstances to suit the company's businesses, present and future, while complying with related laws and regulations.

4. Oversight of Internal Audit

The Audit Committee reviewed and approved the Annual Internal Audit Plan for the year 2018. The Committee also reviewed the new initiatives undertaken by Internal Audit to further increase the effectiveness of Internal Audit Process. The committee also reviewed the progress of new initiatives undertaken. The Audit Committee reviewed the Internal Audit Plan and reviewed the progress of actual completion and follow up reports on status update on outstanding recommendations. The Audit Committee also reviewed significant audit findings and their resolutions as reported by Internal Audit. The Committee reviewed the periodic presentations of Internal Audit covering progress of IA coverage according to the plan, significant findings and follow up status of audit recommendations. The Committee also escalated some of the significant Internal Audit issues to the Board for their information. Based on its review, the Committee is of the opinion that the Company's internal audit function including their independence, and team size is adequate and effective.

5. Review of Connected Transactions in compliance with the Law and Stock Exchange of Thailand's Regulations

The Audit Committee approved New Connected transactions which are required to be approved by the Audit Committee as per SEC/SET regulations and Connected Transaction Policy of the company. The Audit Committee also reviewed the connected party statement on quarterly basis detailing all the connected party transaction of the Company and its subsidiaries.

Based on its review, the Committee is of the opinion that all such transactions took place at regular commercial conditions and justifiable terms on arm's length basis as would have been entered with outsiders, in the best interest of the Company, in line with the Connected Transaction Policy of the Company and in compliance with regulatory requirements.

6. Compliance with Securities and Stock Market Laws, Regulations of the Stock Exchange of Thailand and/or other applicable laws:

The Committee reviewed, on quarterly basis, the status of the company's compliance with the laws and regulations of the Stock Exchange of Thailand, the Securities and Exchange Commission and other relevant laws pertaining to the Company's business

and no significant non-compliances were noted. The Committee escalated some of the significant compliance issues to the Board for their information.

The Committee further reviewed the status of compliance with the local and all applicable laws and regulations of respective countries in which the subsidiaries exist and/or operate and noted no issue of non-compliances.

7. Appointment of External Auditors

The Committee evaluated the performance of KPMG Phoomchai Audit Limited, the external auditors of the Company, for the year 2017 and being satisfied, recommended to the Board for their re-appointment for the year 2018 along with the proposed audit fee.

8. Self-Assessment of Audit Committee Members

The Audit Committee conducted a self-assessment to review and evaluate its performance by benchmarking it with the Audit Committee Charter and best practice guidelines. The Audit Committee is satisfied that it has been effective in carrying out its duties and has followed the terms of reference in its charter. The results of the self-assessment were reported to the Board of Directors of the Company.

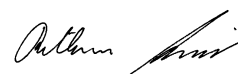
9. Report of the Audit Committee:

The Audit Committee from time to time reported critical issues related to Internal Audit and other activities to the Board of Directors.

Based on above it can be said that the Audit Committee performed its duties as specified in the Board-approved charter with competence, prudence, and independence in equitable interests of stakeholders. In the opinion of the committee, IVL's financial reports were accurately prepared in all material aspects under generally accepted accounting principles. IVL has adequate risk management practices, appropriate internal control and internal audit systems, compliance with good corporate governance, legislation, requirements, and obligations relevant to its businesses.

The Audit Committee received good cooperation throughout 2018 from the Board of Directors, executive officers, auditors and all other relevant departments.

On behalf of the Audit Committee



Mr. Rathian Srimongkol
Chairman of the Audit Committee

SUSTAINABILITY AND RISK MANAGEMENT COMMITTEE 2018 REPORT

Indorama Ventures strongly believes in the importance of sustainability, including having a risk management component. This supports our systematic and sustained growth and helps us anticipate and manage current and future economic, environmental, social risks and opportunities for our business activities.

The Board of Directors is committed to achieving its strategic business objectives, increasing long-term value for our shareholders, protecting the environment, and focusing on the health, safety and well-being of our employees and other stakeholders by operating sustainably, and continuously improving operational excellence by demonstrating world-class environmental, social and governance (ESG) standards in all of our operations.

The Group's Sustainability and Risk Management Committee (the "Committee"), was established by the Board and operates in accordance with the Sustainability and Risk Management Committee Charter published on our website: www.indoramaventures.com

The Committee is accountable to the Board for its performance, and is responsible for the Group's sustainability activities as well as for providing risk management oversight, including monitoring the effectiveness of the risk management framework. The Committee oversees the Group's work on sustainability, monitors key opportunities and risks, and assesses risk mitigation plans, reports its findings to the Board. The Committee is supported by the Sustainability Steering Committee, the Chief Risk Officer, Functional Heads and Plant Heads.

The Committee comprises four independent and three executive directors:

Name	Position
1 Mr. Alope Lohia	<ul style="list-style-type: none"> Chairman of the Committee Vice-Chairman of the Board Executive Director Group Chief Executive Officer
2 Mr. Rathian Srimongkol	<ul style="list-style-type: none"> Member of the Committee Vice-Chairman of the Board Independent Director Lead Independent Director Chairman of the Audit Committee
3 Mr. Maris Samaram	<ul style="list-style-type: none"> Member of the Committee Independent Director Member of the Audit Committee
4 Mr. Russell Leighton Kekuewa	<ul style="list-style-type: none"> Member of the Committee Independent Director Member of the Nomination, Compensation and Corporate Governance Committee
5 Mr. Kanit Si	<ul style="list-style-type: none"> Member of the Committee Independent Director Member of the Nomination, Compensation and Corporate Governance Committee
6 Mr. Dilip Kumar Agarwal	<ul style="list-style-type: none"> Member of the Committee Executive Director Chief Executive Officer of Feedstock and PET Business
7 Mr. Udey Paul Singh Gill	<ul style="list-style-type: none"> Member of the Committee Executive Director Chief Executive Officer of Fibers Business

Mr. Kanit Si was appointed as a new member of the Committee by the Board at its meeting on 11 May, 2018. Mr. Kanit Si brings a wealth of engineering and financial expertise from his chemical business and banking experience.

The Committee performed its duties and responsibilities as mandated by the Board and the Committee Charter. Two Committee meetings were convened last year, the first on 18 January 2018 and the second on 2 August 2018. Except for Mr. Kanit Si and Mr. Udey Paul Singh Gill, who were absent from the second meeting, all other Committee members attended both meetings.

Embedding ESG criteria into our corporate DNA has been a top priority for the Committee. In 2018, IVL carried out several environmentally and socially beneficial activities with a focus on climate strategy, environmental protection, safeguarding human rights, employee health, safety and well-being, and stakeholder engagement.

Key Committee activities in 2018

1. Overseeing the deployment of and continuously driving IVL's sustainability framework, performance, and engagement across the organization by integrating corporate sustainability into our day-to-day business operations.
2. Defining, guiding, advising and endorsing sustainability and risk strategies, policies, risk mitigation plans, and corporate goals for continued efficiency in sustainability and improvements to risk management processes.
3. Monitoring significant risks throughout the year by the Committee and the Risk Management Sub-Committees at the business and plant level, specifically:
 - Strategic risks and opportunities including potential risks relating to environmental, social, governance, and industry trends at existing plants, expansions and new acquisitions; reviewed cyber security audit results.
 - Operational risks and opportunities including cyber security, natural catastrophes, demand and supply, customer/supplier concentration, climate change, environmental protection, carbon pricing, renewable energy, water scarcity and conservation.
 - Financial risks and opportunities including debt compliance covenants, liquidity, fluctuations in currency, interest rates, taxation.
 - Reputational risks including corruption, bribery, child, and forced labor, protecting human rights, environmental and regulatory compliance, and plastic waste.
4. Reviewing IVL's current and future business plans, strategies, sensitivity analyses, conducting stress tests semi-annually, with presentations to the Board for its consideration.

5. Overseeing the customer satisfaction survey process, methodology, results and our future action plans; reviewing and advising on our taxation governance and risks.
6. Reviewing and advising on environmental protection, carbon reduction initiatives and our target setting plans in accordance with sustainability mega-trends and organic business growth.
7. Reviewing and advising on human rights protections at all of our operations and throughout the value chain, and the human rights assessment results.
8. Reviewing our human resource performance, global employee engagement results, and advising on our commitment and actions on diversity.
9. Reviewing our occupational health and safety performance, and the implementation of our process safety approach and reporting scheme.
10. Reviewing and advising on RobecoSAM's Dow Jones Sustainability Indices (DJSI) Corporate Sustainability assessment, together with assessments by the CDP, the Stock Exchange of Thailand, FTSE4Good Index and other ESG evaluations.

All of our entities have operated in accordance with the Committee's approved framework, methods, plans and recommendations.

Performance Evaluation of the Committee

The Committee assessed its performance and effectiveness and agreed that its overall performance had been effective during the year.

Leadership of the Committee

The Committee is focused on sustainability through an effective and systematic focus on ESG parameters, with clear objectives to protect, sustain and generate increased value for our stakeholders.

Throughout 2018, we delivered real organic growth and achieved another record year, significantly with inclusion in the Dow Jones Sustainability Index (Emerging Markets) for the second consecutive year. We were also rated by FTSE4Good as the company with the Best ESG score among the world's leading companies in the chemicals sector. All of these recognitions confirm we are maintaining our trajectory with commitment, and leadership in sustainability.

On behalf of the Sustainability and Risk Management Committee,



Mr. Aloke Lohia
Chairman

REPORT OF THE INDORAMA VENTURES PUBLIC COMPANY LIMITED

NOMINATION COMPENSATION AND CORPORATE GOVERNANCE COMMITTEE (NCCG) FOR THE YEAR 2018

Mr. William Ellwood Heinecke, Independent Director is the Chairman of the NCCG Committee. The other members of the Committee are Dr. Siri Ganjarende, Independent Director; Mr. Kanit Si, Independent Director; Mr. Chakramon Phasukavanich, Independent Director; and Mr. Russell Leighton Kekuewa, Independent Director and Mr. Alope Lohia, Group CEO & Vice Chairmen of the Board is the Advisor to the Committee.

During the year 2018, the NCCG Committee held four meetings and performed its task under the scope of its responsibilities as assigned by the Board of Directors, as per the NCCG Charter and those required by the applicable regulations. Notable measures taken by the NCCG Committee during the year are as follows:

1. Revised Roles under the Board Charter:

The NCCG Committee recommended the following changes to the Board charter:

- “To appoint a Lead Independent Director since the Chairman of the Board is not an Independent Director.” The Lead Independent Director shall take the lead in setting the agenda and convening meetings of the Independent Directors at least once per year.
- “To convene at least one meeting a year of Independent Directors only.”
- “The Board will ensure that the Company goals and objectives will lead to sustained performance benefitting the Company, its stakeholders and society as a whole.”
- “The Board will review and evaluate critical risk management issues, policies and procedures and ensure that adequate resources are made available to implement risk management plans.”
- “The Board will ensure that the CEO, CFO and other senior executives receive relevant training to perform their duties effectively.”

2. Revised the NCCG Committee Charter:

- “Appointment of a senior executive as an advisor to the Committee to provide insight into organizational matters.”
- “Disclosure of information related to new Directors as per SET and SEC guidelines.”

3. Revised the Responsibilities of the Company Secretary:

The duties of the Company Secretary were further aligned with the recommendation of the SEC.

4. Appointed Independent Directors for Additional Roles:

- Mr. Rathian Srimongkol was appointed as Lead Independent Director
- Mr. Russell Leighton Kekuewa was appointed to the NCCG Committee
- Mr. Kanit Si was appointed to the Sustainability and Risk Management Committee.

5. Reappointed Directors to New Terms:

The following Board Directors' terms were due to expire in 2018, the NCCG Committee considered their experience and contribution of the Board and respective committees and deemed it appropriate to recommend to the Board to re-appoint them for another term:

- Mr. Rathian Srimongkol – Independent Director & Vice Chairman of the Board; Chairman of the Audit Committee and Member of the Sustainability & Risk Management Committee
- Mr. William Ellwood Heinecke – Independent Director and Chairman of the Nomination, Compensation and Corporate Governance Committee
- Dr. Siri Ganjarende – Independent Director and Member of Audit Committee and Member of the Nomination, Compensation and Corporate Governance Committee

- Mr. Maris Samaram – Independent Director; Member of the Audit Committee and Member of the Sustainability & Risk Management Committee
- Mr. Sanjay Ahuja – Executive Director (Chief Financial Officer)

6. Provided Training to Board Members:

The NCCG Committee sent two Directors to IOD training programs in 2018.

- Mr. Chakramon Phasukavanich – “Board Matters and Trends”
- Mr. Russell Leighton Kekuewa – “Strategic Board Master Class”

7. Assessed Board Effectiveness:

The NCCG Committee commissioned IOD to assess the effectiveness of the Board. The assessment was completed within 2018. Key recommendations were:

- Review corporate governance code and policies with guidelines for board and committees.
- Standardize training materials on corporate governance.
- Revisit the Board’s role in strategy and risk management, compensation and succession planning.
- Increase Board engagement with the company’s key stakeholders.

The NCCG Committee noted the recommendations and will address the points prescribed.

8. Evaluated the Performance of the NCCG Committee:

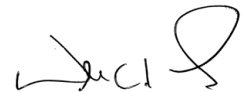
Members performed a self-assessment of the performance of the Committee. No material gaps were identified and performance overall was deemed satisfactory.

9. Evaluated Remuneration of the Board Members:

The NCCG Committee evaluated board member compensation and found it to be in line with that of industry peers.

10 Established Retirement Age of Independent Directors

In order to facilitate succession planning of board members it was decided that Independent Directors may not stand for election if they have reached the age of 72 years.



William Ellwood Heinecke
Chairman, NCCG Committee

REPORT OF THE BOARD OF DIRECTORS' RESPONSIBILITIES FOR THE FINANCIAL STATEMENTS

The Board of Directors of Indorama Ventures Public Company Limited places great importance on its duties and responsibilities in supervising the Company's operations in compliance with good corporate governance principles and is accountable for the financial statements, including the financial data shown in the Annual Report. The financial statements for the accounting year ended December 31, 2018 were prepared under generally accepted accounting standards. In preparing the said financial statements, the Company has adopted accounting practices and standards that are appropriate to its nature of business. All material information has been sufficiently disclosed in the notes to financial statements. The financial statements have been audited by qualified and independent auditors who have confirmed that the said statements accurately reflect the actual financial standing, results and operating results over the past year, as well as being transparent.



Mr. Sri Prakash Lohia
Chairman



Mr. Alope Lohia
Group CEO

The Board of Directors has maintained internal control, internal audit, risk management and corporate governance in order to ensure the completeness, adequacy, accuracy and fairness of the financial statements. The Board of Directors has assigned the Audit Committee to review the quality of the financial reports, the internal control system as well as the appropriate disclosure of connected transactions.

The Board of Directors expresses its satisfaction on the adequacy, credibility and reliability on the internal control system and the financial statements of Indorama Ventures Public Company Limited and its subsidiary companies for the year ended December 31, 2018.

INDEPENDENT AUDITOR'S REPORT

To the Shareholders of Indorama Ventures Public Company Limited

Opinion

I have audited the consolidated and separate financial statements of Indorama Ventures Public Company Limited and its subsidiaries (the “Group”) and of Indorama Ventures Public Company Limited (the “Company”), respectively, which comprise the consolidated and separate statements of financial position as at 31 December 2018, the consolidated and separate statements of income, 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 2018 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 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.

Acquisitions of businesses	
Refer to Note 4 to the consolidated financial statements.	
The key audit matter	How the matter was addressed in the audit
<p>In 2018, the Group completed the acquisitions of businesses resulting in the recording of gains on bargain purchases of Baht 1,928.5 million in the consolidated statement of income for the year ended 31 December 2018 and goodwill of Baht 5,674.5 million in the consolidated statement of financial position as at 31 December 2018.</p> <p>The acquisition method of accounting for business combinations is a complex and judgmental exercise, requiring the Group to determine the fair value of assets acquired and liabilities assumed and consideration transferred with any resulting differences recognised as goodwill or a gain on bargain purchase.</p> <p>Due to the materiality of the transactions and the significant judgment and complexities involved in determining the fair value of assets acquired and liabilities assumed, I considered accounting for business combination as a key audit matter.</p>	<p>My audit procedures included the following:</p> <ul style="list-style-type: none"> • Read the sale and purchase agreement and analysis memorandum of business combination prepared by the Group to understand key terms and conditions; • Evaluated the assessment by the Group of the identification of all the assets acquired and liabilities assumed and consideration transferred; • Evaluated the assumptions and methodologies underpinning the valuations; • Involved KPMG valuation specialist to evaluate the financial parameters applied to the discount rate, identification of the intangible assets, valuation methodology used and calculation rationale. • Assessed the adequacy of the Group's disclosure in accordance with Thai Financial Reporting Standards.

Impairment assessment of goodwill	
Refer to Note 16 to the consolidated financial statements.	
The key audit matter	How the matter was addressed in the audit
<p>As at 31 December 2018, the Group had goodwill of Baht 15,210.0 million.</p> <p>The cash-generating units ("CGU") to which the goodwill belongs are tested for impairment annually. The Group applies the value-in-use (discounted cash flow ("DCF")) method to determine the recoverable amount of each CGU. Any shortfall of the recoverable amounts against the carrying amounts would be recognised as impairment losses.</p> <p>Due to the materiality of the balances and the judgment and complexities involved in determining the future cash flows attributable to the individual CGU, I considered the measurement of the recoverable amount as a key audit matter.</p>	<p>My audit procedures included the following:</p> <ul style="list-style-type: none"> • Evaluated the DCF provided by the Group and the Group's assumptions applied in the value-in-use method against relevant documents as well as externally derived data. • Analysed historical information to support the precision in the Group's forecasting process. • Tested the principles and mathematical accuracy of the DCF and performed sensitivity analysis around the key assumptions. • Evaluated the financial parameters applied to the discount rate. • Assessed the adequacy of the Group's disclosure in accordance with Thai Financial Reporting Standards.

Emphasis of Matter

I draw attention to the fact, as further detailed in Note 4, that, as at the reporting date, the determination of the fair value and the allocation of the purchase price of several business acquired during 2018 was determined provisionally and is subject to potential amendment. My opinion is not modified in respect of this matter.

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.



(Sakda Kaothanthong)
Certified Public Accountant
Registration No. 4628

KPMG Phoomchai Audit Ltd.
Bangkok
26 February 2019

STATEMENT OF FINANCIAL POSITION

Indorama Ventures Public Company Limited and its Subsidiaries

		Consolidated financial statements		Separate financial statements	
		31 December		31 December	
Assets	Note	2018	2017	2018	2017
(in thousand Baht)					
Current assets					
Cash and cash equivalents	6	5,578,445	6,877,049	16,809	3,194,234
Current investments	7	134,274	138,039	-	-
Trade accounts receivable	5, 8	37,636,557	32,098,171	-	-
Other receivables	5	1,324,554	1,056,848	83,117	42,024
Short-term loans to related parties	5	170,933	155,611	57,486,542	28,855,305
Inventories	9	70,085,328	46,036,477	-	-
Other current assets	10	9,354,142	6,590,818	53,132	542,841
Total current assets		124,284,233	92,953,013	57,639,600	32,634,404
Non-current assets					
Investments in subsidiaries and other equity security	11	-	-	66,581,665	65,566,630
Investments in joint ventures	12	5,293,989	6,247,147	-	-
Other long-term investments	7	15,173	14,931	-	-
Long-term loans to related parties	5	42,590	53,096	31,588,856	31,020,889
Property, plant and equipment	15	205,182,418	151,201,956	-	-
Goodwill	16	15,210,011	9,837,748	-	-
Other intangible assets	17	25,139,303	18,027,204	-	-
Deferred tax assets	18	2,713,919	2,620,480	-	-
Other non-current assets	5	1,313,195	1,402,793	221,228	129,731
Total non-current assets		254,910,598	189,405,355	98,391,749	96,717,250
Total assets		379,194,831	282,358,368	156,031,349	129,351,654

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

STATEMENT OF FINANCIAL POSITION

Indorama Ventures Public Company Limited and its Subsidiaries

Liabilities and equity	Note	Consolidated financial statements		Separate financial statements	
		31 December		31 December	
		2018	2017	2018	2017
(in thousand Baht)					
Current liabilities					
Bank overdrafts and short-term loans from financial institutions	19	31,271,959	6,115,131	2,833,000	-
Trade accounts payable	5, 20	54,564,814	39,301,411	-	-
Current portion of long-term loans from financial institutions	19	8,626,722	6,167,823	1,620,602	-
Current portion of debentures	19	3,013,147	2,728,847	2,299,803	2,728,847
Current portion of finance lease liabilities	19	110,196	48,512	-	-
Current tax payable		2,974,096	1,327,335	-	-
Other current liabilities	5, 21	13,139,144	9,932,494	505,621	360,086
Total current liabilities		113,700,078	65,621,553	7,259,026	3,088,933
Non-current liabilities					
Long-term loans from financial institutions	19	34,640,015	42,329,057	3,249,009	13,765,704
Debentures	19	58,604,295	38,116,766	48,803,461	33,619,456
Finance lease liabilities	19	498,087	278,934	-	-
Deferred tax liabilities	18	15,788,452	13,138,643	132,519	79,827
Non-current provisions for employee benefits	22	2,327,237	2,209,602	-	-
Other non-current liabilities		1,781,312	1,677,121	-	-
Total non-current liabilities		113,639,398	97,750,123	52,184,989	47,464,987
Total liabilities		227,339,476	163,371,676	59,444,015	50,553,920

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

STATEMENT OF FINANCIAL POSITION

Indorama Ventures Public Company Limited and its Subsidiaries

		Consolidated financial statements		Separate financial statements	
		31 December		31 December	
Liabilities and equity	Note	2018	2017	2018	2017
(in thousand Baht)					
Equity					
Share capital:	23				
Authorised share capital		5,666,010	5,666,010	5,666,010	5,666,010
Issued and paid-up share capital		5,614,552	5,245,411	5,614,552	5,245,411
Share premium:					
Share premium on ordinary shares	23	60,331,434	44,848,154	60,331,434	44,848,154
Gain (loss) on cash flow hedges	24	(157,182)	305,144	603,956	484,801
Currency translation differences	24	(6,638,206)	(2,639,644)	-	-
Excess of cost over book value					
of acquired subsidiaries	24	(2,973,740)	(2,862,259)	-	-
Differences arising from common					
control transactions	24	(1,235,562)	(1,235,562)	-	-
Retained earnings					
Appropriated					
Legal reserve	24	3,207,126	2,956,803	566,601	566,601
Unappropriated		71,815,294	55,569,532	14,596,719	12,778,695
Equity attributable to owners					
of the parent		129,963,716	102,187,579	81,713,262	63,923,662
Subordinated perpetual debentures	25	14,874,072	14,874,072	14,874,072	14,874,072
Equity attributable to equity holders					
of the Company		144,837,788	117,061,651	96,587,334	78,797,734
Non-controlling interests	14	7,017,567	1,925,041	-	-
Total equity		151,855,355	118,986,692	96,587,334	78,797,734
Total liabilities and equity		379,194,831	282,358,368	156,031,349	129,351,654

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

STATEMENT OF INCOME

Indorama Ventures Public Company Limited and its Subsidiaries

		Consolidated financial statements		Separate financial statements	
		Year ended 31 December		Year ended 31 December	
	Note	2018	2017	2018	2017
		(in thousand Baht)			
Revenue					
Revenue from sale of goods	5	347,170,900	286,332,272	-	-
Interest income	5	247,160	102,432	3,705,525	2,835,529
Dividend income	5, 11	-	-	10,791,886	6,058,274
Net foreign exchange gain		586,223	-	83,287	-
Gains on bargain purchases	4	1,928,487	3,672,725	-	-
Other income	5, 27	1,952,602	1,160,232	299,989	502,514
Total revenue		351,885,372	291,267,661	14,880,687	9,396,317
Expenses					
Cost of sales of goods	5, 28	289,231,987	240,888,589	-	-
Distribution costs	5, 29	18,449,398	15,778,331	-	-
Administrative expenses	5, 30	10,119,737	8,009,772	761,374	209,526
Doubtful debts expenses	8	23,939	1,978,589	-	-
Management benefit expenses	31	190,819	136,888	30,420	24,495
Loss on impairment and written-off of property, plant and equipment	15	77,963	899,378	-	-
Net foreign exchange loss		-	61,922	-	96,242
Finance costs	33	4,227,384	3,864,471	2,272,638	2,154,512
Total expenses		322,321,227	271,617,940	3,064,432	2,484,775
Share of net profit of joint ventures	12	585,877	28,405	-	-
Profit before tax expense (benefit)		30,150,022	19,678,126	11,816,255	6,911,542
Tax expense (benefit)	34	3,812,383	(1,400,152)	22,903	(39,221)
Profit for the year		26,337,639	21,078,278	11,793,352	6,950,763
Profit attributable to:					
Owners of the parent		26,465,403	20,882,861	11,793,352	6,950,763
Non-controlling interests	14	(127,764)	195,417	-	-
Profit for the year		26,337,639	21,078,278	11,793,352	6,950,763
Earnings per share					
Basic and diluted earnings per share (in Baht)	36	4.61	3.98	1.95	1.18

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

STATEMENT OF COMPREHENSIVE INCOME

Indorama Ventures Public Company Limited and its Subsidiaries

	Note	Consolidated financial statements		Separate financial statements	
		Year ended 31 December		Year ended 31 December	
		2018	2017	2018	2017
		(in thousand Baht)			
Profit for the year		26,337,639	21,078,278	11,793,352	6,950,763
Other comprehensive income					
Items that will be reclassified subsequently to profit or loss					
Exchange differences on translating foreign operations		(4,450,780)	(4,531,104)	-	-
Net gain on hedge of net investment in foreign operations		137,046	254,412	137,046	254,412
Net gain (loss) on cash flow hedges		(502,087)	478,234	11,898	-
Income tax relating to items that will be reclassified		(6,588)	(171,045)	(29,789)	(50,882)
Total items that will be reclassified subsequently to profit or loss		(4,822,409)	(3,969,503)	119,155	203,530
Items that will not be reclassified to profit or loss					
Gain on remeasurements of defined benefit plans	22	16,898	91,881	-	-
Income tax relating to items that will not be reclassified		(9,803)	(23,837)	-	-
Total items that will not be reclassified to profit or loss		7,095	68,044	-	-
Other comprehensive income (expense) for the year, net of tax		(4,815,314)	(3,901,459)	119,155	203,530
Total comprehensive income for the year		21,522,325	17,176,819	11,912,507	7,154,293
Total comprehensive income attributable to:					
Owners of the parent		22,010,525	17,172,279	11,912,507	7,154,293
Non-controlling interests	14	(488,200)	4,540	-	-
Total comprehensive income for the year		21,522,325	17,176,819	11,912,507	7,154,293

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

STATEMENT OF CHANGES IN EQUITY

Indorama Ventures Public Company Limited and its Subsidiaries

Consolidated financial statements																
	Note	Issued and paid-up share capital	Share premium on ordinary shares	Retained earnings			Other components of equity					Equity attributable to owners of the parent	Subordinated perpetual debentures	Equity attributable to equity holders of the Company	Non-controlling interests	Total equity
				Legal reserve	Unappropriated	Currency translation differences	Gain (loss) on cash flow hedges	Excess of cost over book value of acquired subsidiaries	Difference arising from common control transactions							
Year ended 31 December 2017																
Balance at 1 January 2017																
Transactions with owners, recorded directly in equity																
Contribution by and distribution to owners																
	23	431,139	15,073,007	-	-	-	-	-	-	-	-	15,504,146	-	15,504,146	-	15,504,146
	37	-	-	-	(4,048,719)	-	-	-	-	-	-	(4,048,719)	-	(4,183,198)	(134,479)	(4,183,198)
		431,139	15,073,007	-	(4,048,719)	-	-	-	-	-	-	11,455,427	-	11,455,427	(134,479)	11,320,948
Total contribution by and distribution to owners																
Change in ownership interests in subsidiaries																
	14	-	-	-	-	-	-	-	-	-	-	428,570	-	428,570	(704,577)	(276,007)
		-	-	-	-	-	-	-	-	-	-	428,570	-	428,570	(704,577)	(276,007)
		431,139	15,073,007	-	(4,048,719)	-	-	-	-	-	-	11,883,997	-	11,883,997	(839,056)	11,044,941
Total transactions with owners, recorded directly in equity																
Comprehensive income for the year																
		-	-	-	20,882,861	-	-	-	-	-	-	20,882,861	-	20,882,861	195,417	21,078,278
		-	-	-	62,712	(41,30,806)	357,512	-	-	-	-	(3,710,582)	-	(3,710,582)	(190,877)	(3,901,459)
		-	-	-	20,945,573	(41,30,806)	357,512	-	-	-	-	17,172,279	-	17,172,279	4,540	17,176,819
	25	-	-	-	(1,050,000)	-	-	-	-	-	-	(1,050,000)	-	(1,050,000)	-	(1,050,000)
		-	-	629,682	(629,682)	-	-	-	-	-	-	-	-	-	-	-
		5,245,411	44,848,154	2,956,803	55,569,532	(2,639,644)	-	305,144	(2,862,259)	-	(1,235,562)	102,187,579	14,874,072	117,061,651	1,925,041	118,986,692
Balance at 31 December 2017																

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

STATEMENT OF CHANGES IN EQUITY

Indorama Ventures Public Company Limited and its Subsidiaries

Consolidated financial statements													
Note	Retained earnings			Other components of equity					Equity attributable to owners of the parent	Subordinated perpetual debentures	Equity attributable to equity holders of the Company	Non-controlling interests	Total equity
	Issued and paid-up share capital	Share premium on ordinary shares	Legal reserve	Unappropriated	Currency transition differences	Gain (loss) on cash flow hedges	Excess of cost over book value of acquired subsidiaries	Difference arising from common control transactions					
Year ended 31 December 2018	5,245,411	44,848,154	2,956,803	55,569,532	(2,639,644)	305,144	(2,862,259)	(1,235,562)	102,187,579	14,874,072	117,061,651	1,925,041	118,986,692
Balance at 1 January 2018													
Transactions with owners, recorded directly in equity													
Contribution by and distribution to owners													
23													
	Issue of ordinary shares due to warrant exercised			-	-	-	-	-	15,852,421	-	15,852,421	-	15,852,421
37				(8,925,328)					(8,925,328)		(8,925,328)	(67,340)	(8,992,668)
	Dividends			(8,925,328)					6,927,093		6,927,093	(67,340)	6,859,753
	Total contribution by and distribution to owners												
Changes in ownership interests in subsidiaries													
	Acquisition of non-controlling interests without a change in control			-	-	-	(111,481)	-	(111,481)		(111,481)	(100,310)	(211,791)
4													
	Acquisition of non-controlling interests through business combination			-	-	-	-	-	-		-	5,748,376	5,748,376
	Total changes in ownership interests in subsidiaries						(111,481)		(111,481)		(111,481)	5,648,066	5,536,585
	Total transactions with owners, recorded directly in equity						(111,481)		6,815,612		6,815,612	5,580,726	12,396,338
Comprehensive income for the year													
	Profit												
	Other comprehensive income			26,465,403			-	-	26,465,403		26,465,403	(127,764)	26,337,639
	Total comprehensive income for the year			26,471,413			(462,326)		22,010,625		22,010,625	(488,200)	21,522,425
25													
	Coupon payment on subordinated perpetual debentures			(1,050,000)			-	-	(1,050,000)		(1,050,000)	-	(1,050,000)
	Transfer to legal reserve			250,323			-	-	-		-	-	-
	Balance at 31 December 2018			71,815,294	(6,638,206)	(157,182)	(2,973,740)	(1,235,562)	129,963,716	14,874,072	144,837,788	7,017,567	151,855,355

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

STATEMENT OF CHANGES IN EQUITY

Indorama Ventures Public Company Limited and its Subsidiaries

	Note	Separate financial statements (in thousand Baht)						
		Issued and paid-up share capital	Share premium on ordinary shares	Retained earnings		Other component of equity	Equity attributable to owners of the parent	Total equity
				Legal reserve	Unappropriated	Gain on cash flow hedges	Subordinated perpetual debentures	
Year ended 31 December 2017								
Balance at 1 January 2017		4,814,272	29,775,147	566,601	10,926,651	281,271	14,874,072	61,238,014
Transactions with owners, recorded directly in equity								
<i>Contribution by and distribution to owners</i>								
Issue of ordinary shares due to warrant exercised	23	431,139	15,073,007	-	-	-	-	15,504,146
Dividends	37	-	-	-	(4,048,719)	-	-	(4,048,719)
Total contribution by and distribution to owners		431,139	15,073,007	-	(4,048,719)	-	-	11,455,427
Comprehensive income for the year								
Profit		-	-	-	6,950,763	-	-	6,950,763
Other comprehensive income		-	-	-	-	203,530	-	203,530
Total comprehensive income for the year		-	-	-	6,950,763	203,530	-	7,154,293
Coupon payment on subordinated perpetual debentures	25	-	-	-	(1,050,000)	-	-	(1,050,000)
Balance at 31 December 2017		5,245,411	44,848,154	566,601	12,778,695	484,801	14,874,072	78,797,734

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

STATEMENT OF CHANGES IN EQUITY

Indorama Ventures Public Company Limited and its Subsidiaries

Separate financial statements									
		Retained earnings		Other component of equity		Equity			
		Issued and paid-up share capital	Share premium on ordinary shares	Legal reserve	Unappropriated	Gain on cash flow hedges	attributable to owners of the parent	Subordinated perpetual debentures	Total equity
<i>(in thousand Baht)</i>									
Year ended 31 December 2018									
Balance at 1 January 2018									
Transactions with owners, recorded directly in equity									
<i>Contribution by and distribution to owners</i>									
	23	369,141	15,483,280	-	-	-	15,852,421	-	15,852,421
	37	-	-	-	(8,925,328)	-	(8,925,328)	-	(8,925,328)
<i>Total contribution by and distribution to owners</i>									
		369,141	15,483,280	-	(8,925,328)	-	6,927,093	-	6,927,093
Comprehensive income for the year									
		-	-	-	11,793,352	-	11,793,352	-	11,793,352
		-	-	-	-	119,155	119,155	-	119,155
<i>Total comprehensive income for the year</i>									
		-	-	-	11,793,352	119,155	11,912,507	-	11,912,507
Coupon payment on subordinated perpetual debentures									
	25	-	-	-	(1,050,000)	-	(1,050,000)	-	(1,050,000)
Balance at 31 December 2018									
		5,614,552	60,331,434	566,601	14,596,719	603,956	81,713,262	14,874,072	96,587,334

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

STATEMENT OF CASH FLOWS

Indorama Ventures Public Company Limited and its Subsidiaries

	Note	Consolidated financial statements		Separate financial statements	
		Year ended 31 December		Year ended 31 December	
		2018	2017	2018	2017
(in thousand Baht)					
Cash flows from operating activities					
Profit for the year		26,337,639	21,078,278	11,793,352	6,950,763
<i>Adjustments to reconcile profit to cash receipts (payments)</i>					
Tax expense (benefit)	34	3,812,383	(1,400,152)	22,903	(39,221)
Finance costs	33	4,227,384	3,864,471	2,272,638	2,154,512
Depreciation	15	12,161,215	10,678,810	-	-
Amortisation of intangible assets and other assets		2,112,068	1,560,017	-	-
Provision for impairment on property, plant and equipment	15	49,818	427,603	-	-
Provision for impairment on investment in subsidiary	11	-	-	121,630	-
Employee benefits expense	22	396,996	268,201	-	-
Unrealised foreign exchange loss		39,741	45,112	80,952	291,342
Share of net profit of joint ventures	12	(585,877)	(28,405)	-	-
Provision for bad and doubtful debts expense, net	8	23,939	1,978,589	-	-
Provision for (reversal) of losses on inventories devaluation	9	345,864	(37,371)	-	-
Gains on bargain purchases	4	(1,928,487)	(3,672,725)	-	-
Gain on return of capital in a subsidiary		-	-	-	(10,084)
Gain on previously held interest in a jointly-controlled entity		(1,444)	-	-	-
(Gain) loss on disposal of property, plant and equipment, net		(6,481)	5,990	-	-
Loss on written-off of property, plant and equipment		28,145	471,775	-	-
Interest income		(247,160)	(102,432)	(3,705,525)	(2,835,529)
Dividend income	11	-	-	(10,791,886)	(6,058,274)
		46,765,743	35,137,761	(205,936)	453,509
<i>Changes in operating assets and liabilities</i>					
Trade accounts receivable		(596,316)	(895,503)	-	-
Inventories		(18,054,864)	(3,672,190)	-	-
Other current assets		(817,951)	693,877	507,147	125,170
Other non-current assets		1,269,376	732,054	(1,337)	-
Trade accounts payable		8,149,807	35,754	-	-
Non-current provisions for employee benefits		(215,932)	(178,946)	-	-
Other current liabilities		(1,354,339)	(897,312)	139,027	36,224
Other non-current liabilities		20,550	198,682	-	-
Net cash generated from operating		35,166,074	31,154,177	438,901	614,903
Taxes paid		(3,185,509)	(2,247,366)	-	(9,903)
Net cash from operating activities		31,980,565	28,906,811	438,901	605,000

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

STATEMENT OF CASH FLOWS

Indorama Ventures Public Company Limited and its Subsidiaries

		Consolidated financial statements		Separate financial statements	
		Year ended 31 December		Year ended 31 December	
	Note	2018	2017	2018	2017
(in thousand Baht)					
Cash flows from investing activities					
Proceeds from return of capital in a subsidiary	11	-	-	-	31,055,017
Net cash outflow on acquisitions of businesses	4	(26,191,210)	(8,453,000)	-	-
Net cash outflow on investment in joint operation	13	(11,535,333)	-	-	-
Net cash outflow on acquisitions of additional investment in subsidiaries and joint ventures	11, 12	(2,289,002)	(558,343)	(1,136,665)	(38,813,307)
Advance payment on additional investment in subsidiary and a joint venture		-	(229,251)	-	-
Proceeds from sale of other investments		2,284	51,253	-	70,000
Proceeds from sale of property, plant and equipment		78,405	336,560	-	-
Acquisition of property, plant and equipment		(16,353,040)	(19,773,624)	-	-
Proceeds from sale of intangible assets		196	105	-	-
Acquisition of intangible assets		(190,206)	(281,873)	-	-
Dividend received	11	-	-	10,791,886	6,058,274
Interest received		250,587	122,456	18,947	11,593
Net cash from (used in) investing activities		(56,227,319)	(28,785,717)	9,674,168	(1,618,423)
Cash flows from financing activities					
Proceeds from issue of ordinary shares due to warrants exercised, net of agent fee of Baht 20,619,635 (2017: Baht 22,417,284)	23	15,852,421	15,504,146	15,852,421	15,504,146
Proceeds from short and long-term borrowings		28,434,902	13,726,449	6,108,860	8,591,304
Repayment of short and long-term borrowings		(20,310,330)	(21,038,550)	(10,182,632)	(6,142,387)
Proceeds from debenture, net of debenture issuance costs of Baht 28,309,363 (2017: Baht 22,417,284)	19	17,471,691	9,477,583	17,471,691	9,477,583
Repayment of debenture		(3,551,441)	(5,500,000)	(2,730,000)	(5,500,000)
Payment by a lessee for reduction of the outstanding liability relating to a finance lease		(63,637)	(25,819)	-	-
Loans to subsidiaries		-	-	(30,693,551)	(13,886,874)
Loans to joint ventures		(9,335)	277,894	-	-
Dividends paid to owners of the Company	37	(8,925,213)	(4,048,719)	(8,925,213)	(4,048,139)
Dividends paid to non-controlling interests		(67,340)	(134,479)	-	-
Interest received		-	-	3,105,172	2,305,500
Interest paid		(5,141,609)	(4,425,752)	(2,230,632)	(2,108,112)
Deferred financing cost paid		(73,376)	(32,817)	(16,610)	(3,424)
Coupon payment on subordinated perpetual debentures		(1,050,000)	(1,050,000)	(1,050,000)	(1,050,000)
Net cash from (used in) financing activities		22,566,733	2,729,936	(13,290,494)	3,139,597
Net increase (decrease) in cash and cash equivalents, before effect of exchange rates		(1,680,021)	2,851,030	(3,177,425)	2,126,174
Effect of exchange rate changes on cash and cash equivalents		381,417	371	-	-
Net increase (decrease) in cash and cash equivalents		(1,298,604)	2,851,401	(3,177,425)	2,126,174
Cash and cash equivalents at 1 January		6,877,049	4,025,648	3,194,234	1,068,060
Cash and cash equivalents at 31 December	6	5,578,445	6,877,049	16,809	3,194,234

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

NOTES TO THE FINANCIAL STATEMENTS

Indorama Ventures Public Company Limited and its Subsidiaries For the year ended 31 December 2018

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NOTES TO THE FINANCIAL STATEMENTS

Indorama Ventures Public Company Limited and its Subsidiaries

For the year ended 31 December 2018

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 approved and authorised for issue by the Board of Directors on 26 February 2019.

1 General information

Indorama Ventures Public Company Limited, the “Company”, is incorporated in Thailand and has its registered office at 75/102, Ocean Tower II, 37th Floor, Sukhumvit 19, Asoke Road, Klongtoeynua, Wattana, Bangkok, Thailand. The Company was listed on the Stock Exchange of Thailand in February 2010.

The immediate and ultimate parent companies during the financial year were Indorama Resources Limited, incorporated in Thailand, and Canopus International Limited, incorporated in Mauritius, respectively.

The principal activities of the Company and its subsidiaries (“Group”) are the manufacture and distribution of polyethylene terephthalate (“PET”), purified terephthalic acid (“PTA”), paraxylene (“PX”), isophthalic acid (“IPA”), ethylene oxide and ethylene glycol (“EO&EG”), polyester fibers, and wool products. Details of the Company’s subsidiaries, joint ventures and joint operations as at 31 December 2018 and 2017 are given in notes 5, 11, 12 and 13.

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 (“FAP”); and applicable rules and regulations of the Thai Securities and Exchange Commission.

The FAP has issued new and revised TFRS effective for annual accounting periods beginning on or after 1 January 2018. The initial application of these new and revised TFRS has resulted in changes in certain of the Group’s/Company’s accounting policies. These changes have no material effect on the financial statements.

In addition to the above new and revised TFRS, the FAP has issued a number of new and revised TFRS which are not yet effective for current periods. The Group/Company has not early adopted these standards in preparing these financial statements. Those new and revised TFRS that are relevant to the Group’s/Company’s operations are disclosed in note 41.

(b) Basis of measurement

The financial statements have been prepared on the historical cost basis except for the following items.

Items

Derivatives

Net defined benefit liability

Measurement bases

Fair value

Present value of the defined benefit obligation,
as explained in note 3 (n)

(c) *Functional and presentation currency*

The financial statements are prepared and presented in Thai Baht, which is the Company's functional currency. All financial information has been rounded to the nearest thousand unless otherwise stated.

(d) *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 accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised prospectively.

Assumptions and estimation uncertainties

Information about assumption and estimation uncertainties that have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the reporting year is included in the following notes:

Note 4	Acquisitions of businesses: fair value of the assets acquired and liabilities assumed, measured on a provisional basis;
Note 8	Provision for doubtful debt;
Note 15, 16 and 17	Impairment test: key assumptions underlying recoverable amounts;
Note 18	Recognition of deferred tax assets: availability of future taxable profit against which tax losses carried forward can be used; and
Note 22	Measurement of net defined benefit obligations: key actuarial assumptions.

Measurement of fair values

A number of the Group's/Company's accounting policies and disclosures require the measurement of fair values, for both financial and non-financial assets and liabilities.

The Group/Company 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 senior management.

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/Company 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 (unadjusted) 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 (i.e. as prices) or indirectly (i.e. derived from prices).
- *Level 3* : inputs for the asset or liability that are not based on observable market data (unobservable inputs).

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

Further information about the assumptions made in measuring fair values is included in Note 38 financial instruments.

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 and joint operations (together referred to as the “Group”) and the Group’s interests in joint ventures.

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. Judgement 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. 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.

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, 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 recognized, 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.

Step acquisition

When a business combination is achieved in stages, the Group's previously held equity interest in the acquiree is remeasured to its acquisition-date fair value and the resulting gain or loss, if any, is recognised in profit or loss. Amounts arising from interests in the acquiree prior to the acquisition date that have previously been recognised in other comprehensive income are reclassified to profit or loss where such treatment would be appropriate if that interest were disposed of.

Acquisitions from entities under common control

Business combination under common control are accounted for using a method similar to the pooling of interest method. Under that method the acquirer recognises assets and liabilities of the acquired businesses at their carrying amounts in the consolidated financial statements of the ultimate parent company at the moment of the transaction. The difference between the carrying amount of the acquired net assets and the consideration transferred is recognised as surplus or discount from business combinations under common control in shareholder's equity. The surplus or discount will be transferred to retained earnings upon divestment of the businesses acquired.

The results from operations of the acquired businesses will be included in the consolidated financial statements of the acquirer from the beginning of the comparative period or the moment the businesses came under common control, whichever date is later, until control ceases.

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.

Investment in joint operation

A joint operation is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the assets, and obligations for the liabilities, relating to the arrangement.

Investment in joint operation is accounted for the assets, liabilities, revenues and expenses relating to its interest in a joint operation in accordance with the TFRSs applicable to the particular assets, liabilities, revenues and expenses.

Interests in equity-accounted investees

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

A joint venture is an arrangement in which the Group has joint control, whereby the Group has rights to the net assets of the arrangement, rather than rights to its assets and obligations for its liabilities.

Interests in joint ventures 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 joint control ceases.

Transactions eliminated on consolidation

Intra-group balances and transactions, and any unrealised income or expenses arising from intra-group transactions, are eliminated. Unrealised gains arising from transactions with a joint venture 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 are translated to the functional currency at the exchange rate at the reporting 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.

Non-monetary assets and liabilities measured at fair value in foreign currencies are translated to the functional currency at the exchange rates at the dates that fair value was determined.

Foreign currency differences are generally recognised in profit or loss. However, foreign currency differences arising from the translation of the following items are recognised in other comprehensive income:

- a financial liability designated as a hedge of the net investment in a foreign operation to the extent that the hedge is effective; and
- qualifying cash flow hedges to the extent the hedge is effective.

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.

Goodwill and fair value adjustments arising on the acquisition of foreign operations are stated at exchange rates at transaction dates.

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 currency translation differences reserve in equity until disposal of the investment, 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 currency translation differences 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 a joint venture while retaining significant joint control, the relevant proportion of the cumulative amount is reclassified to profit or loss.

When the settlement of a monetary item receivable from or payable to a foreign operation is neither planned nor likely in the foreseeable future, exchange gains and losses arising from such a monetary item are considered to form part of a net investment in a foreign operation and are recognised in other comprehensive income, and presented in the currency translation differences reserve in equity until disposal of the investment.

(c) *Derivatives*

Derivatives are used to manage exposure to foreign exchange, interest rate and commodity price risks arising from operational, financing and investment activities. Derivatives are not used for trading purposes. However, derivatives that do not qualify for hedge accounting are accounted for as trading instruments.

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. However, where derivatives qualify for hedge accounting, recognition of any resultant gain or loss depends on the nature of the item being hedged (see note 3 (d)).

The fair value of interest rate swaps is based on broker quotes at the reporting date. Those quotes are tested for reasonableness by discounting estimated future cash flows based on the terms and maturity of each contract and using market interest rates for a similar instrument at the reporting date.

The fair value of forward exchange contracts is based on their listed market price, if available. If a listed market price is not available, then fair value is estimated by discounting the difference between the contractual forward price and the current forward price at the reporting date for the residual maturity of the contract using a risk-free interest rate (based on governmental bonds).

The difference between the fixed price and the settlement price of commodity futures entered under time spread agreements with financial institutions are recognised in profit or loss in the period in which the contracts mature.

(d) Hedging

Fair value hedges

Where a derivative hedges the changes in fair value of a recognised asset, liability or unrecognised firm commitment (or an identified portion of such asset, liability or firm commitment), any gain or loss on remeasuring the fair value or foreign currency component of the hedging instrument is recognised in profit or loss. The hedged item is also stated at fair value in respect of the risk being hedged, with any gain or loss being recognised in profit or loss.

Cash flow hedges

When a derivative is designated as the hedging instrument in a hedge of the variability in cash flows attributable to a particular risk associated with a recognised asset or liability or a highly probable forecast transaction that could affect profit or loss, the effective portion of changes in the fair value of the derivative is recognised in other comprehensive income and presented in the hedging reserve in equity. Any ineffective portion is recognised immediately in profit or loss.

When a hedged forecast transaction occurs and results in the recognition of a financial asset or financial liability, the gain or loss recognised in other comprehensive income does not adjust the initial carrying amount of the asset or liability but remains in equity and is reclassified from equity to profit or loss consistently with the recognition of gains and losses on the asset or liability as a reclassification adjustment.

For hedges of forecast transactions that result in the recognition of a non-financial asset or non-financial liability, the gain or loss recognised in other comprehensive income is reclassified from equity to profit or loss consistently with the recognition of gains and losses on the asset or liability as a reclassification adjustment.

Hedge of net investment in foreign operation

Hedges of a net investment in a foreign operation, including a hedge of a monetary item that is accounted for as part of the net investment, are accounted for similarly to cash flow hedges.

Discontinuing hedge accounting

Hedge accounting is discontinued prospectively when the hedging instrument expires or is sold, terminated or exercised, or no longer qualifies for hedge accounting. Any cumulative gain or loss on the hedging instrument existing in equity is retained in equity and is recognised when the forecast transaction is ultimately recognised in profit or loss. When a forecast transaction is no longer expected to occur, the cumulative gain or loss that was reported in equity is recognised in profit or loss immediately.

(e) 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.

(f) Trade and other accounts receivable

Trade and other accounts receivable are stated at their invoice value less allowance for doubtful accounts.

The allowance for doubtful accounts is assessed primarily on analysis of payment histories and future expectations of customer payments. Bad debts are written off when incurred.

(g) Inventories

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

Cost is calculated using the weighted average cost principle, and 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.

(h) Investments

Investments in subsidiaries and joint ventures

Investments in subsidiaries in the separate financial statements of the Company are accounted for using the cost method. Investments in joint ventures in the consolidated financial statements are accounted for using the equity method.

Investments in other equity securities

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

Disposal of investments

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/Company 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.

(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. Cost also may

include transfers from other comprehensive income of any gain or loss on qualifying cash flow hedges of foreign currency purchases of property, plant and equipment. 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 or losses on disposal of an item of property, plant and equipment are determined by comparing the net 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 and 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.

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. The estimated useful lives are as follows:

Land improvements	3-50	years
Buildings and building improvements	2-50	years
Machinery and equipment	1-50	years
Office furniture, fixtures and equipment	1-25	years
Transportation equipment	3-20	years
Stores and spares	1-15	years

No depreciation is provided on freehold land or assets under construction.

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

(j) ***Intangible assets***

Goodwill

The measurement of goodwill at initial recognition is described in note 3 (a). Subsequent to initial recognition, goodwill is measured at cost less accumulated impairment losses. In respect of equity-accounted investees, the carrying amount of goodwill is included in the carrying amount of the investment, and an impairment loss on such an investment is not allocated to any asset, including goodwill, that forms part of the carrying amount of the equity-accounted investee.

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.

Subsequent expenditure

Subsequent expenditure is capitalised only when it increases the future economic benefits embodied in the specific asset to which it relates. All other expenditure, including expenditure on internally generated goodwill and brands, is recognised in profit or loss as incurred.

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, other than goodwill, 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 years are as follows:

Rights acquired	2-50	years	
Supplier contract and relationships	3-10	years,	Indefinite
Software licenses	1-15	years	
Technology licenses and knowhow	4-30	years	
Customer contracts and relationships	1-20.3	years	
Trade name and trademarks	5-21.5	years,	Indefinite
Chemicals exchange contract	19	years	
Capitalised development expense	3-5	years	

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

(k) Impairment

The carrying amounts of the Group's/Company's assets are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists, the assets' recoverable amounts are estimated. For goodwill and intangible assets that have indefinite useful lives or are not yet available for use, the recoverable amount is estimated each year at the same time.

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.

Calculation of recoverable amount

The recoverable amount of a non-financial asset is the greater of the asset's 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, the reversal is recognised in profit or loss.

An impairment loss in respect of goodwill is not reversed. Impairment losses recognised in prior periods in respect of other non-financial assets are assessed at each reporting date for any indications that the loss has decreased or no longer exists. An impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

(l) Interest-bearing liabilities

Interest-bearing liabilities are recognised initially at fair value less attributable transaction charges. Subsequent to initial recognition, interest-bearing liabilities are stated at amortised cost with any difference between cost and redemption value being recognised in profit or loss over the period of the borrowings on an effective interest basis.

(m) Trade and other accounts payable

Trade and other accounts payable are stated at cost.

(n) Employee benefits

Defined contribution plans

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

Defined benefit plans

The Group's net obligation in respect of defined benefit plans is calculated separately for each plan by estimating the amount of future benefit that employees have earned in the current and prior periods, discounting that amount.

The calculation of defined benefit obligations is performed annually by a qualified actuary using the projected unit credit method. When the calculation results in a potential asset for the Group, the recognised asset is limited to the present value of economic benefits available in the form of any future refunds from the plan or reductions in future contributions to the plan. To calculate the present value of economic benefits, consideration is given to any application minimum funding requirements.

Remeasurements of the net defined benefit liability, actuarial gain or loss are recognised immediately in OCI. 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 plan when the settlement occurs.

Other long-term employee benefits

The Group's net obligation in respect of long-term employee benefits is 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. Remeasurements are recognised in profit or loss in the period in which they arise.

Termination benefits

Termination benefits are expensed at the earlier of when the Group can no longer withdraw the offer of those benefits and when the Group recognises costs for a restructuring. If benefits are not expected to be settled wholly within 12 months of the end of the reporting period, then they are discounted.

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.

(o) *Share-based payments*

The grant-date fair value of equity-settled share-based payment awards granted to employees is generally recognised as an expense, with a corresponding increase in equity, over the vesting period of the awards. The amount recognised as an expense is adjusted to reflect the number of awards for which the related service and non-market performance conditions are expected to be met, such that the amount ultimately recognised is based on the number of awards that meet the related service and non-market performance conditions at the vesting date. For share-based payment awards with non-vesting conditions, the grant-date fair value of the share-based payment is measured to reflect such conditions and there is no true-up for differences between expected and actual outcomes.

The fair value of the amount payable to employees in respect of share appreciation rights, which are settled in cash, is recognised as an expense with a corresponding increase in liabilities, over the period that the employees become unconditionally entitled to payment. The liability is remeasured at each reporting date and at settlement date. Any changes in the fair value of the liability are recognised as personnel expenses in profit or loss.

(p) *Provisions*

A provision is recognised if, as a result of a past event, the Group/Company 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 a finance cost.

(q) *Subordinated perpetual debentures*

Subordinated perpetual debentures are recognised as equity when the Company has the sole right and discretion to unconditionally defer principle repayment, interest and cumulative interest payment without time and deferral amount limitation. Accordingly, any coupon payments are accounted for as dividends and are recognised directly in equity at the time the payment obligation arises. This is because the coupon payments are discretionary and relate to equity. Coupon payments consequently do not have any impact in profit or loss. Coupon payments are recognised in the cash flow statement in the same way as dividends to ordinary shareholders.

(r) *Revenue*

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

Sale of goods

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.

Interest and dividend income

Interest income is recognised in profit or loss as it accrues. Dividend income is recognised in profit or loss on the date the Group's/Company's right to receive payments is established.

(s) 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.

(t) Lease payments

Payments made under operating leases are recognised in profit or loss on a straight line basis 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.

(u) 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 and joint ventures 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/Company 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/Company takes into account the impact of uncertain tax positions and whether additional taxes and interest may be due. The Group/Company 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/Company 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.

(v) *Earnings per share*

The Group/Company presents basic and diluted earnings per share (EPS) data for its ordinary shares. Basic EPS is calculated by dividing the profit or loss attributable to owners of the parent less coupon payment on subordinated perpetual debentures whether it has been accrued or not by the weighted average number of ordinary shares outstanding during the period, adjusted for own shares held. Diluted EPS is determined by adjusting the profit or loss attributable to owners of the parent less coupon payment on subordinated perpetual debentures and the weighted average number of ordinary shares outstanding, adjusted for own shares held, for the effects of all dilutive potential ordinary shares, which comprise warrants.

(w) *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 (primarily the Company's headquarters), head office and international headquarters expenses, and tax assets and liabilities, etc.

4 Acquisitions of businesses

Gains on bargain purchases and goodwill

The excess of the Group's interest in the net identified assets and liabilities of the companies acquired over cost during the years ended 31 December 2018 and 2017 is considered by management as gains on bargain purchases. The gains on bargain purchases and goodwill recognised in the consolidated statement of income for the years ended 31 December 2018 and 2017 and the consolidated statement of financial position as at 31 December 2018 and 2017 respectively, are as following:

<i>Gains on bargain purchases</i>			
	<i>Note</i>	2018	2017
		<i>(in thousand Baht)</i>	
DuraFiber Mexico, Mexico	4(ii)	-	207,902
Longlaville DuraFiber Technologies (DFT) SAS, France	4(iii)	-	601,947
The PTA assets of Artlant PTA, S.A. and the utility assets of Artelia Ambiente, S.A., Portugal	4(iv)	-	2,862,876
Egyptian Indian Polyester Company S.A.E., Egypt	4(vi)	890,140	-
Sorepla Technologie S.A., France	4(viii)	5,247	-
KORDÁRNA Plus a.s., Czech Republic	4(x)	642,686	-
Schoeller Group, Austria, Czech Republic and Germany	4(xii)	390,414	-
Total gains on bargain purchases		1,928,487	3,672,725

<i>Goodwill</i>			
	<i>Note</i>	2018	2017
		<i>(in thousand Baht)</i>	
Glanzstoff Group, Europe	4(i)	-	952,174
M&G Polimeros Brazil S.A., Brazil	4(v)	30,193	-
Avgol Industries 1953 Ltd., Israel	4(vii)	4,646,888	-
Medco Plast for Packing and Packaging Systems S.A.E., Egypt	4(xi)	997,462	-
Total Goodwill		5,674,543	952,174

(i) **Glanzstoff Group, Europe**

On 31 May 2017, IVL, through its indirect subsidiary, Indorama Netherlands B.V., completed the acquisition of 100% equity interest in Glanzstoff Group (which consist of Glanzstoff Industries (Qingdao) Company Limited, Glanzstoff Holding (Hong Kong) Limited, Glanzstoff Industries S.R.L., Società Industriale Cremonese SICREM s.p.a., Cord A.G., Textilcord Steinfort S.A., Glanzstoff Management GmbH and Glanzstoff - Bohemia s.r.o.) which is Europe's largest converter for tire cord fabrics, a global leader in single-end-cords ("SEC") from Glanzstoff Industries GmbH, as per definitive share purchase agreement dated 12 April 2017 for a cash consideration of EUR 160.1 million (Baht 6,100.6 million). The transaction is accounted for as a business combination. Subsequent to completion of the acquisition, Cord A.G. was renamed to Glanzstoff Industries A.G.

Management believes that the acquisition will offer a unique opportunity for IVL to supplement its high value-added portfolio. It will further enhance the Group's client-value proposition and provide for collaborative opportunities with the global auto industry including for autonomous and electric vehicles.

Identifiable assets acquired and liabilities assumed

	Note	Fair values as at 31 May 2017 (in thousand Baht)
Cash and cash equivalents		96,635
Inventories		1,184,716
Accounts receivable		1,446,021
Property, plant and equipment	15	3,324,162
Intangible assets	17	1,958,209
Short-term loan from financial institutions		(316,219)
Accounts payable		(1,106,229)
Deferred tax liabilities, net	18	(927,820)
Other assets/(liabilities), net		(511,075)
Net identifiable assets acquired and liabilities assumed		5,148,400
Goodwill		952,174
Total consideration		6,100,574
Cash acquired		(96,635)
Net consideration - paid		6,003,939

The trade receivables comprise gross contractual amounts due of Baht 1,476.4 million, of which Baht 30.4 million was expected to be uncollectible at the acquisition date.

(ii) DuraFiber Mexico, Mexico

On 28 September 2017, IVL, through its indirect subsidiary, Indorama Ventures Spain S.L., completed the acquisition of 100% equity interest in tire cord business of DuraFiber Mexico (which consist of DuraFiber Technologies DFT Mexico Operations, S.A. de C.V. which is a leading producer of durable technical textiles for industrial, tire reinforcement and speciality applications globally and DuraFiber Technologies DFT Mexico Services, S.A. de C.V.) from Sellers group (DuraFiber Technologies (DFT) Operations LLC, INA Fibers Holdings LLC, DFT DuraFiber Technologies Holdings, INC., DuraFiber Technologies (DFT) Mexico Intermediate I Corp. and DuraFiber Technologies (DFT) Mexico Intermediate II Corp.), as per definitive share purchase agreement dated 11 August 2017 for a cash consideration of USD 26.8 million (Baht 894.5 million). The transaction is accounted for as a business combination. Subsequent to the completion of the acquisition, DuraFiber Technologies DFT Mexico Operations, S.A. de C.V. and DuraFiber Technologies DFT Mexico Services, S.A. de C.V. were renamed to Performance Fibers Operations Mexico, S. de R.L. de C.V. and Performance Fibers Services, S. de R.L. de C.V., respectively.

Management believes that acquisition of DuraFiber Mexico operation is well aligned with the group's strategy of pursuing accretive growth opportunities in the high value added automotive segment.

Identifiable assets acquired and liabilities assumed

	Note	Fair values as at 28 September 2017 (in thousand Baht)
Cash and cash equivalents		42,496
Inventories		474,531
Accounts receivable		518,448
Property, plant and equipment	15	937,248
Intangible assets	17	4
Short-term loan from related party		(50,053)
Accounts payable		(517,326)
Deferred tax liabilities, net	18	(218,318)
Other assets/(liabilities), net		(84,628)
Net identifiable assets acquired and liabilities assumed		1,102,402
Gain on bargain purchase		(207,902)
Total consideration		894,500
Cash acquired		(42,496)
Net consideration - paid		852,004

The trade receivables comprise gross contractual amounts due of Baht 518.4 million which was expected to be collectible at the acquisition date.

(iii) Longlaville DuraFiber Technologies (DFT) SAS, France

On 5 October 2017, IVL, through its indirect subsidiary, Indorama Netherlands B.V., completed the acquisition of 100% equity interest in Longlaville DuraFiber Technologies (DFT) SAS (which consist of Longlaville DuraFiber Technologies (DFT) SAS and European DuraFiber Technologies (DFT) Holdings SAS), as per the purchase and sale agreement dated 4 October 2017 for a cash consideration of EUR 2.7 (Baht 106.0). The transaction is accounted for as a business combination. Subsequent to completion of the acquisition, Longlaville DuraFiber Technologies (DFT) SAS and

European DuraFiber Technologies (DFT) Holdings SAS were renamed to Glanzstoff Longlaville S.A.S. and Glanzstoff Services S.A.S., respectively.

Management believes that acquisition of Longlaville DuraFiber Technologies (DFT) SAS will further bolster its position as the leading fiber partner for the automotive industry.

Identifiable assets acquired and liabilities assumed

	<i>Note</i>	Fair values as at 5 October 2017 (in thousand Baht)
Cash and cash equivalents		43,533
Inventories		177,409
Accounts receivable		538,259
Property, plant and equipment	15	780,584
Intangible assets	17	206,605
Short-term loan from financial institutions		(423,819)
Accounts payable		(345,780)
Deferred tax liabilities, net	18	(216,739)
Other assets/(liabilities), net		(158,105)
Net identifiable assets acquired and liabilities assumed		601,947
Gain on bargain purchase		(601,947)
Total consideration		-

The trade receivables comprise gross contractual amounts due of Baht 538.6 million, of which Baht 0.3 million was expected to be uncollectible at the acquisition date.

(iv) The PTA assets of Artlant PTA, S.A. and the utility assets of Artelia Ambiente, S.A., Portugal

On 29 November 2017, IVL, through its indirect subsidiary, Indorama Ventures Portugal PTA - Unipessoal, LDA. and Indorama Ventures Portugal Utility - Unipessoal, LDA., completed the acquisition of the PTA assets of Artlant PTA, S.A. and the adjacent utility assets of Artelia Ambiente, S.A. in Portugal, as per the agreement in relation to the assets of Artlant PTA, S.A., dated 26 July 2017 and the purchase and sale agreement in relation to the assets of Artelia Ambiente, S.A., dated 25 September 2017 for a cash consideration of EUR 42.5 million (Baht 1,640.6 million). The transaction is accounted for as a business combination.

Management believes that acquisition of PTA assets of Artlant PTA, S.A. along with utility assets of adjacent Utility provider, Artelia Ambiente, S.A.(Artelia) will enhance the group's PTA leadership in Europe and the acquisition of utility assets will secure the energy supply to Artlant and sell excess power to the grid.

Identifiable assets acquired and liabilities assumed

	Note	Fair values as at 29 November 2017 (in thousand Baht)
Inventories		157,100
Property, plant and equipment	15	5,344,895
Intangible assets	17	233,737
Deferred tax liabilities, net	18	(1,208,067)
Other assets/(liabilities), net		(24,200)
Net identifiable assets acquired and liabilities assumed		4,503,465
Gain on bargain purchase		(2,862,876)
Total consideration		1,640,589

(v) *M&G Polimeros Brazil S.A., Brazil*

On 24 May 2018, IVL, through its indirect subsidiary, Indorama Ventures Brazil Participacoes S.A., completed the acquisition of 100% equity interest in M&G Polimeros Brazil S.A. in Ipojuca, Brazil (which consist of 100% equity interest in M&G Polimeros Brazil S.A. and 51% equity interest in Tereftaillicos Industries Quimicas Ltda.) from M&G Chemicals Brazil S.A., as per a definitive Securities Purchase Agreement dated 15 March 2018 for a preliminary cash consideration of BRL 1,389.2 million (Baht 12,246.6 million). The transaction is accounted for as a business combination. During the period from acquisition date to 31 December 2018, the business contributed revenue of BRL 1,093.7 million (Baht 9,297.8 million) and net profit of BRL 17.7 million (Baht 150.7 million) to the Group's results. If the acquisition had occurred on 1 January 2018, management estimates that consolidated revenue and consolidated net profit for the year ended 31 December 2018 would have increased by Baht 5,218.1 million and decreased by Baht 1,017.8 million, respectively. In determining these amounts, management has assumed that the fair value adjustments, determined provisionally, that arose on the date of acquisition would have been the same if the acquisition had occurred on 1 January 2018. Subsequent to completion of the acquisition, M&G Polimeros Brazil S.A. was renamed to Indorama Ventures Polimeros S.A.

Management believes that this acquisition in Brazil is in line with the Group's strategy to further extend its market position, and expand its global footprint in key markets with high growth potential. This strategic position allows the Group to deliver products to key customers in Brazil and elsewhere in South America in a cost-effective and efficient manner.

Identifiable assets acquired and liabilities assumed

	Note	Fair values as at 24 May 2018 (in thousand Baht)
Cash and cash equivalents		396,826
Inventories		1,023,543
Accounts receivable		935,153
Property, plant and equipment	15	5,404,294
Intangible assets	17	4,990,391
Deferred tax assets, net	18	135,679
Accounts payable		(621,106)
Other assets/(liabilities), net		(48,326)
Net identifiable assets acquired and liabilities assumed		12,216,454

	Fair values as at 24 May 2018 (in thousand Baht)
Goodwill	30,193
Total consideration	12,246,647
Cash acquired	(396,826)
Net consideration - paid	11,849,821

The trade receivables comprise gross contractual amounts due of Baht 935.2 million which was expected to be collectible at the acquisition date.

An independent appraiser has been appointed to determine the fair value of the business but the report of the appraiser is not yet completed as at the date of approval of these consolidated financial statements. Accordingly, the fair value of assets acquired and liabilities assumed have been provisionally determined at the acquisition date.

(vi) Egyptian Indian Polyester Company S.A.E., Egypt

On 14 June 2018, IVL, through its indirect subsidiary, Indorama Netherlands B.V. (“INBV”) has acquired 35% of equity interest of Egyptian Indian Polyester Company S.A.E. (“EIPET”) from Dhunseri Petrochem Limited (“Dhunseri”) as per the share purchase agreements dated 14 June 2018 for a preliminary cash consideration of USD 1.0 million (Baht 32.2 million). The transaction is accounted for as a business combination. During the period from acquisition date to 31 December 2018, the business contributed revenue of USD 50.2 million (Baht 1,651.9 million) and net loss of USD 13.9 million (Baht 457.0 million) to the Group’s results.

Dhunseri is under obligation as per the share purchase agreement with IVL to purchase the 30% shareholdings of EIPET from Egyptian Petrochemicals Holding Company (“ECHEM”) and Engineering For The Petroleum & Process Industries Company (“ENPPI”) for the consideration of USD 17.1 million (Baht 549.8 million) as stipulated in the share purchase agreement between Dhunseri, ECHEM and ENPPI and transfer the 50% of those shareholdings of EIPET (15%) to INBV. Accordingly, INBV has obligation to pay the consideration of USD 8.6 million (Baht 274.9 million) for those shareholdings of EIPET transferred from Dhunseri. The consideration payable of USD 2.2 million (Baht 70.3 million), USD 1.8 million (Baht 56.2 million), USD 2.6 million (Baht 84.3 million) and USD 2.0 million (Baht 64.1 million) were paid in June, July, August and September 2018, respectively, and the 3.83%, 3.07%, 4.60% and 3.50% shareholdings of EIPET have been transferred to INBV in June, July, August and September 2018, respectively.

Management believes that the acquisition will offer logistics advantage when sourcing feedstocks and delivering end products in key markets, domestically and internationally. This facility is one of the largest in the Middle East and Africa and is well-positioned to cater to the increasing packaging needs of customers in the region and elsewhere.

Identifiable assets acquired and liabilities assumed

	<i>Note</i>	Fair values as at 14 June 2018 (in thousand Baht)
Cash and cash equivalents		16,755
Inventories		50,028
Property, plant and equipment	15	5,168,397
Intangible assets	17	18,125
Short-term loan		(2,797,433)
Accounts payable		(34,272)
Other assets/(liabilities), net		(27,172)
Net identifiable assets acquired and liabilities assumed		2,394,428
Interest acquired (%)		50
Net identifiable assets acquired and liabilities assumed		1,197,214
Gain on bargain purchase		(890,140)
Total consideration		307,074
Cash acquired		(16,755)
Net consideration - paid		290,319

An independent appraiser has been appointed to determine the fair value of the business but the report of the appraiser is not yet completed as at the date of approval of these consolidated financial statements. Accordingly, the fair value of assets acquired and liabilities assumed have been provisionally determined at the acquisition date.

(vii) Avgol Industries 1953 Ltd., Israel

On 25 July 2018, IVL, through its indirect subsidiary, Indorama Ventures Spain S.L. (“IVSSL”), completed the acquisition of 65.72% equity interest in Avgol Industries 1953 Ltd. which consist of Avgol Industries 1953 Ltd., Avgol Ltd., Avgol Rus LLC, Hubei Gold Dragon Nonwoven Fabrics Co. Ltd., Avgol India Private Limited, Avgol Cyprus Ltd., Avgol America Inc. and Avgol Distribution Inc. , from HFH International B.V. and Leumi Partners Ltd., as per the share purchase agreements dated 13 May 2018 for a preliminary cash consideration of USD 318.9 million (Baht 10,643.5 million). The transaction is accounted for as a business combination. During the period from acquisition date to 31 December 2018, the business contributed revenue of USD 185.3 million (Baht 6,085.3 million) and net profit of USD 0.2 million (Baht 7.7 million) to the Group’s results. If the acquisition had occurred on 1 January 2018, management estimates that consolidated revenue and consolidated net profit for the year would have increased by Baht 7,750.0 million and increased by Baht 16.9 million, respectively. In determining these amounts, management has assumed that the fair value adjustments, determined provisionally, that arose on the date of acquisition would have been the same if the acquisition had occurred on 1 January 2018.

Management believe that acquisition of Avgol Industries 1953 Ltd. will provide a unique opportunity for the Group’s strategy to strengthen its leadership position in the high growth personal hygiene oriented nonwovens market.

Identifiable assets acquired and liabilities assumed

	<i>Note</i>	Fair values as at 25 July 2018 (in thousand Baht)
Cash and cash equivalents		1,903,017
Inventories		1,940,263
Accounts receivable		969,077
Property, plant and equipment	15	13,548,733
Intangible assets	17	4,018,482
Accounts payable		(1,033,407)
Long-term loan from financial institutions		(2,624,240)
Deferred tax liabilities, net	18	(2,007,034)
Debentures		(7,202,178)
Other assets/(liabilities), net		(388,209)
Net identifiable assets acquired and liabilities assumed		9,124,504
Interest acquired (%)		65.72
Net identifiable assets acquired and liabilities assumed		5,996,624
Goodwill		4,646,888
Total consideration		10,643,512
Cash acquired		(1,903,017)
Net consideration - paid		8,740,495

The trade receivables comprise gross contractual amounts due of Baht 978.9 million, of which Baht 9.8 million was expected to be uncollectible at the acquisition date.

An independent appraiser has been appointed to determine the fair value of the business but the report of the appraiser is not yet completed as at the date of approval of these consolidated financial statements. Accordingly, the fair value of assets acquired and liabilities assumed have been provisionally determined at the acquisition date.

(viii) Sorepla Technologie S.A., France

On 30 July 2018, IVL, through its indirect subsidiary, Wellman International Limited, completed the acquisition of 100% equity interest in Sorepla Technologie S.A. and its subsidiary, namely Société de Recyclage de Matières Plastiques (Sorepla Industrie) S.A., in France from Aeromaritime Systems Group B.V., as per a definitive share purchase agreement dated 30 July 2018 for a preliminary cash consideration of EUR 10.1 million (Baht 395.0 million). The transaction is accounted for as a business combination. During the period from acquisition date to 31 December 2018, the business contributed revenue of EUR 2.1 million (Baht 79.2 million) and net loss of EUR 0.4 million (Baht 14.1 million) to the Group's results. If the acquisition had occurred on 1 January 2018, management estimates that consolidated revenue and consolidated net profit for the year would have increased by Baht 106.9 million and decreased by Baht 103.8 million, respectively. In determining these amounts, management has assumed that the fair value adjustments, determined provisionally, that arose on the date of acquisition would have been the same if the acquisition had occurred on 1 January 2018.

Management believe that acquisition of Sorepla Technologie S.A. will aligned with the Group's strategy to enhance the Group as a leading recycler in Europe supporting the circular economy.

Identifiable assets acquired and liabilities assumed

	<i>Note</i>	Fair values as at 30 July 2018 (in thousand Baht)
Cash and cash equivalents		9,868
Inventories		24,447
Accounts receivable		24,759
Property, plant and equipment	15	610,226
Deferred tax assets, net	18	38,335
Short-term loan		(50,981)
Accounts payable		(84,436)
Other assets/(liabilities), net		(171,925)
Net identifiable assets acquired and liabilities assumed		400,293
Gain on bargain purchase		(5,247)
Total consideration		395,046
Cash acquired		(9,868)
Net consideration - paid		385,178

The trade receivables comprise gross contractual amounts due of Baht 30.7 million, of which Baht 5.9 million was expected to be uncollectible at the acquisition date.

An independent appraiser has been appointed to determine the fair value of the business but the report of the appraiser is not yet completed as at the date of approval of these consolidated financial statements. Accordingly, the fair value of assets acquired and liabilities assumed have been provisionally determined at the acquisition date.

(ix) PT. Indorama Petrochemicals, Indonesia

On 19 November 2018, the board of directors of IVL approved to further acquire the remaining 26% shareholdings in PT. Indorama Petrochemicals (“PTIP”) from PT. Indo-Rama Synthetics Tbk. (“PTIRS”) and Indorama Holdings B.V. (“IHBV”) as per the right in the Call Option Agreement for a cash consideration of USD 59.7 million. The payment and the transfer of ownership of the remaining 26% shareholdings in PTIP took place on 3 January 2019. The management has viewed that although there is no amendment to the Call Option Agreement regarding the composition of the board of director which is the underlying reason for joint control over PTIP executed by PTIRS and the Group, the substance of the Call Option Agreement in this regard, no longer continues to exist since the date the management unconditionally decided to exercise the right to acquire the remaining shareholdings of PTIP and become sole shareholder of PTIP. Consequently, the management is of the view that the Group has control over PTIP since the date of the Board of Directors’ approval and the transaction is accounted for as a business combination.

The acquiree's net assets at the date of obtaining control comprised of the following:

	<i>Note</i>	Fair values as at 1 October 2018 (in thousand Baht)
Cash and cash equivalents		27,206
Inventories		1,515,232
Accounts receivable		1,546,191
Property, plant and equipment	15	11,780,282
Short-term loan from financial institutions		(497,505)
Accounts payable		(3,967,474)
Long-term loan		(5,130,351)
Deferred tax liabilities, net	18	(1,114,931)
Other assets/(liabilities), net		366,783
Net identifiable assets acquired and liabilities assumed		4,525,433
Controlling interests (%)		74
Fair value of identifiable assets and liabilities assumed		3,348,820
Fair value of previously held equity interest		3,348,820
Net		-

The gain recognised as a result of remeasuring to fair value the previously held equity interest in PT. Indorama Petrochemicals is determined as follows:

	Fair values as at 1 October 2018 (in thousand Baht)
Fair value of previously held equity interest	3,348,820
Carrying amount of previously held equity interest	3,296,932
	51,888
Unrealised loss previously recognised in other comprehensive income	(50,444)
Gain recognised as a result of remeasuring to fair value of the previously held interest	1,444

The measurement to fair value of the Group's existing 74% interest in PT. Indorama Petrochemicals resulted in a gain of Baht 1.4 million, which has been included in other income in the consolidated statement of income for the year ended 31 December 2018.

The trade receivables comprise gross contractual amounts due of Baht 1,546.2 million which was expected to be collectible at the acquisition date.

An independent appraiser has been appointed to determine the fair value of the business but the report of the appraiser is not yet completed as at the date of approval of these consolidated financial statements. Accordingly, the fair value of assets acquired and liabilities assumed have been provisionally determined at the acquisition date.

(x) **KORDÁRNA Plus a.s., Czech Republic**

On 30 October 2018, IVL, through its indirect subsidiary, Indorama Ventures Spain S.L., completed the acquisition of 100% equity interest in KORDÁRNA Plus a.s. in Czech Republic from PROXY - FINANCE a.s., PROSPERITA holding a.s. and Ing. IGOR FAIT, as per a definitive Sale and Purchase Agreement dated 28 June 2018 for a preliminary cash consideration of CZK 1,452.4 million (Baht 2,124.3 million). The transaction is accounted for as a business combination. During the period from acquisition date to 31 December 2018, the business contributed revenue of CZK 375.7 million (Baht 541.9 million) and net income of CZK 15.9 million (Baht 23.0 million) to the Group's results. If the acquisition had occurred on 1 January 2018, management estimates that consolidated revenue and consolidated net profit for the year would have increased by Baht 3,020.4 million and increased by Baht 284.3 million, respectively. In determining these amounts, management has assumed that the fair value adjustments, determined provisionally, that arose on the date of acquisition would have been the same if the acquisition had occurred on 1 January 2018.

Management believe that acquisition of KORDÁRNA Plus a.s. will be a synergistic addition to our automotive HVA platform with potential to grow sustainably.

Identifiable assets acquired and liabilities assumed

	<i>Note</i>	Fair values as at 30 October 2018 (in thousand Baht)
Cash and cash equivalents		46,847
Inventories		610,824
Accounts receivable		718,207
Property, plant and equipment	15	2,353,247
Intangible assets	17	1,276
Deferred tax assets, net	18	151,464
Short-term loan from financial institutions		(509,049)
Accounts payable		(388,931)
Long-term loan		(109,448)
Other assets/(liabilities), net		(107,428)
Net identifiable assets acquired and liabilities assumed		2,767,009
Gain on bargain purchase		(642,686)
Total consideration		2,124,323
Cash acquired		(46,847)
Net consideration - paid		2,077,476

The trade receivables comprise gross contractual amounts due of Baht 729.7 million, of which Baht 11.5 million was expected to be uncollectible at the acquisition date.

An independent appraiser has been appointed to determine the fair value of the business but the report of the appraiser is not yet completed as at the date of approval of these consolidated financial statements. Accordingly, the fair value of assets acquired and liabilities assumed have been provisionally determined at the acquisition date.

(xi) Medco Plast for Packing and Packaging Systems S.A.E., Egypt

On 13 November 2018, IVL, through its indirect subsidiary, Indorama Netherlands B.V., completed the acquisition of 74% equity interest in Medco Plast for Packing and Packaging Systems S.A.E. in Egypt from Middle East Glass S.A.E. and Mohamed Hassan Samaha, as per a definitive Sale and Purchase Agreement dated 18 July 2018 for a preliminary cash consideration of EGP 921.4 million (Baht 1,699.5 million). The transaction is accounted for as a business combination. During the period from acquisition date to 31 December 2018, the business contributed revenue of EGP 78.8 million (Baht 144.4 million) and net loss of EGP 20.6 million (Baht 37.8 million) to the Group's results. If the acquisition had occurred on 1 January 2018, management estimates that consolidated revenue and consolidated net profit for the year would have increased by Baht 1,583.1 million and decreased by Baht 51.7 million, respectively. In determining these amounts, management has assumed that the fair value adjustments, determined provisionally, that arose on the date of acquisition would have been the same if the acquisition had occurred on 1 January 2018.

Management believe that acquisition of Medco Plast for Packing and Packaging Systems S.A.E. will provide Indorama Ventures exposure to the East African PET packaging market, complementing its existing footprint in West Africa, where the company has presence in Nigeria and Ghana.

Identifiable assets acquired and liabilities assumed

	<i>Note</i>	Fair values as at 13 November 2018 (in thousand Baht)
Cash and cash equivalents		13,838
Inventories		365,582
Accounts receivable		781,564
Property, plant and equipment	15	859,002
Intangible assets	17	451,216
Short-term loan from financial institutions		(1,332,605)
Accounts payable		(29,478)
Deferred tax liabilities, net	18	(234,097)
Other assets/(liabilities), net		73,702
Net identifiable assets acquired and liabilities assumed		948,724
Interest acquired (%)		74
Net identifiable assets acquired and liabilities assumed		702,055
Goodwill		997,462
Total consideration		1,699,517
Consideration payable		(144,542)
Cash acquired		(13,838)
Net consideration - paid		1,541,137

The trade receivables comprise gross contractual amounts due of Baht 781.6 million which was expected to be collectible at the acquisition date.

The payment of consideration payable is subject to the collection of certain accounts receivable according to the definitive Sale and Purchase Agreement.

An independent appraiser has been appointed to determine the fair value of the business but the report of the appraiser is not yet completed as at the date of approval of these consolidated financial statements. Accordingly, the fair value of assets acquired and liabilities assumed have been provisionally determined at the acquisition date.

(xii) Schoeller Group, Austria, Czech Republic and Germany

On 23 November 2018, IVL, through its indirect subsidiary, Glanzstoff Management GmbH, completed the acquisition of 100% equity interest in Schoeller Group in Europe, with operating plants in Austria, Czech Republic and Germany from Schoeller Immobilien- und Beteiligungs GmbH and Schoeller Management GmbH, as per a definitive Sale and Purchase Agreement dated 28 September 2018 for a preliminary cash consideration of EUR 37.5 million (Baht 1,412.4 million). The transaction is accounted for as a business combination. During the period from acquisition date to 31 December 2018, the business contributed revenue of EUR 7.2 million (Baht 268.5 million) and net loss of EUR 1.3 million (Baht 47.9 million) to the Group's results. If the acquisition had occurred on 1 January 2018, management estimates that consolidated revenue and consolidated net profit for the year would have increased by Baht 1,911.4 million and decreased by Baht 61.2 million, respectively. In determining these amounts, management has assumed that the fair value adjustments, determined provisionally, that arose on the date of acquisition would have been the same if the acquisition had occurred on 1 January 2018.

Management believe that acquisition of Schoeller Group will further enhance the HVA portfolio of the Group.

Identifiable assets acquired and liabilities assumed

	<i>Note</i>	Fair values as at 23 November 2018 (in thousand Baht)
Cash and cash equivalents		6,532
Inventories		907,041
Accounts receivable		249,064
Property, plant and equipment	15	1,078,842
Intangible assets	17	339,481
Short-term loan from financial institutions		(1,343)
Accounts payable		(476,255)
Deferred tax liabilities, net	18	(182,388)
Other assets/(liabilities), net		(118,190)
Net identifiable assets acquired and liabilities assumed		1,802,784
Gain on bargain purchase		(390,414)
Total consideration		1,412,370
Contingent consideration		(71,848)
Cash acquired		(6,532)
Net consideration - paid		1,333,990

The trade receivables comprise gross contractual amounts due of Baht 917.0 million, of which Baht 10.0 million was expected to be uncollectible at the acquisition date.

An independent appraiser has been appointed to determine the fair value of the business but the report of the appraiser is not yet completed as at the date of approval of these consolidated financial statements. Accordingly, the fair value of assets acquired and liabilities assumed have been provisionally determined at the acquisition date.

During the years ended 31 December 2018 and 2017, the Group incurred acquisition-related costs of Baht 465.9 million and Baht 104.3 million, respectively, relating to external legal fees, advisory fees and due diligence costs. These amounts have been included in administrative expenses in the Group's consolidated statements of income for the years ended 31 December 2018 and 2017, respectively.

In accordance with TFRS3, management is required to make a preliminary assessment of the fair values of businesses acquired as at the acquisition date. During the measurement period, which must not exceed one year from the acquisition date, the acquirer shall retrospectively adjust the provisional amounts recognised at the acquisition date to reflect new information obtained about facts and circumstances that existed as of the acquisition date. Finalisations of the fair values for acquisition of M&G Polimeros Brazil S.A., Egyptian Indian Polyester Company S.A.E., Avgol Industries 1953 Ltd., Sorepla Technologie S.A., KORDÁRNA Plus a.s., PT Indorama Petrochemicals, Medco Plast for Packing and Packaging Systems S.A.E. and Schoeller Group are dependent on determination of the ultimate purchase price and completion of the purchase price allocation exercise.

5 Related parties

For the purposes of these financial statements, parties are considered to be related to the Group/Company if the Group/Company has the ability, directly or indirectly, to control or joint control the party or exercise significant influence over the party in making financial and operating decisions, or vice versa, or where the Group/Company and the party are subject to common control or common significant influence. Related parties may be individuals or other entities.

Relationships with key management and other related parties were as follows:

Name of entities	Country of incorporation/ nationality	Nature of relationships
Indorama Resources Limited	Thailand	Immediate parent company, 62.43% shareholder, some common directors
Indorama Ventures Global Services Limited	Thailand	Subsidiary, 99.99% shareholding, some common directors
Indorama Polymers Public Company Limited	Thailand	Subsidiary, 72.60% shareholding and 27.31% interest held indirectly, some common directors
Indorama Holdings Limited	Thailand	Subsidiary, 99.81% shareholding, some common directors
Indorama Polyester Industries Public Company Limited	Thailand	Subsidiary, 64.94% shareholding and 34.55% interest held indirectly, some common directors
Indorama Petrochem Limited	Thailand	Subsidiary, 99.99% shareholding, some common directors
TPT Petrochemicals Public Company Limited	Thailand	Subsidiary, 99.97% shareholding, some common directors
IVL Belgium N.V.	Belgium	Subsidiary, 99.99% shareholding, some common directors
Indo Polymers Mauritius Limited	Mauritius	Subsidiary, 100.00% shareholding, a common director (under dissolution)
Petform (Thailand) Limited	Thailand	Indirect subsidiary, 59.94% effective interest, some common directors
Asia Pet (Thailand) Limited	Thailand	Indirect subsidiary, 99.90% effective interest, some common directors

Name of entities	Country of incorporation/ nationality	Nature of relationships
Indorama Ventures Polymers (Rayong) Public Company Limited	Thailand	Indirect subsidiary, 99.98% effective interest (completion of dissolution process)
Guangdong IVL PET Polymer Company Limited	China	Indirect subsidiary, 99.91% effective interest, a common director
FiberVisions (China) Textile Products Limited	China	Indirect subsidiary, 99.99% effective interest
Performance Fibers (Kaiping) Company Limited	China	Indirect subsidiary, 99.99% effective interest, a common director
Performance Fibers (Kaiping) No.2 Company Limited	China	Indirect subsidiary, 99.99% effective interest, a common director
Performance Fibers (Kaiping) No.3 Company Limited	China	Indirect subsidiary, 99.99% effective interest, a common director
Performance Fibers (Kaiping) Trading Company Limited	China	Indirect subsidiary, 99.99% effective interest
Glanzstoff Industries (Qingdao) Company Limited	China	Indirect subsidiary, 99.99% effective interest
Hubei Gold Dragon Nonwoven Fabrics Co. Ltd.	China	Indirect subsidiary, 65.28% effective interest
Glanzstoff Holding (Hong Kong) Limited	Hong Kong	Indirect subsidiary, 99.99% effective interest
Performance Fibers (Hong Kong) Limited	Hong Kong	Indirect subsidiary, 99.99% effective interest, a common director
PT. Indorama Ventures Indonesia	Indonesia	Indirect subsidiary, 99.99% effective interest, some common directors
PT. Indorama Polyester Industries Indonesia	Indonesia	Indirect subsidiary, 99.98% effective interest, some common directors
PT. Indorama Polychem Indonesia	Indonesia	Indirect subsidiary, 99.99% effective interest, a common director
PT. Indorama Polypet Indonesia	Indonesia	Indirect subsidiary, 99.99% effective interest, a common director
PT. Indorama Glycol Indonesia	Indonesia	Indirect subsidiary, 99.99% effective interest, a common director
PT. Indorama Petrochemicals	Indonesia	Indirect subsidiary, 73.99% effective interest some common key management personnel
KP Equity Partners Inc.	Malaysia	Indirect subsidiary, 99.99% effective interest, some common directors
Indorama Ventures Packaging (Myanmar) Limited	Myanmar	Indirect subsidiary, 99.91% effective interest
Indorama Ventures Packaging (Philippines) Corporation	Philippines	Indirect subsidiary, 99.99% effective interest
IVL Singapore PTE Limited	Singapore	Indirect subsidiary, 99.91% effective interest, a common director
Indorama Ventures Packaging (India) Private Limited	India	Indirect subsidiary, 99.98% effective interest
Avgol India Private Limited	India	Indirect subsidiary, 65.94 % effective interest
FiberVisions (China) A/S	Denmark	Indirect subsidiary, 99.99% effective interest
FiberVisions A/S	Denmark	Indirect subsidiary, 99.99% effective interest
Wellman France Recyclage S.A.S.	France	Indirect subsidiary, 99.99% effective interest
Glanzstoff Longlaville S.A.S.	France	Indirect subsidiary, 99.99% effective interest

Name of entities	Country of incorporation/ nationality	Nature of relationships
Glanzstoff Services S.A.S.	France	Indirect subsidiary, 99.99% effective interest
Wellman Neufchateau Recyclage S.A.	France	Indirect subsidiary, 99.99% effective interest, a common director (Formerly Wellman Neufchateau Technologie S.A.) (Amalgamated with Wellman Neufchateau Industrie S.A. Wellman Neufchateau Recyclage S.A. is the surviving entity)
Wellman Neufchateau Industrie S.A.	France	Indirect subsidiary, 99.99% effective interest, a common director (Amalgamated with Wellman Neufchateau Recyclage S.A. Wellman Neufchateau Recyclage S.A. is the surviving entity)
FiberVisions Vermögensver- waltungsgesellschaft mbH	Germany	Indirect subsidiary, 99.99% effective interest
Trevira Holdings GmbH	Germany	Indirect subsidiary, 99.99% effective interest, a common director
Trevira GmbH	Germany	Indirect subsidiary, 99.99% effective interest
PHP Fibers GmbH	Germany	Indirect subsidiary, 80.00% effective interest, a common director
Schoeller Süssen GmbH	Germany	Indirect subsidiary, 99.99% effective interest
Wellman International Limited	Ireland	Indirect subsidiary, 99.99% effective interest, a common director
Glanzstoff Industries S.R.L.	Italy	Indirect subsidiary, 99.99% effective interest
Società Industriale Cremonese SICREM s.p.a.	Italy	Indirect subsidiary, 99.99% effective interest
Glanzstoff Industries A.G.	Luxembourg	Indirect subsidiary, 99.99% effective interest, a common director
Textilcord Steinfort S.A.	Luxembourg	Indirect subsidiary, 99.99% effective interest
Glanzstoff Management GmbH	Austria	Indirect subsidiary, 99.99% effective interest
Schoeller GmbH & Co KG	Austria	Indirect subsidiary, 99.99% effective interest
AE BG AlphaPhi Holding GmbH	Austria	Indirect subsidiary, 99.99% effective interest
AE BG AlphaOmega Holding GmbH	Austria	Indirect subsidiary, 99.99% effective interest
Glanzstoff - Bohemia s.r.o.	Czech Republic	Indirect subsidiary, 99.99% effective interest
Scorpius Capital a.s.	Czech Republic	Indirect subsidiary, 99.99% effective interest, a common key management personnel
KORDÁRNA Plus a.s.	Czech Republic	Indirect subsidiary, 99.99% effective interest, a common key management personnel
Kordplast s.r.o.	Czech Republic	Indirect subsidiary, 99.99% effective interest
Schoeller Kresice s.r.o.	Czech Republic	Indirect subsidiary, 99.99% effective interest
UAB Orion Global PET	Lithuania	Indirect subsidiary, 99.91% effective interest, a common director
UAB Indorama Polymers Europe	Lithuania	Indirect subsidiary, 99.91% effective interest, a common director
UAB Indorama Holdings Europe	Lithuania	Indirect subsidiary, 99.81% effective interest, a common director
Indorama Netherlands Cooperatief U.A.	The Netherlands	Indirect subsidiary, 99.99% effective interest
Indorama Netherlands B.V.	The Netherlands	Indirect subsidiary, 99.99% effective interest

Name of entities	Country of incorporation/ nationality	Nature of relationships
Indorama Ventures Europe B.V.	The Netherlands	Indirect subsidiary, 99.99% effective interest, a common director
Indorama Polymers Rotterdam B.V.	The Netherlands	Indirect subsidiary, 99.91% effective interest, a common director
Indorama Ventures Recycling Netherlands B.V.	The Netherlands	Indirect subsidiary, 99.99% effective interest
MJR Recycling B.V.	The Netherlands	Indirect subsidiary, 99.99% effective interest
Indorama Holdings Rotterdam B.V.	The Netherlands	Indirect subsidiary, 99.81% effective interest, a common director
Indorama Ventures Dutch Investments B.V.	The Netherlands	Indirect subsidiary, 51.00% effective interest
Indorama Ventures Poland Sp. z o.o.	Poland	Indirect subsidiary, 99.99% effective interest, a common director
Indorama Ventures Química S.L.U.	Spain	Indirect subsidiary, 99.99% effective interest, a common director
Indorama Ventures Spain S.L.	Spain	Indirect subsidiary, 99.99% effective interest
Indorama Trading AG	Switzerland	Indirect subsidiary, 99.81% effective interest
Indorama Ventures Adana PET Sanayi Anonim Sirketi	Turkey	Indirect subsidiary, 99.99% effective interest, some common directors
Indorama Ventures Corlu PET Sanayi Anonim Sirketi	Turkey	Indirect subsidiary, 99.99% effective interest, some common directors
Beverage Plastics (Holdings) Limited	United Kingdom	Indirect subsidiary, 75.36% effective interest
Beverage Plastics Limited	United Kingdom	Indirect subsidiary, 75.36% effective interest
Beacon Trading (UK) Limited	United Kingdom	Indirect subsidiary, 99.81% effective interest
Indorama Trading (UK) Limited	United Kingdom	Indirect subsidiary, 99.81% effective interest
Indorama Polymers Workington Limited	United Kingdom	Indirect subsidiary, 99.91% effective interest, a common director
Indorama Ventures Portugal PTA - Unipessoal, LDA.	Portugal	Indirect subsidiary, 99.99% effective interest
Indorama Ventures Portugal Utility - Unipessoal, LDA.	Portugal	Indirect subsidiary, 99.99% effective interest
Avgol Cyprus Ltd.	Cyprus	Indirect subsidiary, 65.94% effective interest
Avgol Rus LLC	Russia	Indirect subsidiary, 65.94% effective interest
Indorama Ventures Holdings LP	USA	Indirect subsidiary, 99.99% effective interest
Indorama Ventures USA Holdings LP	USA	Indirect subsidiary, 99.99% effective interest
Indorama Ventures OGL Holdings LP	USA	Indirect subsidiary, 99.99% effective interest
Indorama Ventures Logistics LLC	USA	Indirect subsidiary, 99.99% effective interest, a common director
Indorama Ventures (Oxide & Glycols) LLC	USA	Indirect subsidiary, 99.99% effective interest, a common director
Performance Fibers Holdings Finance, Inc.	USA	Indirect subsidiary, 99.99% effective interest
Performance Fibers Asia Holdings, LLC	USA	Indirect subsidiary, 99.99% effective interest
Performance Fibers Asia, LLC	USA	Indirect subsidiary, 99.99% effective interest
Indorama Ventures AlphaPet Holdings, Inc.	USA	Indirect subsidiary, 99.99% effective interest, a common director
Indorama Polymers (USA) LLC	USA	Indirect subsidiary, 99.99% effective interest

Name of entities	Country of incorporation/ nationality	Nature of relationships
AlphaPet, Inc.	USA	Indirect subsidiary, 99.99% effective interest, a common director
Indorama Ventures Polyholding LLC	USA	Indirect subsidiary, 99.99% effective interest
Indorama Ventures USA LLC	USA	Indirect subsidiary, 99.99% effective interest
Auriga Polymers Inc.	USA	Indirect subsidiary, 99.99% effective interest, a common director
StarPet Inc.	USA	Indirect subsidiary, 99.99% effective interest, a common director
Indorama Ventures Xylenes & PTA LLC	USA	Indirect subsidiary, 99.99% effective interest, some common key management personnel
Indorama Ventures Performance Fibers Holdings USA LLC	USA	Indirect subsidiary, 99.99% effective interest, some common key management personnel
FiberVisions Corporation	USA	Indirect subsidiary, 99.99% effective interest, a common director
FiberVisions Manufacturing Company	USA	Indirect subsidiary, 99.99% effective interest
FiberVisions Products, Inc.	USA	Indirect subsidiary, 99.99% effective interest
FiberVisions L.P.	USA	Indirect subsidiary, 99.99% effective interest
Trevira North America, LLC	USA	Indirect subsidiary, 99.99% effective interest
PHP Fibers Inc.	USA	Indirect subsidiary, 80.00% effective interest, a common director
Safe Tweave Inc.	USA	Indirect subsidiary, 80.00% effective interest
Indorama Ventures Olefins Holding LLC	USA	Indirect subsidiary, 99.99% effective interest
Indorama Ventures Investments USA LLC	USA	Indirect subsidiary, 51.00% effective interest
Indorama Ventures Olefins LLC	USA	Indirect subsidiary, 90.40% effective interest, some common key management personnel
Indorama Ventures Exporter Inc.	USA	Indirect subsidiary, 99.99% effective interest, a common director
Winnsboro Fibres LLC	USA	Indirect subsidiary, 99.99% effective interest, a common director
Indorama Ventures Corpus Christi Holding LLC	USA	Indirect subsidiary, 99.99% effective interest, a common director
Avgol America Inc.	USA	Indirect subsidiary, 65.94% effective interest
Avgol Distribution Inc.	USA	Indirect subsidiary, 65.94 % effective interest
Indorama Ventures Northern Investments Inc.	Canada	Indirect subsidiary, 99.99% effective interest, a common director
Indorama Ventures Gestion Inc.	Canada	Indirect subsidiary, 99.99% effective interest, a common director
Indorama Ventures PTA Montréal LP	Canada	Indirect subsidiary, 99.99% effective interest, some common key management personnel
4200144 Canada Inc.	Canada	Indirect subsidiary, 99.99% effective interest
IVL Holding, S. de R.L. de C.V.	Mexico	Indirect subsidiary, 99.99% effective interest, some common key management personnel
Grupo Indorama Ventures, S. de R.L. de C.V.	Mexico	Indirect subsidiary, 99.99% effective interest, some common key management personnel

Name of entities	Country of incorporation/ nationality	Nature of relationships
Indorama Ventures Polymers Mexico, S. de R.L. de C.V.	Mexico	Indirect subsidiary, 99.99% effective interest, some common key management personnel (Amalgamated with Indorama Ventures Mexico Assets, S. de R.L. de C.V. Indorama Ventures Polymers Mexico, S. de R.L. de C.V. is the surviving entity)
Indorama Ventures Polycor, S. de R.L. de C.V.	Mexico	Indirect subsidiary, 99.99% effective interest, some common key management personnel
Indorama Ventures Servicios Corporativos, S. de R.L. de C.V.	Mexico	Indirect subsidiary, 99.99% effective interest, some common key management personnel
Indorama Ventures Mexico Assets, S. de R.L. de C.V.	Mexico	Indirect subsidiary, 99.99% effective interest (Amalgamated with Indorama Ventures Polymers Mexico, S. de R.L. de C.V. Indorama Ventures Polymers Mexico, S. de R.L. de C.V. is the surviving entity)
Performance Fibers Operations Mexico, S. de R.L. de C.V.	Mexico	Indirect subsidiary, 99.99% effective interest, a common director
Performance Fibers Services, S. de R.L. de C.V.	Mexico	Indirect subsidiary, 99.99% effective interest, a common director
Glanzstoff Industries Mexico, S. de R.L. de C.V.	Mexico	Indirect subsidiary, 99.99% effective interest,
Indorama Ventures Brazil Participacoes S.A.	Brazil	Indirect subsidiary, 99.99% effective interest a common director
Indorama Ventures Polimeros S.A.	Brazil	Indirect subsidiary, 99.99% effective interest a common director
Tereftaillicos Industrias Quimicas Ltda.	Brazil	Indirect subsidiary, 51.00% effective interest
Indorama PET (Nigeria) Limited	Nigeria	Indirect subsidiary, 89.92% effective interest, a common director
Indorama Ventures Packaging (Nigeria) Limited	Nigeria	Indirect subsidiary, 99.99% effective interest
Indorama Ventures Packaging (Ghana) Limited	Republic of Ghana	Indirect subsidiary, 99.99% effective interest
Egyptian Indian Polyester Company S.A.E.	Egypt	Indirect subsidiary, 49.99% effective interest a common director
Medco Plast for Packing & Packaging systems S.A.E.	Egypt	Indirect subsidiary, 73.99% effective interest
Avgol Industries 1953 Ltd.	Israel	Indirect subsidiary, 65.94% effective interest, a common director
Avgol Ltd.	Israel	Indirect subsidiary, 65.94% effective interest
ES FiberVisions (Thailand) Company Limited	Thailand	Indirect joint venture, 50.00% effective interest
ES FiberVisions (Suzhou) Co., Ltd.	China	Indirect joint venture, 50.00% effective interest
ES FiberVisions Shanghai Co., Ltd.	China	Indirect joint venture, 50.00% effective interest
ShenMa-PHP (Pingdingshan) Air Bag Yarn Manufacturing Co., Ltd.	China	Indirect joint venture, 39.20% effective interest

Name of entities	Country of incorporation/ nationality	Nature of relationships
PHP-ShenMa Air Bag Yarn Marketing (Shanghai) Co., Ltd.	China	Indirect joint venture, 40.80% effective interest
ES FiberVisions Hong Kong Limited	Hong Kong	Indirect joint venture, 50.00% effective interest
ES FiberVisions Company Limited	Japan	Indirect joint venture, 50.00% effective interest
IVL Dhunseri Petrochem Industries Private Limited	India	Indirect joint venture, 50.00% effective interest, some common directors
ES FiberVisions Holdings ApS	Denmark	Indirect joint venture, 50.00% effective interest
ES FiberVisions ApS	Denmark	Indirect joint venture, 50.00% effective interest
TTI GmbH	Germany	Indirect joint venture, 40.00% effective interest
Ottana Polimeri S.R.L.	Italy	Indirect joint venture, 50.00% effective interest (Dissolution due to the sale of shareholding)
ES FiberVisions LP	USA	Indirect joint venture, 50.00% effective interest
ES FiberVisions, Inc.	USA	Indirect joint venture, 50.00% effective interest
Corpus Christi Polymers LLC	USA	Indirect joint operation, 33.33% effective interest
Huvis Indorama Advanced Materials, LLC	USA	Indirect joint venture, 50.00% effective interest
Indorama Loop Technologies, LLC	USA	Indirect joint venture, 50.00% effective interest
Indorama Ventures EcoMex, S. de R.L. de C.V.	Mexico	Indirect joint venture, 51.00% effective interest, some common key management personnel
Indorama Ventures EcoMex, Services, S. de R.L. de C.V.	Mexico	Indirect joint venture, 51.00% effective interest, some common key management personnel
Pacific Resources Limited	Thailand	Family relationships with directors
Cryoviva (Thailand) Limited	Thailand	Some common directors
Thai Plaspac Public Company Limited	Thailand	Family relationships with directors
Lohia Global Holdings Limited	Hong Kong	Family relationships with directors
PT. Indo-Rama Synthetics Tbk.	Indonesia	24.00% shareholder of indirect joint venture, and related parties as commissioners
PT. Irama Unggul	Indonesia	Family relationships with commissioner
PT. TIGADAYA MINERGY	Indonesia	Subsidiary of 50.00% shareholder of indirect joint venture, and related parties as commissioners
Yayasan Pendidikan Indorama	Indonesia	Family relationships with trustee and advisory board
Indo Rama Synthetics (India) Limited	India	Family relationships with directors
Indorama Eleme Petrochemicals Limited	Nigeria	10.00% shareholder of indirect subsidiary, some common directors
Indorama Commerce DMCC	United Arab Emirates	Some common directors

Name of entities	Country of incorporation/ nationality	Nature of relationships
Vega Aviation Limited	British Virgin Islands	Family relationships with common directors
Key management personnel	Thailand, India, Indonesia and USA	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/Company.

On 9 February 2018, PT. Indorama Glycol Indonesia, a new indirect subsidiary, was incorporated in Indonesia, with the registered share capital of USD 500 thousand (Baht 15,700 thousand).

On 2 March 2018, Corpus Christi Polymers LLC, a new indirect joint operation, was incorporated in USA, with no registered share capital because of partnership formation.

On 25 April 2018, Indorama Ventures Corpus Christi Holding LLC, a new indirect subsidiary, was incorporated in USA, with no registered share capital because of partnership formation.

On 24 May 2018, Indorama Ventures Brazil Participacoes S.A., a new indirect subsidiary, was incorporated in Brazil, with the registered share capital of BRL 560,325 thousand (Baht 4,939,636 thousand).

On 18 June 2018, Huvis Indorama Advanced Materials, LLC, a new indirect joint venture, was incorporated in USA, with no registered share capital because of partnership formation.

On 4 October 2018, Glanzstoff Industries Mexico, S. de R.L. de C.V., a new indirect subsidiary, was incorporated in Mexico, with the registered share capital of MXN 50,000 (Baht 86,235).

Indorama Ventures Polymers (Rayong) Public Company Limited registered its dissolution with the Ministry of Commerce on 3 April 2018 and registered for the completion of liquidation on 13 December 2018.

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

Transactions

Sales of goods
Purchases of goods and raw materials
Dividend income
Interest income
Other income
Interest expense
Distribution costs and administrative expenses
Other raw materials conversion charges and overheads

Pricing policies

Market prices
Market prices
As declared
Market linked rate/contractually agreed
Contractually agreed
Market linked rate/contractually agreed
Contractually agreed
Contractually agreed

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

Year ended 31 December	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
Subsidiaries				
Interest income	-	-	3,686,579	2,824,224
Other income	-	-	186,852	413,322
Dividend income	-	-	10,791,886	6,058,274
Key management personnel				
Directors' fee and bonus	32,480	26,585	30,420	24,495
Short-term employee benefits	155,411	108,695	-	-
Long-term employee benefits	2,928	1,608	-	-
Other related parties				
Sales of goods	2,294,488	1,635,075	-	-
Purchases of goods and raw materials	2,201,021	1,674,092	-	-
Other raw materials conversion charges and overheads	123,219	18,656	-	-
Distribution costs and administrative expenses	276,351	273,192	12,879	10,163
Other income	9,521	2,121	-	-
Joint ventures				
Sales of goods	6,516,923	5,451,915	-	-
Purchases of goods and raw materials	8,749,560	8,070,008	-	-
Other raw materials conversion charges and overheads	-	3,602	-	-
Distribution costs and administrative expenses	479	539	-	-
Interest income	6,011	12,866	-	-
Other income	154,325	117,762	113,137	79,108
Dividend income	151,328	20,330	-	-

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

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
Trade accounts receivable - related parties				
Other related parties				
PT. Indo-Rama Synthetics Tbk.	349,423	178,132	-	-
Indo Rama Synthetics (India) Limited	150,771	161,024	-	-
Thai Plaspac Public Company Limited	2,899	-	-	-
	<u>503,093</u>	<u>339,156</u>	<u>-</u>	<u>-</u>
Joint ventures				
ES FiberVisions LP	378,524	415,175	-	-
ShenMa-PHP (Pingdingshan) Air Bag Yarn Manufacturing Co., Ltd.	37,039	93,512	-	-
ES FiberVisions ApS	117,952	78,913	-	-
IVL Dhunseri Petrochem Industries Private Limited	25,078	75,661	-	-
ES FiberVisions Company Limited	1,625	8,381	-	-
ES FiberVisions (Thailand) Company Limited	32,211	20,956	-	-
ES FiberVisions Shanghai Co., Ltd.	18,335	17,285	-	-
ES FiberVisions Hong Kong Limited	25,787	12,746	-	-
ES FiberVisions (Suzhou) Co., Ltd.	5,674	9,928	-	-
	<u>642,225</u>	<u>732,557</u>	<u>-</u>	<u>-</u>
Total	<u>1,145,318</u>	<u>1,071,713</u>	<u>-</u>	<u>-</u>
Other receivables - related parties				
Subsidiaries				
Egyptian Indian Polyester Company S.A.E.	-	-	30,710	-
StarPet Inc.	-	-	2,551	-
Indorama Ventures Recycling Netherlands B.V.	-	-	139	-
Performance Fibers Operations Mexico, S. de R.L. de C.V.	-	-	-	3,509
Glanzstoff Longlaville S.A.S.	-	-	-	3,071
	<u>-</u>	<u>-</u>	<u>33,400</u>	<u>6,580</u>
Other related parties				
Indo Rama Synthetics (India) Limited	4,466	4,498	-	-
Yayasan Pendidikan Indorama	-	1,139	-	-
Cryoviva (Thailand) Limited	190	228	-	-
PT. TIGADAYA MINERGY	80,057	-	-	-
	<u>84,713</u>	<u>5,865</u>	<u>-</u>	<u>-</u>

		Consolidated financial statements		Separate financial statements	
		2018	2017	2018	2017
		(in thousand Baht)			
Other receivables - related parties					
Joint ventures					
IVL Dhunseri Petrochem Industries Private Limited		50,450	35,024	49,348	35,024
ES FiberVisions Holdings ApS		30,273	20,064	-	-
ES FiberVisions (Thailand) Company Limited		18,948	8,943	-	-
Indorama Ventures EcoMex, S. de R.L. de C.V.		-	517	-	-
PT. Indorama Petrochemicals		-	412	-	-
ES FiberVisions LP		-	33	-	-
Huvis Indorama Advanced Materials, LLC		15,568	-	-	-
		115,239	64,993	49,348	35,024
Total		199,952	70,858	82,748	41,604
Other non-current receivables - related parties					
Joint venture					
IVL Dhunseri Petrochem Industries Private Limited		18,906	-	-	-
Total		18,906	-	-	-

Short-term loans to related parties		Consolidated financial statements		Separate financial statements		
		2018	2017	2018	2017	
		(in thousand Baht)				
Comprising :						
Short-term loans to related parties						
Subsidiaries						
Indorama Ventures Global Services Limited	2.81-5.20	5.20-6.00	-	-	45,059,201	7,294,400
Indorama Polyester Industries Public Company Limited	5.20-5.20	5.20-6.00	-	-	3,078,400	3,082,500
Indorama Netherlands Cooperatief U.A.	3.70-5.40	2.60-6.00	-	-	4,725,093	12,260,702
Indorama Polymers Public Company Limited	5.20-5.20	5.20-6.00	-	-	1,466,634	301,084
Indorama Petrochem Limited	5.20-5.20	5.20-6.00	-	-	1,195,740	837,290
Indorama Holdings Limited	5.20-5.20	5.20-6.00	-	-	156,650	128,800
TPT Petrochemicals Public Company Limited	5.20-5.20	5.20-6.00	-	-	450,100	1,579,150
Indorama Netherlands B.V.	-	4.30-6.00	-	-	-	2,594,736
Total			-	-	56,131,818	28,078,662

<i>Short-term loans to related parties</i>	Interest rate		Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017	2018	2017
	<i>(% per annum)</i>		<i>(in thousand Baht)</i>			
Short-term loans to related parties						
Joint ventures						
ES FiberVisions (Suzhou) Co., Ltd.	1.32-2.39	1.32-2.40	79,483	102,128	-	-
ShenMa-PHP (Pingdingshan) Air Bag Yarn Manufacturing Co., Ltd.	2.00	2.00	22,275	23,416	-	-
Indorama Ventures EcoMex, S. de R.L. de C.V.	8.76-9.70	7.26-8.48	65,274	24,346	-	-
Indorama Ventures Ecomex Services, S. de R. L. de C.V.	9.70	-	1,607	-	-	-
Total			168,639	149,890	-	-
Interest receivable from related parties						
Subsidiaries						
Indorama Polymers Public Company Limited			-	-	5,241	1,642
Indorama Holdings Limited			-	-	3,084	2,266
Indorama Polyester Industries Public Company Limited			-	-	17,544	18,277
Indorama Netherlands Cooperatief U.A.			-	-	1,139,889	694,769
Indorama Petrochem Limited			-	-	9,398	15,372
TPT Petrochemicals Public Company Limited			-	-	3,626	14,750
Indorama Ventures Global Services Limited			-	-	175,942	29,567
Total			-	-	1,354,724	776,643
Joint ventures						
ES FiberVisions (Suzhou) Co., Ltd.			127	2,088	-	-
ES FiberVisions (Thailand) Company Limited			1,245	1,837	-	-
ShenMa-PHP (Pingdingshan) Air Bag Yarn Manufacturing Co., Ltd.			341	1,613	-	-
Indorama Ventures EcoMex, S. de R.L. de C.V.			580	183	-	-
Indorama Ventures Ecomex Services, S. de R. L. de C.V.			1	-	-	-
Total			2,294	5,721	-	-
Total short-term loans to related parties			170,933	155,611	57,486,542	28,855,305

Long-term loans to related parties	Interest rate		Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017	2018	2017
	<i>(% per annum)</i>		<i>(in thousand Baht)</i>			
Comprising :						
Long-term loans to related parties						
Subsidiaries						
Indorama Petrochem Limited	5.30-5.30	5.30-6.20	-	-	413,350	1,818,600
TPT Petrochemicals Public Company Limited	-	5.30-6.20	-	-	-	1,193,100
Indorama Holdings Limited	5.30-5.30	5.30-6.20	-	-	500,000	350,000
Indorama Polyester Industries Public Company Limited	5.30-5.30	5.30-6.20	-	-	1,040,000	1,040,000
Indorama Netherlands Cooperatief U.A.	2.59-5.40	2.60-6.20	-	-	29,635,506	26,619,189
Total			-	-	31,588,856	31,020,889
Joint ventures						
ES FiberVisions (Thailand) Company Limited	4.80-6.01	4.80-4.82	42,590	49,021	-	-
ES FiberVisions (Suzhou) Co., Ltd.	-	2.39	-	4,075	-	-
Total			42,590	53,096	-	-
Total long-term loans to related parties			42,590	53,096	31,588,856	31,020,889

During 2018, the Company has amended the loan agreements with Indorama Netherlands Cooperatief U.A. to change the repayment term resulting in the reclassification of short-term loans to related parties of Baht 3,659 million, to be presented under long-term loans to related parties as at 31 December 2018.

During 2018, the Company has amended the loan agreement with Indorama Holdings Limited to change the repayment term resulting in the reclassification of long-term loans to related parties of Baht 100 million, to be presented under short-term loans to related parties as at 31 December 2018.

During 2017, the Company has amended the loan agreements with Indorama Netherlands Cooperatief U.A. and Indorama Polymers Public Company Limited to change the repayment term resulting in the reclassification of long-term loans to related parties of Baht 811 million and Baht 78 million, respectively, to be presented under short-term loans to related parties as at 31 December 2017.

During 2017, the Company has amended the loan agreements with Indorama Holdings Limited to change the repayment term resulting in the reclassification of short-term loans to related parties of Baht 84 million, to be presented under long-term loans to related parties as at 31 December 2017.

During 2018 and 2017, the Company has amended the loan agreements with certain subsidiaries to change the interest rate of the short-term loans and long-term loans to subsidiaries.

<i>Summary of loans to related parties</i>	Consolidated		Separate	
	financial statements		financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
Short-term loans	170,933	155,611	57,486,542	28,855,305
Long-term loans	42,590	53,096	31,588,856	31,020,889
Total loans to related parties	213,523	208,707	89,075,398	59,876,194

Movements during the years ended 31 December of loans to related parties, excluding interest receivable from related parties, were as follows:

<i>Loans to related parties</i>	Consolidated		Separate	
	financial statements		financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
Short-term loans:				
Subsidiaries				
At 1 January	-	-	28,078,662	15,867,499
Increase	-	-	127,098,138	81,768,956
Decrease	-	-	(95,486,184)	(70,362,938)
Reclassification	-	-	(3,558,798)	805,145
At 31 December	-	-	56,131,818	28,078,662
Joint ventures				
At 1 January	149,890	411,199	-	-
Increase	53,819	10,958	-	-
Decrease	(39,100)	(353,343)	-	-
Reclassification	4,030	81,076	-	-
At 31 December	168,639	149,890	-	-
Total short-term loans				
At 1 January	149,890	411,199	28,078,662	15,867,499
Increase	53,819	10,958	127,098,138	81,768,956
Decrease	(39,100)	(353,343)	(95,486,184)	(70,362,938)
Reclassification	4,030	81,076	(3,558,798)	805,145
At 31 December	168,639	149,890	56,131,818	28,078,662
Long-term loans:				
Subsidiaries				
At 1 January	-	-	31,020,889	30,585,235
Increase	-	-	878,292	10,469,880
Decrease	-	-	(3,869,123)	(9,229,081)
Reclassification	-	-	3,558,798	(805,145)
At 31 December	-	-	31,588,856	31,020,889
Joint ventures				
At 1 January	53,096	124,572	-	-
Increase	-	50,900	-	-
Decrease	(6,476)	(41,300)	-	-
Reclassification	(4,030)	(81,076)	-	-
At 31 December	42,590	53,096	-	-

<i>Loans to related parties</i>	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
Total long-term loans				
At 1 January	53,096	124,572	31,020,889	30,585,235
Increase	-	50,900	878,292	10,469,880
Decrease	(6,476)	(41,300)	(3,869,123)	(9,229,081)
Reclassification	(4,030)	(81,076)	3,558,798	(805,145)
At 31 December	42,590	53,096	31,588,856	31,020,889
 <i>Advance for share subscription</i>				
Subsidiary				
IVL Belgium N.V.	-	-	4,810	3,474
	-	-	4,810	3,474
 Joint venture				
PT. Indorama Petrochemicals	-	222,589	-	-
	-	222,589	-	-
Total	-	222,589	4,810	3,474
 <i>Trade accounts payable - related parties</i>				
Other related parties				
PT. Indo-Rama Synthetics Tbk.	252,536	539,209	-	-
Indorama Eleme Petrochemicals Limited	15,804	32,458	-	-
	268,340	571,667	-	-
 Joint ventures				
PT. Indorama Petrochemicals	-	481,065	-	-
IVL Dhunseri Petrochem Industries Private Limited	141,115	268,516	-	-
Indorama Ventures EcoMex, S. de R.L. de C.V.	18,129	21,038	-	-
TTI GmbH	4,157	1,497	-	-
	163,401	772,116	-	-
Total	431,741	1,343,783	-	-
 <i>Other payable - related parties</i>				
Other related parties				
Lohia Global Holdings Limited	46,397	40,550	3,794	2,344
PT. TIGADAYA MINERGY Indo Rama Synthetics (India) Limited	48,102	-	-	-
	15,814	15,927	-	-
PT. Indo-Rama Synthetics Tbk.	400	421	-	-
Yayasan Pendidikan Indorama	1,196	-	-	-
	111,909	56,898	3,794	2,344

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Other payable - related parties				
Joint ventures				
IVL Dhunseri Petrochem Industries Private Limited	-	1,841	-	-
	-	1,841	-	-
Total	111,909	58,739	3,794	2,344

Significant agreement with related parties

Guarantee Agreements

The Company entered into Guarantee Agreements with its related parties to provide the corporate guarantee to the third parties for the term loan of agreed amount. Under the term of the agreements, those related parties agree to pay guarantee fees as stipulated in the agreements. The agreements expire when the loan has been fully paid by those related parties to third parties.

6 Cash and cash equivalents

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Cash on hand	24,071	7,971	-	-
Cash at banks - current accounts	4,621,601	2,765,755	2,027	821
Cash at banks - savings accounts	791,266	1,839,305	14,782	1,193,413
Highly liquid short-term investments	141,507	2,264,018	-	2,000,000
Total	5,578,445	6,877,049	16,809	3,194,234

7 Other investments

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Current investments				
Restricted cash at bank to secure letter of credit	127,434	135,988	-	-
Short-term deposits at financial institutions	6,840	2,051	-	-
	134,274	138,039	-	-
Other long-term investments				
Other	15,173	14,931	-	-
	15,173	14,931	-	-
Total	149,447	152,970	-	-

As at 31 December 2018, cash at bank amounting to CNY 26.98 million or equivalent to Baht 127.4 million (2017: CNY 27.18 million or equivalent to Baht 136.0 million) was restricted to secure letters of credit.

8 Trade accounts receivable

		Consolidated financial statements		Separate financial statements	
	Note	2018	2017	2018	2017
		(in thousand Baht)			
Related parties	5	1,145,318	1,071,713	-	-
Other parties		36,732,784	33,040,773	-	-
Total		37,878,102	34,112,486	-	-
Less allowance for doubtful accounts		(241,545)	(2,014,315)	-	-
Net		37,636,557	32,098,171	-	-
Write-off allowance for doubtful accounts		1,778,865	2,217	-	-
Provision for bad and doubtful debts for the year		23,939	1,978,589	-	-

On 24 October 2017, a major customer of Indorama Ventures PTA Montréal LP, Canada, an indirect subsidiary of IVL, M&G Polymers USA, LLC filed bankruptcy. During the year ended 31 December 2017, the Group recorded provision for doubtful debt amounting to USD 53.8 million (Baht 1,794.3 million) and deferred tax income of USD 14.5 million (Baht 497.4 million) against the said provision. The bankruptcy proceedings of M&G Polymers USA, LLC was completed in December 2018. Accordingly, the allowance for doubtful debt against receivable from M&G Resins USA, LLC was written off.

Aging analyses for trade accounts receivable were as follows:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Related parties				
Within credit terms	855,633	796,660	-	-
Overdue:				
Less than 3 months	138,605	105,307	-	-
3-6 months	874	9,377	-	-
6-12 months	203	164	-	-
Over 12 months	150,003	160,205	-	-
	1,145,318	1,071,713	-	-
Other parties				
Within credit terms	31,121,421	26,542,562	-	-
Overdue:				
Less than 3 months	4,687,328	4,692,668	-	-
3-6 months	253,836	798,423	-	-
6-12 months	51,942	854,098	-	-
Over 12 months	618,257	153,022	-	-
	36,732,784	33,040,773	-	-
Less allowance for doubtful accounts	(241,545)	(2,014,315)	-	-
	36,491,239	31,026,458	-	-
Net	37,636,557	32,098,171	-	-

The normal credit term granted by the Group ranges from 7 days to 240 days.

Trade accounts receivable with a carrying amount of Baht 17,867 million (2017: Baht 13,931 million) have been pledged as collateral to secure loans from financial institutions.

9 Inventories

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Finished goods	33,880,480	23,216,773	-	-
Work in progress	3,286,263	2,014,202	-	-
Raw materials	21,626,405	13,436,748	-	-
Trading materials	158,838	95,806	-	-
Spare parts and supplies	7,742,921	5,517,278	-	-
Goods in transit	4,452,701	2,402,701	-	-
	71,147,608	46,683,508	-	-
Less allowance for decline in value	(1,062,280)	(647,031)	-	-
Net	70,085,328	46,036,477	-	-
Carrying value of inventories subject to retention of title clauses or otherwise pledged to secure liabilities	23,891,830	18,779,709	-	-
Inventories recognised as an expense in 'cost of sale of goods':				
- Cost	288,886,123	240,925,960	-	-
- Write-down to net realisable value	473,300	212,023	-	-
- Reversal of write-down	(127,436)	(249,394)	-	-
Net total	289,231,987	240,888,589	-	-

10 Other current assets

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Value added tax receivable	3,823,002	2,975,948	-	-
Advance payments	1,533,545	1,084,082	9,134	2,420
Advance tax payments and withholding tax	1,462,000	578,292	31,275	29,902
Prepaid expenses	858,473	647,618	825	825
Deposit for commodity hedging	668,154	-	-	-
Material price adjustment receivable	503,386	240,438	-	-
Derivative assets	182,134	546,702	11,898	509,694
Insurance claims receivable	70,868	27,207	-	-
Receivable from seller in business combination	-	479,357	-	-
Others	252,580	11,174	-	-
Total	9,354,142	6,590,818	53,132	542,841

Receivable from seller in business combination relates to a tax liability, which was recorded as part of income tax payable as at 31 December 2017, for which IVL can claim from Arteva Latin America B.V. as per the sale and purchase agreement. Aforesaid receivable and related income tax payable were settled in October 2018.

11 Investments in subsidiaries and other equity security

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
At 1 January	-	-	65,566,630	57,798,256
Additional investments	-	-	1,136,665	38,813,307
Return of capital	-	-	-	(31,044,933)
Impairment	-	-	(121,630)	-
At 31 December	-	-	66,581,665	65,566,630

Investments in subsidiaries and other equity security as at 31 December 2018 and 2017, and dividend income from those investments for the years then ended were as follows:

Consolidated financial statements													
Type of business	Effective ownership interest		Paid-up capital		Cost		Impairment		Carrying amount		Dividend income		
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	
(in thousand Baht)													
Other equity security													
	Tuntex Textile (Thailand) Company Limited	4.63	4.63	430,000	430,000	200,000	200,000	(200,000)	(200,000)	-	-	-	-
Total													

Type of business		Separate financial statements									
		Ownership interest		Paid-up capital		Cost		Impairment		At cost-net	
		2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
(in thousand Baht)											
Subsidiaries											
Indorama Petrochem Limited	Manufacture of PTA and PET	99.99	99.99	10,146,167	10,146,167	7,944,151	7,944,151	-	-	7,944,151	7,944,151
Indorama Holdings Limited	Manufacture of worsted wool yarns	99.81	99.81	774,468	774,468	2,001,419	2,001,419	-	-	2,001,419	2,001,419
Indorama Polymers Public Company Limited	Manufacturing of SSP Chips and PET	72.60	72.60	1,382,198	1,382,198	7,219,741	7,219,741	-	-	7,219,741	7,219,741
Indorama Polyester Industries Public Company Limited	Manufacture of polyester fibers and yarns and PET	64.94	64.94	2,202,850	2,202,850	1,473,995	1,473,995	-	-	1,473,995	1,473,995
TPT Petrochemicals Public Company Limited	Manufacture of PTA	99.97	99.97	2,955,000	2,955,000	5,182,189	5,182,189	-	-	5,182,189	5,182,189
IVL Belgium N.V.	Holding company	99.99	99.99	121,630	121,630	121,630	121,630	(121,630)	-	-	121,630
Indo Polymers Mauritius Limited	Holding company	100.00	100.00	2,218	2,218	2,296	2,296	-	-	2,296	2,296
Indorama Ventures Global Services Limited	International headquarters	99.99	99.99	42,757,917	41,621,250	42,757,874	41,621,209	-	-	42,757,874	41,621,209
Total						66,703,295	65,566,630	(121,630)	-	66,581,665	65,566,630
										6,413,681	3,474,778
										10,791,886	6,058,274

None of the Group's subsidiaries or other equity security are publicly listed and consequently they do not have published price quotations.

During 2018, Indorama Ventures Global Services Limited ("IVGSL") increased its share capital from Baht 41,621.3 million to Baht 42,757.9 million for which the Company subscribed to the entire increased capital.

During 2018, due to the disposal of investment in Ottana Polimeri S.R.L. which was the substantial asset of IVL Belgium N.V. (see note 12), IVL recorded impairment loss on investment in IVL Belgium N.V. of Baht 121.6 million in the separate statement of income for the year ended 31 December 2018.

During 2017, Indo Polymers Mauritius Limited ("IPML") increased its share capital from USD 971.2 million (Baht 30,535.1 million) to USD 986.0 million (Baht 31,047.2 million) for which the Company subscribed to the entire increased capital. IPML subsequently decreased its share capital to USD 0.1 million (Baht 2.3 million).

During 2017, Indorama Ventures Global Services Limited ("IVGSL") increased its share capital from Baht 3,320.0 million to Baht 41,621.3 million for which the Company subscribed to the entire increased capital.

12 Investments in joint ventures

	<i>Note</i>	Consolidated financial statements		Separate financial statements	
		2018	2017	2018	2017
<i>(in thousand Baht)</i>					
At 1 January		6,247,147	5,529,831	-	-
Additional investments		2,300,133	870,456	-	-
Share of net profit of joint ventures		585,877	28,405	-	-
Elimination due to change in accounting treatment	4(ix)	(3,345,147)	-	-	-
Dividend income		(146,904)	(20,330)	-	-
Other comprehensive income		(122)	(1,281)	-	-
Effect of movements in exchange rates		(346,995)	(159,934)	-	-
At 31 December		5,293,989	6,247,147	-	-

Investments in joint ventures as at 31 December 2018 and 2017 and share of net profits (losses) of joint ventures for the years then ended were as follows:

Consolidated financial statements																		
Type of business	Effective ownership interest (%)		Paid-up capital		Cost		Equity		Impairment		Amalgamation		Effect of movements in exchange rate		Carrying value at equity		Share of net profit (losses) of joint ventures	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
(in thousand Baht)																		
Joint ventures	Manufacture of PTA and PET S.R.L.	-	50.00	-	242,460	-	121,230	-	146,671	-	(146,671)	-	-	-	-	-	-	-
	PT. Indorama Petrochemicals	-	47.25	-	8,060,269	-	3,357,184	-	1,005,329	-	-	-	-	44,174	-	1,049,503	122,998	(380,512)
	ES FiberVisions	50.00	50.00	613,653	613,653	699,178	699,178	1,076,519	1,058,663	-	-	-	(21,337)	(76,653)	1,055,182	982,010	94,509	103,166
	ES FiberVisions (Suzhou) Co., Ltd.																	
		50.00	50.00	786,545	786,545	392,992	392,992	443,279	450,855	-	-	-	(25,835)	(9,471)	417,444	441,384	1,895	46,058
	ShenMa-PHP (Pudingshan) Air Bag Yam Manufacturing Co., Ltd.	39.20	39.20	796,144	796,144	191,864	191,864	214,309	251,094	-	-	-	(12,483)	(12,592)	201,826	238,502	(24,193)	8,896
	PHP-ShenMa Air Bag Marketing and sale of air bag yarns	40.80	40.80	9,038	9,038	152,611	152,611	192,341	181,602	-	-	-	(9,829)	1,209	182,512	182,811	9,530	3,828
	Research and development service	40.00	40.00	1,119	1,119	12,852	10,926	4,439	3,059	-	-	-	(209)	192	4,230	3,251	(738)	(6,164)
	ES FiberVisions (Thailand) Company Limited	50.00	50.00	410,000	410,000	205,000	205,000	215,680	226,316	-	-	-	-	-	215,680	226,316	(10,636)	30,014
	Indorama Ventures																	
EcoMex, S. de R.L. de C.V.	51.00	51.00	459,325	430,883	241,866	221,759	159,207	182,623	-	-	-	(1,002)	(17,294)	158,205	165,329	(26,228)	(24,304)	
Indorama Ventures EcoMex Services, S. de R.L. de C.V.																		
	51.00	51.00	7	7	3	3	1,000	139	-	-	-	3	(10)	1,000	129	871	38	

ES FiberVisions group consists of ES FiberVisions LP, ES FiberVisions, Inc., ES FiberVisions Holdings ApS, ES FiberVisions ApS, ES FiberVisions Hong Kong Limited, ES FiberVisions China Limited, ES FiberVisions Shanghai Co., Ltd. and ES FiberVisions Company Limited.

During 2018, PT. Indorama Petrochemicals (“PTIP”) increased its share capital from USD 245.5 million (Baht 8,060.3 million) to USD 257.7 million (Baht 8,452.8 million) for which the Group entirely subscribed to the portion of its shareholdings.

During 2018, the Group purchased additional shares of PTIP for a cash consideration of EUR 51.6 million (Baht 1,976.5 million) from Palma Premium Ltd. and PT. Indo-Rama Synthetics TBK (“PTIRS”) bringing the Group’s shareholding in PTIP to 74.00%.

Indorama Netherlands B.V. (“INBV”) had a right (but no obligation), to exercise a call option to acquire 24% and 2% shareholding in PTIP held by PTIRS and Indorama Holdings B.V. (“IHBV”), respectively, in part or in full at any time until 31 December 2019. On 19 November 2018, the Board of Directors of IVL approved to further acquire the remaining 26% shareholdings in PTIP from PTIRS and IHBV as per the right in the Call Option Agreement and immediately obtained a control of PTIP. Accordingly, there is a change in accounting treatment of investment in PTIP (see note 4(ix)).

During 2018, Indorama Ventures EcoMex, S. de R.L. de C.V. increased its share capital from USD 13.2 million (Baht 430.9 million) to USD 14.1 million (Baht 459.3 million) for which the Group entirely subscribed to the portion of its shareholdings.

During 2018, the Group entered into a Joint Venture Agreement with Huvis Global Corporation, South Korea to form a 50:50 joint venture limited liability company in USA, by the name of Huvis Indorama Advanced Materials, LLC (“HIAM”). The investment in HIAM amounted to USD 3.2 million.

During 2017, PTIP increased its share capital from USD 210.3 million (Baht 6,814.9 million) to USD 245.5 million (Baht 8,060.3 million) for which the Group entirely subscribed to the portion of its shareholdings.

During 2017, ES FiberVisions (Suzhou) Co., Ltd. increased its share capital from USD 12.0 million to USD 24.0 million and called the paid-up share capital of USD 12.0 million (Baht 416.6 million) for which the Group entirely subscribed to the portion of its shareholdings.

During period 2017, Micro Polypet Private Limited (“MPPL”) increased its share capital from INR 100.0 (Baht 51.7 million) to INR 112.5 million (Baht 58.4) for which the Group subscribed to the entire increased share capital. During 2017, MPPL and its subsidiaries amalgamated with IVL Dhunseri Petrochem Industries Private Limited (“DPGL”) under the scheme of Amalgamation (“the Scheme”) as per applicable laws in India. Post amalgamation, DPGL is the surviving entity. In pursuant of the Scheme, the securities were allotted at the ratio of 1 new equity share of DPGL for every 5 existing fully paid equity share of MPPL in the board meeting of DPGL held on 28 December 2017; accordingly, the carrying amount of investment in joint venture, MPPL, amounting to INR 1,176.6 million (Baht 600.5 million) was transferred to cost of investment in joint venture, DPGL, on 28 December 2017.

The Group’s investment in joint venture, DPGL, consist of the investment in compulsorily convertible debentures (“CCDs”) held by Indorama Ventures Global Services Limited, subsidiary of the Company. CCDs are compulsorily and mandatorily converted into the fixed numbers of equity shares as per the terms and conditions stipulated in the shareholder’s agreement.

Under the convertible debentures subscription agreement, the debentures bear interest at the rate of 6.0% per annum. The interest will be accrued from 2nd anniversary of the date of issuance of CCDs.

DPGL has rights to cumulative interest payment and payment of interest by DPGL shall be subject to external lender's confirmation.

During 2017, the Group invested in 75,000 units of CCDs with the par value of INR 1,000 each for a consideration of INR 75.0 million (Baht 40.1 million). Due to the merger between DPGL and MPPL, all CCDs of MPPL have been transferred to DPGL.

As at 31 December 2018 and 2017, the group's investment in DPGL consist of the investment in CCDs held by Indorama Ventures Global Services Limited, subsidiary of the Company, amounting to INR 975.0 million (Baht 527.2 million). CCDs are compulsorily and mandatorily converted into the fixed numbers of equity shares as per the terms and conditions stipulated in the shareholder's agreement.

The Group's effective ownership interest in DPGL, taking into account potential voting rights, was 50% as at 31 December 2018 and 31 December 2017.

During 2018, the investment in Ottana Polimeri S.R.L. was sold at an amount of Baht 1.9 million. Gain on disposal of investment of Baht 1.9 million was recorded in the consolidated statement of income for the year ended 31 December 2018.

During 2017, there was no disposal of investments in joint ventures.

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

The following table summarises the financial information of the significant joint ventures as included in their own financial statements, adjusted for fair value adjustments at acquisition and differences in accounting policies. The table also reconciles the summarised financial information to the carrying amount of the Group's interest in these companies.

	IVL Dhunseri Petrochem Industries Private Limited	PT. Indorama Petrochemicals 2018	ES FiberVisions
		<i>(in thousand Baht)</i>	
Revenue	25,749,638	9,186,559	9,599,481
Profit from operations (a)	847,771	63,991	189,019
Other comprehensive income	-	(165)	-
Total comprehensive income (100%)	847,771	63,826	189,019
Group's share of total comprehensive income	423,885	122,876	94,509
Current assets (b)	9,318,418	-	2,280,248
Non-current assets	6,673,744	-	1,241,306
Current liabilities (c)	8,104,924	-	1,383,103
Non-current liabilities (d)	3,142,587	-	15,977
Net assets (100%)	4,744,651	-	2,122,474
Carrying amount of interest in joint ventures	2,960,108	-	1,055,182

	IVL Dhunseri Petrochem Industries Private Limited	PT. Indorama Petrochemicals 2018 (in thousand Baht)	ES FiberVisions
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Remark:

a. Includes:

- depreciation and amortisation	370,747	290,904	-
- interest expense	406,627	329,305	1,590
- income tax expense	417,102	231,622	29,880
b. Includes cash and cash equivalents	768,717	-	564,822
c. Includes current financial liabilities (excluding trade and other payables)	2,517,288	-	-
d. Includes non-current financial liabilities (excluding trade and other payables)	2,741,791	-	-

	Micro Polypet Private Limited	IVL Dhunseri Petrochem Industries Private Limited	PT. Indorama Petrochemicals 2017 (in thousand Baht)	ES FiberVisions
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Revenue	5,877,649	17,258,855	8,242,413	9,188,678
Profit (loss) from operations (a)	9,884	484,887	(805,317)	206,332
Other comprehensive income	-	68	(2,784)	-
Total comprehensive income (100%)	9,884	484,955	(808,101)	206,332
Group's share of total comprehensive income	4,942	242,478	(381,828)	103,166
Current assets (b)	-	9,271,312	2,657,309	2,124,610
Non-current assets	-	7,758,835	8,888,063	1,250,510
Current liabilities (c)	-	8,300,054	3,776,429	1,399,859
Non-current liabilities (d)	-	4,111,487	6,071,205	16,524
Net assets (100%)	-	4,618,606	1,697,738	1,958,737
Carrying amount of interest in joint ventures	-	2,957,912	1,049,503	982,010

Remark:

a. Includes:

- depreciation and amortisation	114,231	310,889	423,148	-
- interest expense	192,791	423,233	373,556	8,104
- income tax expense	(262)	295,967	-	(17,768)
b. Includes cash and cash equivalents	-	764,988	62,808	403,964
c. Includes current financial liabilities (excluding trade and other payables)	-	4,396,483	610,724	-
d. Includes non-current financial liabilities (excluding trade and other payables)	-	3,781,084	5,555,608	-

Immaterial joint ventures

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

	Immaterial joint ventures	
	2018	2017
	<i>(in thousand Baht)</i>	
Carrying amount of interests in immaterial joint ventures	1,278,699	1,257,722
Group's share of:		
- Profit (loss) from continuing operations, net	(55,515)	58,366
- Total comprehensive income (expense)	(55,515)	58,366

13 Investment in joint operation

IVL, through its indirect subsidiary, Indorama Ventures Holdings LP, formed an equal joint operation, namely Corpus Christi Polymers LLC ("CC Polymers"), with Alpek, S.A.B. de C.V. ("Alpek"), and Far Eastern Investment (Holding) Ltd. ("Far Eastern") and has entered into an asset purchase agreement with M&G USA Corp. and its affiliated debtors ("M&G") on 28 March 2018 to acquire the integrated PTA-PET plant currently under construction in Corpus Christi, Texas (the "Corpus Christi Project"), along with certain M&G intellectual property, and utility assets. The acquisition has been completed on 28 December 2018. The consideration for investment in CC Polymers by IVL amounted to USD 382.5 million (Baht 12,043.8 million) out of which USD 33.3 million (Baht 1,081.7 million) is payable as of 31 December 2018.

Although CC Polymers is legally separated from IVL, Alpek and Far Eastern (together referred as "JV Parties"), the Group has classified it as a joint operation. This is on the basis that JV parties will each receive one-third of the capacity of PTA and PET produced. Each of the JV Partners will procure raw materials independently, while also independently selling and distributing their corresponding PTA and PET and will only be the source of funding to settle the liabilities of CC Polymers.

14 Non-controlling interests

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

	31 December 2018			
	PHP Fibers GmbH and its subsidiaries	Petform (Thailand) Limited	Avgol Industries 1953 Ltd.	PT. Indorama Petrochemicals
	<i>(in thousand Baht)</i>			
Non-controlling interest percentage	20.00%	40.00%	34.05%	26.00%
Current assets	2,897,217	564,612	4,692,728	3,036,353
Non-current assets	4,339,082	1,762,347	16,750,752	11,716,143
Current liabilities	2,125,025	636,414	3,273,958	4,239,813
Non-current liabilities	1,318,406	267,647	9,651,280	6,168,003
Net assets	3,792,868	1,422,898	8,518,242	4,344,680
Carrying amount of non-controlling interest	644,169	569,159	2,784,216	1,144,269

	31 December 2018			
	PHP Fibers GmbH and its subsidiaries	Petform (Thailand) Limited	Avgol Industries 1953 Ltd.	PT. Indorama Petrochemicals
	<i>(in thousand Baht)</i>			
Revenue	9,991,971	3,219,359	6,085,269	3,518,431
Profit (loss)	(27,369)	320,871	10,446	(138,411)
Other comprehensive income (expense)	3,396	(516)	(78,485)	1,385
Total comprehensive income (expense)	(23,973)	320,355	(68,039)	137,026
Profit (loss) allocated to non-controlling interest	(5,474)	128,348	5,365	(35,627)
Other comprehensive income (expense) allocated to non-controlling interest	(65,343)	(206)	(349,029)	3,643
Cash flows from operating activities	526,851	552,453	291,568	568,208
Cash flows used in investing activities	(747,702)	(71,424)	(8,400)	(56,307)
Cash flows from (used in) financing activities (dividends to non-controlling interest: Baht 61.5 million)	180,691	(447,668)	(560,897)	(262,534)
Net increase (decrease) in cash and cash equivalents	(40,160)	33,361	(277,729)	249,367

31 December 2017		
	PHP Fibers GmbH and its subsidiaries	Petform (Thailand) Limited
	<i>(in thousand Baht)</i>	
Non-controlling interest percentage	20.00%	40.00%
Current assets	2,607,877	482,781
Non-current assets	4,194,975	1,892,621
Current liabilities	1,610,563	763,682
Non-current liabilities	1,231,842	355,426
Net assets	3,960,447	1,256,294
Carrying amount of non-controlling interest	714,985	502,517
Revenue	9,991,608	2,957,494
Profit	160,320	353,838
Other comprehensive income	26,281	479
Total comprehensive income	186,601	354,317

	31 December 2017	
	PHP Fibers GmbH and its subsidiaries	Petform (Thailand) Limited
	<i>(in thousand Baht)</i>	
Profit allocated to non-controlling interest	32,064	141,535
Other comprehensive income allocated to non-controlling interest	22,276	192
Cash flows from operating activities	415,744	586,476
Cash flows used in investing activities	(535,438)	(224,732)
Cash flows from (used in) financing activities (dividends to non-controlling interest: Baht 97.5 million)	79,528	(360,612)
Net increase (decrease) in cash and cash equivalents	(40,166)	1,132

IVL, through its indirect subsidiary, Indorama Netherlands B.V. (“INBV”), signed a definitive Share Purchase Agreement on 18 April 2017, with Sinterama S.p.A., its JV partner, to acquire the remaining of 25% stake in Trevira Holdings GmbH (“Trevira”) in Germany. The Group’s effective ownership interest in Trevira was 100% as at 31 December 2017. The purchase price was in the amount of EUR 7 million (Baht 257.5 million). The amount of excess of book value of acquired subsidiaries over cost of EUR 11.5 million (Baht 421.8 million) was recognised in the statement of change in equity for the year ended 31 December 2017.

15 Property, plant and equipment

Consolidated financial statements								
	Land and land improvements	Buildings and building improvements	Machinery and equipment	Office furniture, fixtures and equipment	Transportation equipment	Stores and spares	Construction in progress	Total
	(in thousand Baht)							
Cost								
At 1 January 2017	8,135,889	18,195,821	145,273,164	1,505,248	345,546	810,849	15,503,768	189,770,285
Additions	119	79,186	3,217,933	55,414	26,951	74,140	18,501,306	21,955,049
Acquisitions through business combinations	4	1,576,797	7,742,241	20,672	4,079	-	288,204	10,386,889
Transfers		864,992	10,477,566	157,221	23,619	5,625	(11,540,078)	-
Reclassification		165,841	(24,429)	-	-	(169,315)	(144,472)	(338,534)
Disposals		-	(2,633,038)	(88,627)	(21,172)	(1,774)	(112,115)	(2,856,726)
Effect of movements in exchange rates		(526,629)	(4,709,854)	717	(13,807)	(8,943)	(1,049,810)	(6,721,646)
At 31 December 2017 and 1 January 2018	8,322,480	20,356,008	159,343,583	1,650,645	365,216	710,582	21,446,803	212,195,317
Additions	43,320	187,617	1,465,314	81,126	57,596	148,976	14,641,867	16,625,816
Acquisitions through business combinations	4	5,751,413	31,926,283	179,529	94,252	415,430	322,575	40,803,023
Acquisition through investment in joint operation	-	-	-	-	-	-	12,676,640	12,676,640
Transfers	31,446	1,254,619	7,602,449	117,123	9,491	2,132	(9,017,260)	-
Reclassification	(109,895)	835	(2,309)	-	-	(62,323)	8,674	(165,018)
Disposals	(632)	(52,535)	(652,443)	(65,178)	(34,418)	(14,643)	(15,620)	(835,469)
Effect of movements in exchange rates		(836,517)	(4,072,775)	(44,667)	(7,959)	(12,304)	180,235	(5,000,921)
At 31 December 2018	10,193,326	26,661,440	195,610,102	1,918,578	484,178	1,187,850	40,243,914	276,299,388

In 2013, Indorama Polymers Workington Ltd. (“IRPW”), an indirect subsidiary, suspended its operations and mothballed the plant with an intention to re-start the operations when the business conditions improved. The management of IRPW believed that the values of its plant, machinery and equipment and related spare parts as of 30 June 2014 might be impaired. Management of IRPW assessed the recoverable amount by preparing discounted cash flow projections (“DCF”) to determine the value in use of the cash-generating unit (“CGU”) which comprised plant, machinery and equipment and related spare parts related to IRPW’s production and appointed an independent appraiser to determine the fair value less cost of disposal of property, plant and equipment as at 31 December 2014. Based on the result of the assessment, IRPW recorded an impairment loss on plant, machinery and equipment of Baht 557.8 million and spare parts of Baht 39.6 million, totaling Baht 597.4 million in the consolidated statement of income for the year ended 31 December 2014. As at 31 December 2017, management concluded that the plant will not be re-started and assessed the recoverable amount of CGU resulting in a further impairment of GBP 1.9 million (Baht 81.7 million) in the consolidated statement of income for the year ended 31 December 2017. The carrying amount of plant, machinery and equipment related to IRPW’s production after recognition of impairment loss amounted to GBP nil. As at 31 December 2018, the management further assessed the recoverable amount of impaired CGU and concluded that there has been no change in the amount of allowance for impairment loss since the previous assessment.

In 2016, Indorama Ventures Adana PET Sanayi Anonim Sirketi (“IVAP”), an indirect subsidiary, suspended its operations and mothballed the plant with an intention to re-start the operations when the business condition improved. The production facility has been suspended on 30 December 2016. The management of IVAP believes that the values of plant, machinery and equipment and intangibles assets of IVAP might be impaired. Therefore, as of 31 December 2016, the management has estimated the fair value less cost of disposal based on the residual value of the cash-generating unit which comprised plant, machinery and equipment and intangible assets related to IVAP’s operations (“CGU”) to determine the recoverable amount of CGU. Based on the result of this assessment, the Group recorded impairment loss on plant, machinery and equipment of Baht 407.2 million and on intangible assets of Baht 106.6 million, totaling Baht 513.8 million in the consolidated statement of income for the year ended 31 December 2016. The carrying amount of plant, machinery and equipment and intangible assets related to IVAP’s operation after recognition of impairment loss amounted to Baht 18.0 million and Baht nil million, respectively. As at 31 December 2018 and 2017, the management further assessed the recoverable amount of impaired CGU and concluded that there has been no change in the amount of allowance for impairment loss since the previous assessment.

In 2016, Indorama Petrochem Limited (“IRPTA”), a direct subsidiary, impaired certain machinery and equipment related to Thermal Oxidiser unit which has not been used in operation. The management of IRPTA estimated the fair value less cost of disposal based on the residual value of relevant machinery and equipment. Based on the result of this assessment, the Group recorded impairment loss on machinery and equipment of Baht 94.1 million in the consolidated statement of income for the year ended 31 December 2016. The carrying amount of machinery and equipment related to Thermal Oxidiser unit after recognition of impairment loss amounted to Baht nil million. As at 31 December 2018 and 2017, the management further assessed the recoverable amount of impaired assets and concluded that there has been no change in the amount of allowance for impairment loss since the previous assessment.

During 2017, Indorama Ventures (Oxide & Glycols) LLC (“IVOG”), an indirect subsidiary, wrote-off certain machineries and equipments relating to catalyst process which performed well below the operating level and recognised loss on written-off property, plant and equipment of USD 11.9 million (Baht 403.1 million) in the consolidated statement of income for the year ended 31 December 2017.

During 2017, PT. Indorama Polyester Industries Indonesia (“PTIPII”), an indirect subsidiary, suspended its operations and mothballed the plant. The management of PTIPII is of the view that plant will not be operated in near future and believes that the values of plant, machinery and equipment of PTIPII is impaired. Management has estimated the fair value less cost of disposal based on the residual value of the

CGU which comprised the plant, machinery and equipment related to PTIPII's operation to determine the recoverable amount of the CGU. Based on the result of this assessment, the Group recorded impairment loss of USD 9.7 million (Baht 330.3 million) in the consolidated statement of income for the year ended 31 December 2017. The carrying amount of plant, machinery and equipment of PTIPII after recognition of impairment loss amounted to USD 3.1 million (Baht 102.0 million). As at 31 December 2018, the management further assessed the recoverable amount of impaired CGU and concluded that there has been no change in the amount of allowance for impairment loss since the previous assessment.

The gross amount of the Group's fully depreciated property, plant and equipment that was still in use as at 31 December 2018 amounted to Baht 22,602.6 million (2017: Baht 22,795.7 million).

Certain property, plant and equipment with a carrying value of Baht 38,620.3 million (2017: Baht 28,237.4 million) have been pledged as collateral to secure loans from financial institutions.

Capitalised borrowing costs relating to the construction of the new plant amounted to Baht 1,095.4 million (2017: Baht 667.6 million), with a capitalisation rate of 2.20-6.40% (2017: 2.20-6.20%) (see Note 33).

16 Goodwill

	Note	Consolidated financial statements	
		2018	2017
		(in thousand Baht)	
Cost			
At 1 January		9,837,748	9,654,840
Acquired through business combinations	4	5,674,543	952,174
Effect of foreign currency exchange differences		(302,280)	(769,266)
At 31 December		15,210,011	9,837,748
Net book value			
At 1 January		9,837,748	9,654,840
At 31 December		15,210,011	9,837,748

Impairment testing for the cash generating unit containing goodwill

The recoverable amount of the cash generating unit ("CGU") containing goodwill were based on discounted cash flows estimated by managements. The key assumptions used in the estimation of the recoverable amount in each CGU related to discount rate and budgeted EBITDA. The discount rate was a post-tax measure estimated based on the historical industry average weighted-average cost of capital.

The estimated recoverable amount of each CGU exceeded its carrying amount therefore no impairment losses to be recognised as of 31 December 2018 and 2017.

17 Other intangible assets

Consolidated financial statements										
Note	Rights acquired	Supplier contract and relationships	Software licenses	Technology licenses and knowhow	Customer contracts and relationships	Trade name and trademarks	Chemicals exchange contract	Capitalised development expenditure	Total	
Cost										
At 1 January 2017	134,284	7,171,336	324,778	8,450,491	4,596,710	1,371,249	358,307	388,725	22,795,880	
Additions	91	-	20,971	188,655	-	1,238	-	72,077	283,032	
Acquisitions through business combinations										
● Glanzstoff Group	4(i)	147,879	25,530	424,401	964,949	79,044	-	316,406	1,958,209	
● DuraFiber Mexico	4(ii)	-	-	-	4	-	-	-	4	
● Longlaville DuraFiber Technologies (DFT) SAS	4(iii)	-	-	206,605	-	-	-	-	206,605	
● The PTA assets of Artlant PTA S.A. and the utility assets of Artelia Ambiente, S.A.	4(iv)	-	141	233,596	-	-	-	-	233,737	
Reclassifications	-	-	37,190	-	44,767	-	-	(1,159)	80,798	
Write-off	-	-	(1,680)	-	-	-	-	-	(1,680)	
Effect of movements in exchange rates	(2,969)	(333,589)	(14,366)	(498,834)	(179,248)	(41,363)	(31,498)	7,103	(1,094,764)	
At 31 December 2017 and 1 January 2018	131,406	6,985,626	392,564	9,004,914	5,427,182	1,410,168	326,809	783,152	24,461,821	
Additions	452	-	75,239	6,245	7,674	-	-	109,298	198,908	
Acquisitions through business combinations										
● M&G Polimeros Brazil S.A.	4(v)	695,828	9,362	1,755,988	2,529,213	-	-	-	4,990,391	
● Egyptian Indian Polyester Company S.A.E.	4(vi)	-	18,125	-	-	-	-	-	18,125	
● Avgol Industries 1953 Ltd.	4(vii)	-	51,540	112,022	2,142,916	1,597,574	-	47,160	4,018,482	
● KORDARNA Plus a.s.	4(vv)	-	1,276	-	-	-	-	-	1,276	
● Medco Plast for Packing and Packaging Systems S.A.E.	4(x)	-	-	-	-	-	-	-	-	
● Schoeller Group	4(xi)	-	-	-	364,831	86,385	-	-	451,216	
Reclassifications	4(xii)	-	11,325	229,710	-	98,446	-	-	339,481	
Write-off	-	-	(1,399)	-	(8,987)	-	-	25,357	14,971	
Effect of movements in exchange rates	-	-	-	-	-	-	-	(196)	(196)	
At 31 December 2018	(7,231)	(194,376)	(15,899)	(279,743)	(378,360)	(100,009)	(2,311)	(40,716)	(1,018,645)	
	191,897	7,487,078	542,133	10,829,136	10,084,469	3,092,564	324,498	924,055	33,475,830	

	Consolidated financial statements							
	Rights acquired	Supplier contract and relationships	Software licenses	Technology licenses and knowhow	Customer contracts and relationships	Trade name and trademarks	Chemicals exchange contract	Capitalised development expenditure
								Total
<i>(in thousand Baht)</i>								
Amortisation								
At 1 January 2017	32,849	957,669	231,385	1,573,098	1,987,184	152,785	89,589	79,833
Amortisation charge for the year	6,380	470,841	41,010	467,332	413,298	72,350	17,860	52,511
Write-off	-	-	(1,575)	-	-	-	-	-
Effect of movements in exchange rates	181	(69,375)	(12,550)	(110,778)	(86,578)	318	(8,535)	1,588
At 31 December 2017 and 1 January 2018	39,410	1,359,135	258,270	1,929,652	2,313,904	225,453	98,914	133,932
Amortisation charge for the year	11,248	530,048	48,640	595,375	678,259	145,119	17,012	71,494
Reclassifications	-	-	-	-	-	-	-	(284)
Effect of movements in exchange rates	(1,293)	(33,869)	(4,936)	(35,476)	(72,945)	(15,346)	(632)	(8,418)
At 31 December 2018	49,365	1,855,314	301,974	2,489,551	2,919,218	355,226	115,294	196,724
Impairment losses								
At 1 January 2017	1,323	-	2,206	-	85,716	-	-	-
Effect of movements in exchange rates	(197)	-	(329)	-	(12,772)	-	-	-
At 31 December 2017 and 1 January 2018	1,126	-	1,877	-	72,944	-	-	-
Effect of movements in exchange rates	(327)	-	(546)	-	(21,213)	-	-	-
At 31 December 2018	799	-	1,331	-	51,731	-	-	-
Net book value								
At 1 January 2017	100,112	6,213,667	91,187	6,877,393	2,523,810	1,218,464	268,718	308,892
At 31 December 2017 and 1 January 2018	90,870	5,626,491	132,417	7,075,262	3,040,334	1,184,715	227,895	649,220
At 31 December 2018	141,733	5,631,764	238,828	8,339,585	7,113,520	2,737,338	209,204	727,331

18 Deferred tax

Deferred tax assets and liabilities as at 31 December 2018 and 2017 were as follows:

Consolidated financial statements						
	Assets		Liabilities		Net	
	2018	2017	2018	2017	2018	2017
	<i>(in million Baht)</i>					
Property, plant and equipment	(2,213)	(1,856)	13,695	11,047	11,482	9,191
Intangible assets	(116)	(80)	5,090	4,269	4,974	4,189
Accounts receivable	(5)	(477)	-	-	(5)	(477)
Derivatives	-	(3)	270	220	270	217
Inventories	(331)	(185)	51	47	(280)	(138)
Provisions	(431)	(393)	251	320	(180)	(73)
Loss carry forward	(2,317)	(2,087)	-	-	(2,317)	(2,087)
Others	(1,308)	(1,280)	438	977	(870)	(303)
Total	(6,721)	(6,361)	19,795	16,880	13,074	10,519
Set off of tax	4,007	3,741	(4,007)	(3,741)	-	-
Net deferred tax (assets) liabilities	(2,714)	(2,620)	15,788	13,139	13,074	10,519

Separate financial statements						
	Assets		Liabilities		Net	
	2018	2017	2018	2017	2018	2017
	<i>(in million Baht)</i>					
Derivatives	-	-	151	121	151	121
Provisions	(3)	1	-	-	(3)	1
Loss carry forward	(15)	(42)	-	-	(15)	(42)
Total	(18)	(41)	151	121	133	80
Set off of tax	18	41	(18)	(41)	-	-
Net deferred tax liabilities	-	-	133	80	133	80

Movements in total deferred tax assets and liabilities during the years ended 31 December 2018 and 2017 were as follows:

Consolidated financial statements						
	At 1 January 2018	Charged / (credited to) :		Acquired through business combinations	Exchange differences	At 31 December 2018
		Profit or loss	Other comprehensive income			
(in million Baht)						
Property, plant and equipment	9,191	(200)	-	2,655	(164)	11,482
Intangible assets	4,189	(151)	-	1,070	(134)	4,974
Accounts receivable	(477)	467	-	-	5	(5)
Derivatives	217	17	6	29	1	270
Inventories	(138)	(125)	-	(17)	-	(280)
Provisions	(73)	(104)	-	(3)	-	(180)
Loss carry forward	(2,087)	299	-	(465)	(64)	(2,317)
Others	(303)	(550)	10	(56)	29	(870)
Total	10,519	(347)	16	3,213	(327)	13,074

Consolidated financial statements						
	At 1 January 2017	Charged / (credited to) :		Acquired through business combinations	Exchange differences	At 31 December 2017
		Profit or loss	Other comprehensive income			
(in million Baht)						
Property, plant and equipment	11,599	(3,771)	-	1,980	(617)	9,191
Intangible assets	4,575	(801)	-	626	(211)	4,189
Accounts receivable	(4)	(496)	-	-	23	(477)
Derivatives	59	(6)	171	-	(7)	217
Inventories	(144)	(1)	-	-	7	(138)
Provisions	(19)	(68)	-	(10)	24	(73)
Loss carry forward	(2,833)	532	-	(1)	215	(2,087)
Others	(670)	362	23	(24)	6	(303)
Total	12,563	(4,249)	194	2,571	(560)	10,519

	At 1 January 2018	Separate financial statements Charged / (credited to) :		At 31 December 2018
		Profit or loss (in million Baht)	Other	
			comprehensive income	
Derivatives	121	-	30	151
Provisions	1	(4)	-	(3)
Loss carry forward	(42)	27	-	(15)
Total	80	23	30	133

	At 1 January 2017	Separate financial statements Charged / (credited to) :		At 31 December 2017
		Profit or loss (in million Baht)	Other	
			comprehensive income	
Derivatives	70	-	51	121
Provisions	-	1	-	1
Loss carry forward	(2)	(40)	-	(42)
Total	68	(39)	51	80

Deferred tax assets have not been recognised in respect of the following items:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in million Baht)			
Deductible temporary differences	(35)	-	-	-
Tax losses	3,373	3,191	-	-
Total	3,338	3,191	-	-

The tax losses expire from 2019 onward. 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.

19 Interest-bearing liabilities

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Current				
Bank overdrafts				
Secured	1,301,876	163,369	-	-
Unsecured	3,787,708	689,328	-	-
	<u>5,089,584</u>	<u>852,697</u>	<u>-</u>	<u>-</u>
Short-term loans from financial institutions (a)				
Secured	8,657,051	2,015,103	-	-
Unsecured	17,525,324	3,247,331	2,833,000	-
	<u>26,182,375</u>	<u>5,262,434</u>	<u>2,833,000</u>	<u>-</u>
Bank overdrafts and short-term loans from financial institutions	<u>31,271,959</u>	<u>6,115,131</u>	<u>2,833,000</u>	<u>-</u>
Current portion of long-term loans from financial institutions				
Secured	526,725	36,628	-	-
Unsecured	8,178,990	6,186,040	1,630,740	-
Less deferred financing costs	(78,993)	(54,845)	(10,138)	-
Net current portion of long-term loans (b)	<u>8,626,722</u>	<u>6,167,823</u>	<u>1,620,602</u>	<u>-</u>
Current portion of finance lease liabilities (c)	<u>110,196</u>	<u>48,512</u>	<u>-</u>	<u>-</u>
Current portion of debentures (d)	<u>3,013,147</u>	<u>2,728,847</u>	<u>2,299,803</u>	<u>2,728,847</u>
Total current interest- bearing liabilities	<u>43,022,024</u>	<u>15,060,313</u>	<u>6,753,405</u>	<u>2,728,847</u>
Non-current				
Long-term loans from financial institutions				
Secured	10,753,462	5,979,662	-	-
Unsecured	24,058,201	36,527,261	3,261,480	13,795,824
Less deferred financing costs	(171,648)	(177,866)	(12,471)	(30,120)
Net long-term loans (b)	<u>34,640,015</u>	<u>42,329,057</u>	<u>3,249,009</u>	<u>13,765,704</u>
Finance lease liabilities (c)	<u>498,087</u>	<u>278,934</u>	<u>-</u>	<u>-</u>
Debentures (d)	<u>58,604,295</u>	<u>38,116,766</u>	<u>48,803,461</u>	<u>33,619,456</u>
Total non-current interest- bearing liabilities	<u>93,742,397</u>	<u>80,724,757</u>	<u>52,052,470</u>	<u>47,385,160</u>

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	
	2018	2017	2018	2017
	(in thousand Baht)			
Within one year	42,911,828	15,011,801	6,753,405	2,728,847
After one year but within five years	49,186,007	57,830,405	23,771,042	29,491,364
After five years	44,058,303	22,615,418	28,281,428	17,893,796
Total	136,156,138	95,457,624	58,805,875	50,114,007

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

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Trade accounts receivable	17,867,446	13,931,468	-	-
Inventories	23,891,830	18,779,709	-	-
Property, plant and equipment	38,620,321	28,237,420	-	-
Total	80,379,597	60,948,597	-	-

(a) *Short-term loans from financial institutions*

Short-term loans from financial institutions comprise the following:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Secured short-term loan	2,645,561	1,133,538	-	-
Unsecured short-term loan	17,190,941	2,176,696	2,833,000	-
Secured revolving loan (USD 69,765,479) (2017: USD 15,295,484) due in March 2021, secured by trade accounts receivable and inventories	2,263,876	499,870	-	-
Secured revolving loan (USD 1,081,481) (2017: USD 11,679,456) due in August 2020, secured by trade accounts receivable and inventories	35,094	381,695	-	-
Secured revolving loan (EUR 100,000,000) secured by plant and machine	3,712,520	-	-	-
Unsecured revolving loan (EUR 9,006,902) (2017: EUR 27,432,969)	334,383	1,070,635	-	-
Total	26,182,375	5,262,434	2,833,000	-

Under the terms of trust receipt agreements with banks, certain imported inventory has been released by the bank to the Group in trust. The Group is accountable to the banks for the inventory or its related sales proceeds until the inventory is fully paid for.

(b) Long-term loans from financial institutions

Long-term loans from financial institutions comprise the following:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
Unsecured loan, due in July 2019, repayable in lumpsum, with interest at LIBOR 3 month plus margin per annum	1,630,740	8,540,272	1,630,740	8,540,272
Unsecured loan, due in September 2019, repayable in lumpsum, with interest at LIBOR 3 month plus margin per annum	-	3,284,720	-	3,284,720
Unsecured loan, due in May 2020, repayable in lumpsum, with interest at LIBOR 3 month plus margin per annum	-	1,970,832	-	1,970,832
Unsecured loan, due in July 2023, repayable in semi-annual installments, starting in third quarter of 2020 with interest at LIBOR 3 month plus margin per annum	3,261,480	-	3,261,480	-
Unsecured loan, due in December 2022, repayable in quarterly installments, starting in first quarter of 2018 with interest at LIBOR 3 month plus margin per annum	337,500	427,500	-	-
Unsecured loan, due in December 2024, repayable in quarterly installments, starting in first quarter of 2019 with Philippine Treasury Reference Rate with fixed interest rate	650,451	668,712	-	-
Unsecured loan, due in July 2020, repayable in semi-annual installments, starting in first quarter of 2016 with interest at LIBOR 6 month plus margin per annum	326,148	410,590	-	-
Unsecured loan, due in May 2021, repayable in lumpsum, with interest at EURIBOR 3 month plus margin per annum	3,707,310	3,897,525	-	-
Unsecured loan, due in December 2020, repayable in quarterly installments, starting in first quarter of 2017 with interest at LIBOR 3 month plus margin per annum	8,307,149	12,549,466	-	-
Unsecured loan, due in December 2020, repayable in quarterly installments, starting in fourth quarter of 2016 with interest at LIBOR 3 month plus margin per annum	4,542,972	6,405,456	-	-

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Unsecured loan, due in March 2022, repayable in quarterly installments, starting in second quarter of 2017 with interest at EURIBOR 3 month plus margin per annum	-	686,880	-	-
Secured loan, due in October 2021, repayable in semi-annual installments, starting in second quarter of 2017 with interest at EURIBOR 3 month plus margin per annum, secured by inventory and property, plant and equipment	2,524,513	3,980,785	-	-
Unsecured loan, due in September 2021, repayable in annual installments, starting in third quarter of 2020 with interest at LIBOR 3 month plus margin per annum	1,622,490	3,268,090	-	-
Unsecured loan, due in May 2022, repayable in semi-annual installments, starting in fourth quarter of 2019 with the central bank of the People's Republic of China interest rate plus margin per annum	98,616	102,492	-	-
Unsecured loan, due in August 2022, repayable in semi-annual installments, starting in first quarter of 2020 with the central bank of the People's Republic of China interest rate plus margin per annum	1,221,246	531,593	-	-
Unsecured loan, due in February 2021, repayable in lumpsum, with interest at 3 month LIBOR plus margin per annum	1,944,216	-	-	-
Unsecured loan, due in August 2021, repayable in lumpsum, with interest at 3 month LIBOR plus margin per annum	1,620,180	-	-	-
Unsecured loan, due in December 2024, repayable in lumpsum, with interest at 3 month LIBOR plus margin per annum	1,946,988	-	-	-
Secured loan, due in February 2024, repayable in lumpsum, with interest at 6 month LIBOR plus margin per annum secured by property, plant and equipment	667,395	-	-	-
Secured loan, due in October 2025, repayable in lumpsum, with interest at 6 month LIBOR plus margin per annum secured by property, plant and equipment	627,579	-	-	-
Secured loan, due in June 2026, repayable in lumpsum, with interest at 6 month LIBOR plus margin per annum secured by property, plant and equipment	640,527	-	-	-

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
Secured loan, due in June 2026, repayable in lumpsum, with interest at 6 month LIBOR plus margin per annum secured by property, plant and equipment	519,197	-	-	-
Unsecured loan, due in August 2022, repayable in lumpsum, with interest at 1 month LIBOR plus margin per annum	1,216,868	-	-	-
Secured loan, due in June 2023, repayable in lumpsum, with interest at 3 month LIBOR plus margin per annum secured by land	390,410	-	-	-
Secured loan, due in September 2027, repayable in lumpsum, with interest at 3 month LIBOR plus margin per annum secured by land	1,250,291	-	-	-
Secured loan, due in September 2030, repayable in lumpsum, with interest at 3 month LIBOR plus margin per annum secured by land	2,588,401	-	-	-
Secured revolving loan, (USD 57,440,186) (2017: USD 57,440,186) for business acquisition due in March 2021, repayable with interest at LIBOR 1 month plus margin per annum, secured by accounts receivable and inventories	1,863,923	1,877,197	-	-
Other long-term loans	10,788	127,481	-	-
Total loans from financial institutions	43,517,378	48,729,591	4,892,220	13,795,824
Less deferred financing costs	(250,641)	(232,711)	(22,609)	(30,120)
Net loans from financial institutions	43,266,737	48,496,880	4,869,611	13,765,704
Less portion due within one year, net of related deferred financing costs	(8,626,722)	(6,167,823)	(1,620,602)	-
Long-term loans from financial institutions	34,640,015	42,329,057	3,249,009	13,765,704

On 28 February 2018, the Company, IVGSL (its direct subsidiary) and financial institution entered into Novation, Amendment and Restatement Agreement. As per the Novation, Amendment and Restatement Agreement, the Company transferred long-term loan of USD 60.0 million (Baht 1,970.8 million) to IVGSL under the same terms and condition as original loan.

The above loan agreements contain certain covenants relating to the declaration and payment of dividends, maintenance of financial ratios, acquisition of major fixed assets, additional indebtedness and share transfers.

As at 31 December 2018, the Group had unutilised credit facilities totaling Baht 52,449.9 million (2017: Baht 44,775.9 million).

(c) *Finance lease liabilities*

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

	Consolidated financial statements					
	2018			2017		
	Future minimum lease payments	Interest	Present value of minimum lease payments (in thousand Baht)	Future minimum lease payments	Interest	Present value of minimum lease payments
Within one year	131,784	21,588	110,196	59,240	10,728	48,512
After one year but within five years	374,594	51,816	322,778	164,569	31,712	132,857
After five years	201,202	25,893	175,309	166,034	19,957	146,077
Total	707,580	99,297	608,283	389,843	62,397	327,446

(d) *Debentures*

As at 31 December, the Group had outstanding debentures as follows:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
IVL - Debentures (i)	51,103,264	36,348,303	51,103,264	36,348,303
IVL Singapore - Debentures (ii)	4,467,126	4,497,310	-	-
AVGOL - Debentures (iii)	6,047,052	-	-	-
Total	61,617,442	40,845,613	51,103,264	36,348,303

(i) IVL Debentures

As at 31 December 2018, the Company had outstanding unsubordinated and unsecured debentures totaling Baht 51,170 million (2017: Baht 36,400 million) as follows:

Debentures no.	Principal (in thousand Baht)	Interest rate (% p.a.)	Term	Maturity date	Deferred debenture issuance expense (in thousand Baht)	Net
1/2011-3	37,000	5.00 for 1st - 4th year 5.50 for 5th - 8th year 6.00 for 9th - 10th year	10 years	19 Oct 21	45	36,955
1/2011-6	3,163,000	5.35	10 years	19 Oct 21	3,817	3,159,183
1/2012-2	1,250,500	5.10 for 1st - 3rd year 5.60 for 4th - 7th year 6.00 for 8th - 10th year	10 years	5 Apr 22	928	1,249,572
1/2012-4	1,500,000	5.09	7 years	5 Apr 19	126	1,499,874
1/2012-5	2,649,500	5.52	10 years	5 Apr 22	1,966	2,647,534
2/2012-2	880,000	4.78	8 years	14 Dec 20	478	879,522

Debentures no.	Principal (in thousand Baht)	Interest rate (% p.a.)	Term	Maturity date	Deferred debenture issuance expense (in thousand Baht)	Net
2/2012-3	1,645,000	5.11	10 years	14 Dec 22	1,446	1,643,554
2/2012-4	1,475,000	5.28	12 years	14 Dec 24	1,627	1,473,373
1/2013-2	520,000	4.70	7 years	27 Jun 20	393	519,607
1/2013-3	1,100,000	5.10	10 years	27 Jun 23	1,759	1,098,241
1/2014-2	800,000	4.50	5 years	14 Mar 19	71	799,929
1/2014-3	1,400,000	5.30	10 years	14 Mar 24	1,641	1,398,359
1/2015-1	500,000	4.00	7 years	13 Oct 22	491	499,509
1/2015-2	1,100,000	4.20	10 years	13 Oct 25	1,357	1,098,643
2/2015-1	1,150,000	3.92	10 years	9 Dec 25	1,110	1,148,890
1/2016-1	300,000	2.88	5 years	20 Oct 21	284	299,716
1/2016-2	200,000	3.68	10 years	20 Oct 26	263	199,737
1/2016-3	2,200,000	4.10	12 years	20 Oct 28	3,035	2,196,965
1/2016-4	2,300,000	4.39	15 years	20 Oct 31	3,315	2,296,685
1/2017-1	2,000,000	2.60	3 years	4 May 20	2,272	1,997,728
1/2017-2	500,000	3.24	5 years	4 May 22	850	499,150
1/2017-3	1,000,000	3.75	7 years	4 May 24	1,942	998,058
1/2017-4	2,000,000	4.10	10 years	4 May 27	4,247	1,995,753
1/2017-5	2,000,000	4.28	12 years	4 May 29	4,388	1,995,612
2/2017-1	300,000	2.92	7 years	16 Nov 24	418	299,582
2/2017-2	700,000	3.46	10 years	16 Nov 27	1,030	698,970
2/2017-3	1,000,000	3.90	15 years	16 Nov 32	1,534	998,466
1/2018-1	3,000,000	2.31	3 years	8 Jun 21	3,936	2,996,064
1/2018-2	3,000,000	2.78	5 years	8 Jun 23	4,303	2,995,697
1/2018-3	1,500,000	3.18	7 years	8 Jun 25	2,230	1,497,770
1/2018-4	1,800,000	3.83	10 years	8 Jun 28	2,747	1,797,253
1/2018-5	5,000,000	4.12	12 years	8 Jun 30	7,706	4,992,294
1/2018-6	3,200,000	4.27	15 years	8 Jun 33	4,981	3,195,019
Total	51,170,000				66,736	51,103,264
Less portion due within one year	(2,300,000)				(197)	(2,299,803)
Net	48,870,000				66,539	48,803,461

The extraordinary general meeting of shareholders held on 22 September 2011, the annual general meeting of shareholders held on 29 April 2013 and the annual general meeting of shareholders held on 24 April 2015, approved the issue of debentures totally not exceeding Baht 75,000 million (in Baht or equivalent foreign currency).

On 8 June 2018, the Company raised in cash by Baht 17,500 million, through the issue of unsubordinated and unsecured Baht debentures in a private placement (2017: Baht 9,500 million).

(ii) IVL Singapore Debentures

As at 31 December 2018, IVL Singapore PTE Limited had outstanding senior unsecured guaranteed debentures totalling Baht 4,467.1 million (2017: Baht 4,497.3 million), as follows:

Debentures no.	Principal (in thousand Baht)	Interest rate (% p.a.)	Term	Maturity date	Deferred debenture issuance expense (in thousand Baht)	Net
1/2015-1	4,478,072	3.73	10 years	7 Oct 25	10,946	4,467,126
Total	4,478,072				10,946	4,467,126

The resolution of IVL Singapore PTE Limited (“IVLS”), an indirect subsidiary of the Company, held on 25 August 2015 approved the issuance of debentures up to an amount not exceeding USD 140 million equivalent in Singapore dollars.

On 7 October 2015, IVLS issued the senior unsecured debenture of SGD 195 million (equivalent to USD 138 million) to institutional investors in Singapore. The debenture is guaranteed by Credit Guarantee & Investment Facility, a trust fund of the Asian Development Bank and listed on the SGX-ST.

(iii) AVGOL Debentures

As at 31 December 2018, Avgol Industries 1953 Ltd. (“Avgol”), an indirect subsidiary of the Company, had outstanding unsecured debentures totalling Baht 6,047 million, as follows:

Debentures no.	Principal (in thousand Baht)	Interest rate (% p.a.)	Term	Maturity date	Premium/ (discount) and deferred debentures issuance expense (in thousand Baht)	Net
1/2014-C	4,346,092	4.75	10 years	31 Dec 24	(22,587)	4,323,505
1/2017-D	1,749,218	3.90	8 years	31 Dec 25	(25,671)	1,723,547
Total	6,095,310				(48,258)	6,047,052
Less portion due within one year	(724,344)				11,000	(713,344)
Net	5,370,966				(37,258)	5,333,708

On 14 August 2014, Avgol issued the Unsecured Debenture series C of USD 144.0 million to the public.

On 28 March 2017, Avgol issued the Unsecured Debenture series D of USD 53.9 million to the public.

20 Trade accounts payable

		Consolidated financial statements		Separate financial statements	
	Note	2018	2017	2018	2017
		(in thousand Baht)			
Related parties	5	431,741	1,343,783	-	-
Other parties		54,133,073	37,957,628	-	-
Total		54,564,814	39,301,411	-	-

21 Other current liabilities

		Consolidated financial statements		Separate financial statements	
	Note	2018	2017	2018	2017
		(in thousand Baht)			
Accrued operating expenses		5,145,069	3,414,042	153,117	58,317
Other payables		2,668,383	3,046,824	3,794	2,344
Materials price adjustments payable		1,265,861	1,559,821	-	-
Payable for acquiring joint operation	13	1,081,660	-	-	-
Interest payable		520,399	444,761	304,200	297,019
Advance from customers		450,331	211,120	-	-
Value added tax payable		422,488	254,862	-	-
Withholding tax payable		275,087	178,334	42,267	-
Others		1,309,866	822,730	2,243	2,406
Total		13,139,144	9,932,494	505,621	360,086

22 Non-current provisions for employee benefits

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Statement of financial position				
Non-current provisions for:				
Post-employment benefits				
Thailand legal severance plan	391,343	338,537	-	-
Defined benefit plans established in Europe	1,325,519	1,302,530	-	-
Defined benefit plans established in rest of the world	594,636	554,686	-	-
Other long-term employee benefits	15,739	13,849	-	-
Total	2,327,237	2,209,602	-	-
Year ended 31 December				
Statement of income:				
Recognised in profit or loss:				
Post-employment benefits				
Thailand legal severance plan	35,622	33,212	-	-
Defined benefit plans established in Europe	259,866	163,442	-	-

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Defined benefit plans established in rest of the world	93,577	71,198	-	-
Other long-term employee benefits	7,931	349	-	-
Total	396,996	268,201	-	-
Recognised in other comprehensive income:				
Remeasurement gains:				
Actuarial gains	(12,980)	(48,557)	-	-
Return on plan assets excluding amounts included in interest income	(4,528)	(44,319)	-	-
Others	610	995	-	-
Total	(16,898)	(91,881)	-	-

Thailand legal severance plan and other long-term employee benefits

The subsidiaries registered in Thailand provide employee benefit provisions 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 subsidiaries registered in Thailand also provide long service award plans as part of other long-term employee benefits to certain employees based on remuneration and length of service.

These defined benefit plans expose the Group to actuarial risks, such as interest rate risk.

Movement in the present value of the defined benefit obligations

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
At 1 January	352,386	305,340	-	-
Included in profit or loss:				
Current service costs	28,910	26,626	-	-
Interest on obligation	8,907	9,034	-	-
Actuarial losses (gains) for other long-term employee benefits	5,736	(2,099)	-	-
	43,553	33,561	-	-
Included in other comprehensive income				
Actuarial losses	33,155	24,293	-	-
Others				
Benefits paid by the plan	(22,012)	(10,808)	-	-
	(22,012)	(10,808)	-	-
At 31 December	407,082	352,386	-	-

The expense is recognised in the following line items in the statement of income:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
Cost of sale of goods	29,234	23,473	-	-
Distribution costs and administrative expenses	14,319	10,088	-	-
Total	43,553	33,561	-	-

Actuarial gains and losses recognised in other comprehensive income arising from:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
Demographic assumptions	-	5,827	-	-
Financial assumptions	(3,282)	13,025	-	-
Experience adjustment	36,437	5,441	-	-
Total	33,155	24,293	-	-

On 13 December 2018, the National Legislative Assembly passed a bill amending the Labor Protection Act 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 will amend its retirement plan in the period in which the amendment will have become law and is announced in the Royal Gazette. As a result of this change, the provision for retirement benefits as at that future period end as well as past service cost recognised during that period in the consolidated financial statement is estimated to increase by an amount of approximately Baht 107 million.

Defined benefit plans established in Europe

The subsidiaries in Europe have established defined benefit plans that provide pension benefits for their employees upon retirement.

These defined benefit plans expose the Group to actuarial risks, such as currency risk, interest rate risk and market (investment) risk.

The Group expects to pay Baht 146 million in contributions to its defined benefit plans in 2019.

The statement of financial position obligation was determined as follows:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
Excess of present value of obligations over fair value of plan assets	1,395,670	1,263,508	-	-
Effect of movement in exchange rates	(70,151)	39,022	-	-
Statement of financial position obligation	1,325,519	1,302,530	-	-

Movement in the present value of the defined benefit obligations:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
At 1 January	2,841,469	2,582,358	-	-
Included in profit or loss:				
Current service costs	155,173	170,858	-	-
Past service costs	72,788	(33,289)	-	-
Interest on obligation	67,573	59,592	-	-
Loss on settlement	142	803	-	-
Actuarial gains	(1,306)	-	-	-
	294,370	197,964	-	-
Included in other comprehensive income				
Actuarial gains	(1,962)	(106,913)	-	-
Others				
Defined benefit obligations assumed upon acquisition of subsidiaries	-	89,439	-	-
Benefits paid by the plan	(20,103)	(21,353)	-	-
Expected employees contribution	13,645	13,150	-	-
Effect of movements in exchange rates	(150,342)	86,824	-	-
	(156,800)	168,060	-	-
At 31 December	2,977,077	2,841,469	-	-

Movement in the fair value of plan assets:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
At 1 January	1,538,939	1,329,452	-	-
Included in profit or loss:				
Interest income	36,451	30,993	-	-
Others	(1,947)	(1,647)	-	-
	34,504	29,346	-	-
Included in other comprehensive income				
Return on plan assets excluding amounts included in interest income	15,432	32,726	-	-
Others				
Expected plan participant contributions	12,003	11,552	-	-
Benefits paid by the plan	(12,474)	(8,413)	-	-

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Contribution paid into the plan	143,345	96,473	-	-
Effect of movements in exchange rates	(80,191)	47,803	-	-
	62,683	147,415	-	-
At 31 December	1,651,558	1,538,939	-	-
Statement of financial position obligations at 31 December	1,325,519	1,302,530	-	-

The expense is recognised in the following line items in the statement of income:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Cost of sale of goods	234,867	143,609	-	-
Administrative expenses	24,999	19,833	-	-
Total	259,866	163,442	-	-

Actuarial gains and losses recognised in other comprehensive income arising from:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Demographic assumptions	(8,305)	-	-	-
Financial assumptions	42,897	(112,184)	-	-
Experience adjustment	(36,554)	5,271	-	-
Total	(1,962)	(106,913)	-	-

Plan assets

Plan assets comprise the following:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Equity securities	2,375	3,643	-	-
Insurance contract	1,565,610	1,441,005	-	-
Interest bearing securities	57,002	65,570	-	-
Others	26,571	28,721	-	-
Total	1,651,558	1,538,939	-	-

Defined benefit plans established in rest of the world

The subsidiaries registered in Mexico have a defined benefit plan. The benefits are based on a flexible part which is covered by the subsidiaries and employees and a fixed part based on the years of service covered by the subsidiaries.

The subsidiaries registered in Indonesia provide defined benefit plan for their employees in accordance with Indonesian Labour Law No. 13/2003.

These defined benefit plans expose the Group to actuarial risks, such as currency risk, interest rate risk and market (investment) risk.

The Group expects to pay Baht 11 million in contributions to its defined benefit plans in 2019.

The statement of financial position obligation was determined as follows:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
Excess of present value of obligations over fair value of plan assets	609,377	587,481	-	-
Effect of movements in exchange rates	(14,741)	(32,795)	-	-
Statement of financial position obligation	594,636	554,686	-	-

Movement in the present value of the defined benefit obligations:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
At 1 January	687,123	597,043	-	-
Included in profit or loss:				
Current service costs	39,911	38,220	-	-
Past service costs	13,313	1,136	-	-
Interest on obligation	46,335	36,740	-	-
Actuarial gains	(7,980)	-	-	-
	91,579	76,096	-	-
Included in other comprehensive income				
Actuarial loss (gains)	(44,173)	34,063	-	-
Others				
Defined benefit obligations assumed upon acquisition of subsidiaries	129,921	84,605	-	-
Benefits paid by the plan	(51,450)	(43,960)	-	-
Others	-	(16,104)	-	-
Effect of movements in exchange rates	(24,736)	(44,620)	-	-
	53,735	(20,079)	-	-
At 31 December	788,264	687,123	-	-

Movement in the fair value of plan assets:

	Consolidated financial statements		Separate financial statements	
	2018	2017 (in thousand Baht)	2018	2017
At 1 January	132,437	127,478	-	-
Included in profit or loss:				
Interest income	6,795	5,126	-	-
Others	(8,793)	(228)	-	-
	(1,998)	4,898	-	-
Included in other comprehensive income				
Return on plan assets excluding amounts included in interest income	(10,904)	11,593	-	-
Others				
Fair value of plan assets assumed upon acquisition of subsidiaries	90,950	32	-	-
Contributions paid into the plan	8,945	4,611	-	-
Benefits paid by the plan	(15,807)	(4,348)	-	-
Effect of movements in exchange rates	(9,995)	(11,827)	-	-
	74,093	(11,532)	-	-
At 31 December	193,628	132,437	-	-
Statement of financial position obligations at 31 December	594,636	554,686	-	-

The expense is recognised in the following line items in the statement of income:

	Consolidated financial statements		Separate financial statements	
	2018	2017 (in thousand Baht)	2018	2017
Cost of sale of goods	64,037	47,256	-	-
Administrative expenses	29,540	23,942	-	-
Total	93,577	71,198	-	-

Actuarial gains and losses recognised in other comprehensive income arising from:

	Consolidated financial statements		Separate financial statements	
	2018	2017 (in thousand Baht)	2018	2017
Demographic assumptions	(6,082)	(1,122)	-	-
Financial assumptions	(59,195)	26,669	-	-
Experience adjustment	21,104	8,516	-	-
Total	(44,173)	34,063	-	-

Plan assets

Plan assets comprise the following:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Equity securities	73,182	80,268	-	-
Interest bearing securities	116,441	47,096	-	-
Others	4,005	5,073	-	-
Total	193,628	132,437	-	-

Actuarial assumptions

The following were the principal actuarial assumptions at the reporting date (expressed as weighted averages).

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(%)		(%)	
Thailand legal severance plan				
Discount rate	2.70	2.60	-	-
Future salary increases	4.00-6.00	4.00-6.00	-	-
Employee turnover	0.00-40.00	0.00-40.00	-	-

At 31 December 2018, the weighted-average duration of the defined benefit obligation was 10 years (2017: 11 years).

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(%)		(%)	
Defined benefit plans established in Europe				
Discount rate	1.11-14.90	0.85-11.00	-	-
Expected return on plan assets	1.50-2.20	1.50-2.10	-	-
Future salary increases	1.40-10.00	1.40-6.00	-	-
Employee turnover	1.00-17.89	1.00-18.60	-	-

At 31 December 2018, the weighted-average duration of the defined benefit obligation were 8 to 28 years (2017: 9.10 to 29.00 years).

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(%)		(%)	
Defined benefit plans established in rest of the world				
Discount rate	2.90-9.45	3.75-7.50	-	-
Expected return on plan assets	4.25-9.45	3.75-4.75	-	-
Future salary increases	2.50-8.00	3.75-8.00	-	-
Employee turnover	0.00-28.35	0.00-24.31	-	-

At 31 December 2018, the weighted-average durations of the defined benefit obligation were 2.60 to 17.77 years (2017: 10.00 to 16.77 years).

Assumptions regarding future mortality have been based on published statistics and mortality tables.

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	
			<i>(in million Baht)</i>	
<i>Thailand legal severance plan</i>				
At 31 December 2018	Increase	Decrease	Increase	Decrease
Discount rate (0.5% movement)	(16)	17	-	-
Future salary increases (0.5% movement)	17	(16)	-	-
Employee turnover (0.5% movement)	(17)	13	-	-
<i>Defined benefit plans established in Europe</i>				
At 31 December 2018	Increase	Decrease	Increase	Decrease
Discount rate (0.5% movement)	(152)	179	-	-
Expected return on plan assets (0.5% movement)	(5)	(4)	-	-
Future salary increases (0.5% movement)	38	(36)	-	-
Employee turnover (0.5% movement)	(8)	8	-	-
<i>Defined benefit plans established in rest of the world</i>				
At 31 December 2018	Increase	Decrease	Increase	Decrease
Discount rate (0.5% movement)	(26)	27	-	-
Expected return on plan assets (0.5% movement)	(1)	1	-	-
Future salary increases (0.5% movement)	18	(17)	-	-
Employee turnover (0.5% movement)	(3)	3	-	-
<i>Thailand legal severance plan</i>				
At 31 December 2017	Increase	Decrease	Increase	Decrease
Discount rate (0.5% movement)	(15)	16	-	-
Future salary increases (0.5% movement)	16	(15)	-	-
Employee turnover (0.5% movement)	(16)	18	-	-
<i>Defined benefit plans established in Europe</i>				
At 31 December 2017	Increase	Decrease	Increase	Decrease
Discount rate (0.5% movement)	(157)	185	-	-
Expected return on plan assets (0.5% movement)	(4)	(3)	-	-
Future salary increases (0.5% movement)	30	(27)	-	-
Employee turnover (0.5% movement)	(7)	7	-	-

	Consolidated financial statements (in million Baht)		Separate financial statements (in million Baht)	
Defined benefit plans established in rest of the world				
At 31 December 2017	Increase	Decrease	Increase	Decrease
Discount rate (0.5% movement)	(27)	30	-	-
Expected return on plan assets (0.5% movement)	(1)	1	-	-
Future salary increases (0.5% movement)	17	(16)	-	-
Employee turnover (0.5% movement)	(3)	3	-	-

Although the analysis does not take account of the full distribution of cash flows expected under the plan, it does provide an approximation of the sensitivity of the assumptions shown.

23 Share capital and warrants

Movements of share capital and warrants during the years ended 31 December are as follow:

	Par value per share (in Baht)	Consolidated and Separate financial statements			
		Authorised share capital		Issued and paid-up share capital	
		Number	Amount (thousand shares / thousand Baht)	Number	Amount
At 1 January 2017					
- ordinary shares	1	5,666,010	5,666,010	4,814,272	4,814,272
Exercise of warrants	1	-	-	431,139	431,139
At 31 December 2017 and 1 January 2018 - ordinary shares	1	5,666,010	5,666,010	5,245,411	5,245,411
Exercise of warrants	1	-	-	369,141	369,141
At 31 December 2018 - ordinary shares		5,666,010	5,666,010	5,614,552	5,614,552

At the extraordinary general meeting of shareholders held on 6 August 2014, the shareholders approved the issue of warrants in two series to purchase the newly issued ordinary shares of the Company as follows:

1. The warrants no.1 (the “IVL-W1”) in the number of up to 481,425,724 units, to be allocated to the existing shareholders of the Company pro rata to their respective shareholdings (Right Offering), at no cost, at the allocation ratio of every 10 existing shares for 1 unit of IVL-W1 warrants. The term of IVL-W1 warrants will be 3 years from the issuance date and the exercise price will be at Baht 36.00 per share.
2. The warrant no.2 (the “IVL-W2”) in the number of up to 370,327,480 units, to be allocated to the existing shareholders of the Company pro rata to their respective shareholdings (Right Offering), at no cost, at the allocation ratio of every 13 existing shares for 1 unit of IVL-W2 warrants. The term of IVL-W2 warrants will be 4 years from the issuance date and the exercise price will be at Baht 43.00 per share.

The holders of ordinary shares are entitled to receive dividends as declared from time to time, and are entitled to one vote per share at meetings of the Company.

Exercised of IVL-W1

During the year ended 31 December 2017, IVL-W1 were exercised and registered as paid-up share capital of 430,693 thousand shares (equivalent to Baht 430,693 thousand) with the proceed of Baht 15,505 million. The Company registered the aforesaid increase of new paid-up shares with the Ministry of Commerce on 7 February 2017, 11 May 2017, 3 August 2017 and 30 August 2017.

Movements of IVL-W1 warrants during the year ended 31 December 2017 are as follows:

	(in thousand unit)
Warrants issued at 1 January 2017	481,410
Less: Exercised during the year	(430,693)
Less: Expired during the year	(50,717)
Warrants issued at 31 December 2017	-

Exercised of IVL-W2

During the year end ended 31 December 2018, IVL-W2 were exercised and registered as paid-up share capital of 369,141 thousand shares (equivalent to Baht 369,141 thousand) with proceeds of Baht 15,873 million. The Company registered the aforesaid increase of new paid-up shares with the Ministry of Commerce on 6 February 2018, 3 May 2018, 2 August 2018 and 29 August 2018.

Movements of IVL-W2 warrants during the years ended 31 December 2018 and 2017 are as follows:

	(in thousand unit)
Warrants issued at 1 January 2017, 31 December 2017 and 1 January 2018	369,868
Less: Exercised during the year	(369,141)
Less: Expired during the year	(727)
Warrants issued at 31 December 2018	-

Share premium

Section 51 of the Public Companies Act B.E. 2535 requires companies to set aside share subscription money received in excess of the par value of the shares issued to a reserve account ("share premium"). Share premium is not available for dividend distribution.

24 Reserves

Reserves comprise:

Appropriations of profit and/or 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.

Other components of equity

Currency translation differences

The currency transaction differences account within equity relate to foreign currency differences arising from the translation of the financial statements of foreign operations to Thai Baht, foreign exchange differences arising from transaction of intercompany loans considered as part of net investment in foreign operations as well as from the cumulative net change in the fair value of hedge of net investment in foreign operations that hedge the Group's net investment in a foreign operation.

Cash flow hedges

The cash flow hedges account within equity comprises the cumulative net change in the fair value of cash flow hedges related to hedge transactions that have not yet occurred.

Excess of book value of acquired subsidiaries over cost/(cost over book value)

The excess of book value of acquired subsidiaries over cost/(cost over book value) represent the differences between book value and cost of investment as of the date of acquisition of additional shares of certain existing subsidiaries and have been recorded as a reserve. It is non-distributable and will be retained until the respective investment in shares of subsidiaries are sold or otherwise disposed off.

Differences arising from common control transactions

The differences arising from common control transactions represent the difference of the book values of certain entities or businesses under common control over their cost as of the date of their acquisition and have been recorded as a reserve. It is non-distributable and will be retained until the respective subsidiaries or businesses are sold or otherwise disposed off.

Movements in reserves

Movements in reserves are shown in the statements of changes in equity.

25 Subordinated perpetual debentures

On 31 October 2014, the Company completed the issuance of Subordinated Perpetual Debentures ("Debentures") of Baht 15,000 million with bullet payment upon dissolution of the Company or upon the exercise of the Company's early redemption right per conditions as stipulated in the terms and conditions of the Debentures. The Debentures are unsecured and unconvertible. These Debentures bear interest which is calculated based on 5-year government bond yield adjusted with initial credit spread and coupon step-up as stipulated in the terms and conditions of the Debentures and is paid on a quarterly basis. However, the Company has the sole right to unconditionally defer interest and cumulative interest payments to Debentures holders without time and deferral amount limitation. If the Company defers the interest payment, the Company shall not redeem, reduce, cancel, acquire or buy-back for any consideration on any instrument or security issued by the Company which rank pari passu or junior to these Debentures and shall not declare and make any dividend payment.

These Debentures of Baht 14,874 million, net of issuance cost of Baht 126 million are recognised as a part of equity in the consolidated and separate statements of financial position as at 31 December 2018 and 2017.

26 Segments information

The Group has three reportable segments, as described below, which are the Group's strategic divisions. The strategic divisions offer different products, and are managed separately because they require different technology and marketing strategies. For each of the strategic divisions, the chief operating decision maker ("CODM") reviews internal management reports on at least a quarterly basis. The following summary describes the operations in each of the Group's reportable segments.

Segment 1	Manufacture and distribution of solid state polymerised chips, PET performs, closures and blown bottles ("PET")
Segment 2	Manufacture and distribution of purified terephthalic acid ("PTA"), paraxylene ("PX"), isophthalic acid ("IPA"), ethylene oxide and ethylene glycol ("EO&EG") and other feedstocks ("Feedstock")
Segment 3	Manufacture and distribution of fibers and yarns ("Fibers")

There are varying levels of integration between the Segment 1, Segment 2 and Segment 3 reportable segments. This integration includes sales of finished goods. Inter-segment pricing is determined on an arm's length basis.

Information regarding the results of each reportable segment is included below. 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.

Information about reportable segments

	PET		Consolidated financial statements				Eliminations and unallocated		Total
	2018	2017	Feedstock		Fibers		2018	2017	
			2018	2017	2018	2017	2018	2017	
			<i>(in thousand Baht)</i>						
Revenue from sale of goods									
External revenue	179,284,821	143,301,918	68,760,561	62,047,305	99,110,204	80,966,684	15,314	16,365	347,170,900
Inter-segment revenue	3,130,617	2,458,385	78,535,396	53,113,813	96,764	98,741	(81,762,777)	(55,670,939)	-
Total segment revenue	182,415,438	145,760,303	147,295,957	115,161,118	99,206,968	81,065,425	(81,747,463)	(55,654,574)	286,332,272
Interest income	128,037	72,121	71,101	89,582	5,552	34,106	(133,989)	(152,305)	43,504
Net foreign exchange gain (loss)	(358,636)	-	90,384	-	200,795	-	594,299	-	-
Gain on bargain purchases	890,140	-	-	2,862,876	1,038,347	809,849	-	-	1,928,487
Unallocated revenue	-	-	-	-	-	-	2,188,442	1,219,160	2,188,442
Total revenue	183,074,979	145,832,424	147,457,442	118,113,576	100,451,662	81,909,380	(79,098,711)	(54,587,719)	291,267,661
Cost of sale of goods	154,401,215	126,854,402	119,764,431	91,219,920	84,565,196	68,482,597	(77,611,165)	(52,073,507)	234,483,412
Distribution costs and administrative expenses	9,457,598	8,273,346	7,748,981	7,208,239	6,839,568	5,548,605	(5,192,422)	(4,646,848)	16,383,342
Provision for doubtful debts expenses	8,743	84,307	6,681	1,875,734	8,515	18,548	-	-	1,978,589
Loss on impairment and written-off of property, plant and equipment	-	97,305	13,869	471,775	64,094	330,298	-	-	899,378
Net foreign exchange (gain) loss	-	143,836	-	14,480	-	(78,601)	-	20,631	100,346
Depreciation and amortisation	4,042,628	3,402,993	6,322,583	5,934,831	3,877,120	2,871,933	-	-	12,209,757
Unallocated expenses	-	-	-	-	-	-	3,776,208	1,698,645	1,698,645
Total expenses	167,910,184	138,856,189	133,856,545	106,724,979	95,354,493	77,173,380	(79,027,379)	(55,001,079)	267,753,469

	PET		Feedstock		Fibers		Eliminations and unallocated		Total	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
	<i>(in thousand Baht)</i>									
Share of profit (losses) of joint ventures, net	392,512	223,118	122,998	(380,511)	70,367	185,798	-	-	585,877	28,405
Profit before interest and income tax expenses	15,557,307	7,199,353	13,723,895	11,008,086	5,167,536	4,921,798	(71,332)	413,360	34,377,406	23,542,597
Interest expense	2,048,748	1,437,700	1,518,166	1,278,775	1,877,502	1,438,077	(4,341,748)	(3,488,682)	1,102,668	665,870
Profit before income tax expenses	13,508,559	5,761,653	12,205,729	9,729,311	3,290,034	3,483,721	4,270,416	3,902,042	33,274,738	22,876,727
Tax expense (benefit)	1,897,718	(424,620)	2,037,554	(796,752)	266,277	(76,814)	-	-	4,201,549	(1,298,186)
Unallocated items	-	-	-	-	-	-	2,735,550	3,096,635	2,735,550	3,096,635
Profit for the year	11,610,841	6,186,273	10,168,175	10,526,063	3,023,757	3,560,535	1,534,866	805,407	26,337,639	21,078,278

Information about reportable segments

	PET		Feedstock		Fibers		Eliminations and unallocated		Total	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
	<i>(in thousand Baht)</i>									
Cash and cash equivalents	2,036,136	1,602,512	713,788	519,216	2,498,553	1,378,559	-	-	5,248,477	3,500,287
Inventories	28,117,237	17,082,126	22,079,603	14,581,981	20,870,438	14,736,772	(981,950)	(364,402)	70,085,328	46,036,477
Property, plant and equipment	57,602,637	36,503,795	91,661,365	76,639,311	55,633,920	37,806,411	-	-	204,897,922	150,949,517
Unallocated assets	-	-	-	-	-	-	98,963,104	81,872,087	98,963,104	81,872,087
Total assets	87,756,010	55,188,433	114,454,756	91,740,508	79,002,911	53,921,742	98,981,154	81,507,685	379,194,831	282,358,368
Interest-bearing liabilities	49,574,105	27,887,695	57,621,400	42,829,073	41,642,207	30,960,215	(103,187,019)	(81,942,295)	45,650,693	19,734,688
Unallocated liabilities	-	-	-	-	-	-	181,688,783	143,636,988	181,688,783	143,636,988
Total liabilities	49,574,105	27,887,695	57,621,400	42,829,073	41,642,207	30,960,215	78,501,764	61,694,693	227,339,476	163,371,676
Capital expenditure and investments	21,389,444	2,097,235	15,971,843	16,230,835	16,944,606	9,903,717	2,174,625	652,582	56,480,518	28,884,369
Depreciation	3,439,434	3,169,166	5,490,710	5,089,640	3,224,376	2,415,266	6,695	4,738	12,161,215	10,678,810
Amortisation	603,194	233,827	831,873	845,191	652,744	456,667	24,257	24,332	2,112,068	1,560,017
Loss (gain) on disposal and write-off of property, plant and equipment	1,066	(3,659)	12,795	471,773	10,166	9,651	-	-	24,027	477,765

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.

The Group operates in the following main geographical areas:

Segment 1	Thailand
Segment 2	North America
Segment 3	Europe
Segment 4	Rest of the world

	Consolidated financial statements					
	Revenue from sale of goods		Segment assets		Capital expenditure and investments	
	2018	2017	2018	2017	2018	2017
	(in thousand Baht)					
Thailand	20,781,949	17,822,832	32,497,642	39,535,750	807,381	909,103
North America	124,818,723	105,567,804	162,368,710	106,088,481	42,558,869	13,886,559
Europe	100,809,004	92,075,494	99,430,314	89,452,874	8,985,303	11,619,785
Rest of the world	100,761,224	70,866,142	84,898,165	47,281,263	4,128,965	2,468,922
Total	347,170,900	286,332,272	379,194,831	282,358,368	56,480,518	28,884,369

27 Other income

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Insurance claim	868,963	157,253	-	-
Others	1,083,639	1,002,979	299,989	502,514
Total	1,952,602	1,160,232	299,989	502,514

Insurance income includes USD 21.0 million (Baht 662.4 million) received by Indorama Ventures (Oxide & Glycols) LLC, the indirect subsidiary in USA, in March 2018 relating to loss claim due to business interruption in 2015.

28 Cost of sale of goods

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Changes in inventories of finished goods and work in progress	(9,175,976)	(2,133,162)	-	-
Raw materials and consumables used	229,633,903	183,801,312	-	-
Depreciation and amortisation	12,341,250	10,783,584	-	-
Personnel expense	18,949,633	16,047,002	-	-
Others	37,483,177	32,389,853	-	-
Total	289,231,987	240,888,589	-	-

29 Distribution costs

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
Distribution	14,046,818	12,433,875	-	-
Depreciation and amortisation	1,932,033	1,455,243	-	-
Insurance expense	606,537	495,623	-	-
Travelling expense	384,580	320,569	-	-
Others	1,479,430	1,073,021	-	-
Total	18,449,398	15,778,331	-	-

30 Administrative expenses

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
Personnel expense	3,538,713	2,922,731	-	-
Professional fees	1,741,973	1,034,289	548,697	187,527
Loss on impairment of investment in subsidiary	-	-	121,630	-
Others	4,839,051	4,052,752	91,047	21,999
Total	10,119,737	8,009,772	761,374	209,526

31 Employee benefit expenses

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
Management				
Wages and salaries	96,036	83,640	-	-
Contribution to defined contribution plans, social security and expenses related to defined benefit plans	2,928	1,608	-	-
Others	91,855	51,640	30,420	24,495
	190,819	136,888	30,420	24,495
Other employees				
Wages and salaries	16,576,236	14,301,242	-	-
Contribution to defined contribution plans, social security and expenses related to defined benefit plans	2,074,801	1,573,216	-	-
Bonus	1,155,248	874,499	-	-
Staff welfare	2,631,495	2,192,829	-	-
Others	50,566	27,947	-	-
	22,488,346	18,969,733	-	-
Total employee benefit expenses	22,679,165	19,106,621	30,420	24,495

Provident funds

These defined contribution plans comprise provident funds established by subsidiaries of the Company for its Thai employees. Membership to the funds is on a voluntary basis. Contributions are made monthly by the employees at the rate of 3 - 15% of their basic salaries (2017: 3 - 15%) and by the Company at the rate of 3 - 5% 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. Total expense recognised by the Thai entities for contribution plans for the year ended 31 December 2018 amounted to approximately Baht 30.2 million (2017: Baht 28.3 million).

Employee Joint Investment Program (EJIP)

On 23 June 2017, The Company received the approval of Employee Joint Investment Program ("EJIP") from Securities and Exchange Commission ("SEC"). EJIP is an investment program for accumulative buying of IVL shares on a periodic basis by the employees of the Company, all its subsidiaries and all its joint ventures in Thailand, established to serve as another means of compensating the Company's employees and executives effective for the period from May 2017 to June 2024. Total expense recognised for the program for the year ended 31 December 2018 amounted to Baht 15.0 million. (2017: Baht 15.1 million).

Employee retirement schemes

Subsidiaries in United States established a 401(k) plan that allows eligible employees to contribute up to 60% of their compensation, with the Company matching 50% of employee contributions up to 6% of their compensation. The plan also allows discretionary profit sharing contributions to be made by management. Total expense recognised for the plan for the year ended 31 December 2018 amounted to approximately USD 2.9 million (Baht 95.0 million) (2017: USD 2.6 million (Baht 87.1 million)).

Subsidiaries in Europe established a defined contribution plan that provides benefits for its employees upon retirement. Total annual contribution by the employer to the plans is defined by the annual and risk premiums charged by the insurance company. Total expense recognised for the plans for the year ended 31 December 2018 was GBP 0.1 million and EUR 4.2 million (Baht 165.2 million) (2017: GBP 0.1 million and EUR 3.4 million (Baht 135.4 million)).

32 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	
	2018	2017	2018	2017
	<i>(in thousand Baht)</i>			
<i>Included in cost of sale of goods:</i>				
Changes in inventories of finished goods and work in progress	(9,175,976)	(2,133,162)	-	-
Raw materials and consumables used	229,633,903	183,801,312	-	-
Employee benefit expenses	18,949,633	16,047,002	-	-
Depreciation and amortisation	12,341,250	10,783,584	-	-
<i>Included in distribution costs and administrative expenses:</i>				
Employee benefit expenses	3,538,713	2,922,731	-	-
Depreciation and amortisation	1,932,033	1,455,243	-	-

33 Finance costs

	Note	Consolidated financial statements		Separate financial statements	
		2018	2017	2018	2017
		(in thousand Baht)			
Interest expense:					
Financial institutions		5,322,804	4,532,091	2,272,638	2,154,511
Total interest expense		5,322,804	4,532,091	2,272,638	2,154,511
Less: amount included in the cost of assets under construction	15	(1,095,420)	(667,620)	-	-
Net		4,227,384	3,864,471	2,272,638	2,154,511

34 Tax expense (benefit)

Income tax recognised in profit or loss

		Consolidated financial statements		Separate financial statements	
	Note	2018	2017	2018	2017
		(in million Baht)			
Current tax expense					
Current year		4,171	2,937	-	-
Adjustment for over provided in prior years		(12)	(88)	-	-
		4,159	2,849	-	-
Deferred tax expense					
Movements in temporary differences	18	(347)	(4,249)	23	(39)
		(347)	(4,249)	23	(39)
Total income tax expense		3,812	(1,400)	23	(39)

Income tax recognised in other comprehensive income

	Consolidated financial statements					
	2018	2018	2017	2018	2017	2017
	Before tax	Tax (expense) benefit	Net of tax	Before tax	Tax (expense) benefit	Net of tax
<i>(in million Baht)</i>						
Hedge of net investment in foreign operations	137	(27)	110	255	(51)	204
Cash flow hedges	(502)	16	(486)	478	(119)	359
Defined benefit plan actuarial gains	17	(5)	12	92	(24)	68
Total	(348)	(16)	(364)	825	(194)	631

Separate financial statements						
	Before tax	2018 Tax (expense) benefit	Net of tax (in million Baht)	Before tax	2017 Tax (expense) benefit	Net of tax
Hedge of net investment in foreign operations	137	(28)	109	255	(51)	204
Cash flow hedges	12	(2)	10	-	-	-
Total	149	(30)	119	255	(51)	204

Reconciliation of effective tax rate

Consolidated financial statements				
	2018	2017		
	Rate (%)	(in million Baht)	Rate (%)	(in million Baht)
Profit before income tax expense		30,150		19,678
Income tax using the Thai corporation tax rate	20.00	6,030	20.00	3,936
Earnings and profits repatriation tax (a)		-		589
Income tax reduction - deferred - US (a)		-		(4,129)
Income tax reduction - deferred - other countries		(52)		(40)
Effect of different tax rates in foreign jurisdictions		438		593
Income not subject to tax and tax privileges		(1,155)		(995)
Coupon payment on subordinated perpetual debentures recognised in equity		(210)		(210)
Expenses not deductible for tax purposes		320		68
Utilisation of previously unrecognised tax losses		(710)		(59)
Recognition of deferred tax assets from previously unrecognised tax losses		(90)		(300)
Current year losses for which no deferred tax asset was recognised		316		702
Over provided in prior years		(11)		(88)
Written-off unrecoverable deferred tax assets from loss carry forward		34		25
Share of profit of joint ventures		(146)		(23)
Foreign exchange differences arising from transaction of intercompany loans considered as part of net investment in foreign operations		(199)		(391)
Gain on bargain purchases		(386)		(731)
Change in recognition of temporary difference		(416)		(304)
Others		49		(43)
Total	12.64	3,812	(7.11)	(1,400)

	Separate financial statements			
	2018		2017	
	Rate (%)	(in million Baht)	Rate (%)	(in million Baht)
Profit before income tax expense		11,816		6,912
Income tax using the Thai corporation tax rate	20.00	2,363	20.00	1,382
Income not subject to tax		(2,160)		(1,211)
Coupon payment on subordinated perpetual debentures recognised in equity		(210)		(210)
Expenses not deductible for tax purposes		30		-
Total	0.19	23	(0.56)	(39)

Income tax reduction

- (a) On 22 December 2017, Public law no. 115-97 of USA (“the Act”) amended the Internal Revenue Code of 1986. Consequently, the corporate income tax rate have been reduced from 35% to 21% for accounting periods which begin on or after 1 January 2018. Additionally, a company’s foreign earnings and profits (E&P) accumulated in specified foreign corporations (“SFCs”) under legacy tax laws are deemed repatriated for the last taxable year of an SFC that begins before 1 January 2018. This is one-time transition tax. The tax on those deemed repatriated is payable over 8 years by 8% in each of years 1 to 5, 15% in year 6, 20% in year 7 and 25% in year 8.

35 Promotional privileges

By virtue of the provisions of the Industrial Investment Promotion Act B.E. 2520, certain subsidiaries incorporated in Thailand have been granted privileges by the Board of Investment at various times relating to their manufacturing of worsted wool yarn, wool top, purified terephthalic acid, polyethylene terephthalate resin, PET preforms and closures and amorphous resin (“promoted operations”). The privileges granted include:

- exemption from payment of import duty on machinery approved by the Board of Investment;
- exemption from payment of income tax on net profit from promoted operations for a period as stipulated in the certificates from the date on which income is deemed to first derive from such operations;
- a 50% reduction in the normal income tax rate on the net profit derived from promoted operations for a period as stipulated in the certificates, commencing from the expiry date in (b) above;
- a five-year carry forward period for losses for tax purposes from promoted operations during the period in (b) above;
- income exclusions and additional deductions in computing the taxable income for promoted operations during the period in (b) above;
- exemption from income tax on dividend paid to the shareholders from the profit of the promoted operation during the corporate income tax exemption period; and
- double deduction of the cost of transportation, electricity and water supply for corporate income tax purposes for a period as stipulated in the certificates, from the date on which income is deemed to first derive from promoted operations.

As promoted companies, the subsidiaries in Thailand must comply with certain terms and conditions prescribed in the promotional certificates.

Summary of revenue from promoted and non-promoted businesses:

Consolidated financial statements						
	Promoted businesses	2018 Non- promoted businesses	Total (a)	Promoted businesses	2017 Non- promoted businesses	Total (a)
			(in thousand Baht)			
Export sales	5,224,095	31,278,468	36,502,563	5,786,976	22,576,442	28,363,418
Local sales	6,149,042	37,500,452	43,649,494	8,350,485	29,401,827	37,752,312
Total revenue	11,373,137	68,778,920	80,152,057	14,137,461	51,978,269	66,115,730

(a) excluding revenues from foreign subsidiaries and inter-company eliminations.

36 Earnings per share

Basic earnings per share

The calculations of basic earnings per share for the years ended 31 December 2018 and 2017 were based on the profit for the years attributable to owners of the Parent less coupon payment on subordinated perpetual debentures and the weighted average number of ordinary shares outstanding during the years as follows:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	<i>(in thousand Baht / thousand shares)</i>			
Profit for the year attributable to owners of the Parent (statement of income)	26,465,403	20,882,861	11,793,352	6,950,763
Less: coupon payment on subordinated perpetual debentures	(1,050,000)	(1,050,000)	(1,050,000)	(1,050,000)
Profit attributable to ordinary shareholders of the Company (basic)	25,415,403	19,832,861	10,743,352	5,900,763
Weighted average number of ordinary shares outstanding (basic)	5,511,507	4,985,196	5,511,507	4,985,196
Earnings per share (basic) <i>(in Baht)</i>	4.61	3.98	1.95	1.18

The management considered that the basic and diluted earnings per share for the year ended 31 December 2017 are the same because the exercise prices of the Company's warrants were higher than the average market price of the ordinary shares for the year ended 31 December 2017.

37 Dividends

At the meeting of the board of directors of the Company held on 19 November 2018, the board of directors approved the appropriation of interim dividend of Baht 0.35 per share, amounting to Baht 1,965.1 million. The dividend was paid to shareholders in December 2018.

At the meeting of the board of directors of the Company held on 7 August 2018, the board of directors approved the appropriation of interim dividend of Baht 0.70 per share, amounting to Baht 3,908.8 million. The dividend was paid to shareholders in September 2018.

At the annual general meeting of the shareholders of the Company held on 26 April 2018, the shareholders approved the appropriation of dividend of Baht 0.55 per share, amounting to Baht 3,051.5 million. The dividend was paid to shareholders in May 2018.

At the meeting of the board of directors of the Company held on 10 August 2017, the board of directors approved the appropriation of interim dividend of Baht 0.45 per share, amounting to Baht 2,315.6 million. The dividend was paid to shareholders in September 2017.

At the annual general meeting of the shareholders of the Company held on 26 April 2017, the shareholders approved the appropriation of dividend of Baht 0.36 per share, amounting to Baht 1,733.2 million. The dividend was paid to shareholders in May 2017.

38 Financial instruments

Financial risk management policies

The Group/Company 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/Company does not hold or issue derivatives for speculative or trading purposes.

Risk management is integral to the whole business of the Group/Company. The Group/Company 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/Company'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 of Directors 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/Company's operations and its cash flows. The Group/Company is primarily exposed to interest rate risk from its borrowings (see Note 19). The Group/Company mitigates this risk by ensuring that the majority of its borrowings are at fixed interest rates and uses derivatives, principally interest rates swaps, to manage exposure to fluctuations in interest rates on borrowings.

The effective interest rates of loans to related parties as at 31 December and the periods in which the loans to related parties mature or re-price were as follows:

Consolidated financial statements					
	Effective interest rate (% per annum)	Within 1 year	After 1 year but within 5 years (in thousand Baht)	After 5 years	Total
2018					
Current					
Short-term loans to related parties	1.32-9.70	168,639	-	-	168,639
Non-current					
Long-term loans to related parties	4.80-6.01	-	-	42,590	42,590
Total		168,639	-	42,590	211,229
2017					
Current					
Short-term loans to related parties	1.32-8.48	149,890	-	-	149,890
Non-current					
Long-term loans to related parties	2.39-4.82	-	4,075	49,021	53,096
Total		149,890	4,075	49,021	202,986

Separate financial statements					
	Effective interest rate (% per annum)	Within 1 year	After 1 year but within 5 years (in thousand Baht)	After 5 years	Total
2018					
Current					
Short-term loans to related parties	2.81-5.40	56,131,818	-	-	56,131,818
Non-current					
Long-term loans to related parties	2.59-5.40	-	31,588,856	-	31,588,856
Total		56,131,818	31,588,856	-	87,720,674
2017					
Current					
Short-term loans to related parties	2.60-6.00	28,078,662	-	-	28,078,662
Non-current					
Long-term loans to related parties	2.60-6.20	-	-	31,020,889	31,020,889
Total		28,078,662	-	31,020,889	59,099,551

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:

	Effective interest rate (% per annum)	Consolidated financial statements			
		Within 1 year	After 1 year but within 5 years (in thousand Baht)	After 5 years	Total
2018					
Current					
Bank overdrafts	0.30-21.50	5,089,584	-	-	5,089,584
Short-term loans from financial institutions	0.45-24.50	26,182,375	-	-	26,182,375
Long-term loans from financial institutions	1.40-9.95	8,626,722	-	-	8,626,722
Finance lease liabilities	1.60-20.00	110,196	-	-	110,196
Debentures	3.90-5.09	3,013,147	-	-	3,013,147
Non-current					
Long-term loans from financial institutions	1.40-9.95	-	28,663,975	5,976,040	34,640,015
Finance lease liabilities	1.60-20.00	-	322,778	175,309	498,087
Debentures	2.31-6.00	-	20,522,033	38,082,262	58,604,295
Total		43,022,024	49,508,786	44,233,611	136,764,421
2017					
Current					
Bank overdrafts	0.60-4.37	852,697	-	-	852,697
Short-term loans from financial institutions	0.45-16.00	5,262,434	-	-	5,262,434
Long-term loans from financial institutions	1.45-6.50	6,167,823	-	-	6,167,823
Finance lease liabilities	2.50-20.00	48,512	-	-	48,512
Debentures	4.40-5.50	2,728,847	-	-	2,728,847
Non-current					
Long-term loans from financial institutions	1.45-7.70	-	42,104,745	224,312	42,329,057
Finance lease liabilities	2.50-20.00	-	132,857	146,077	278,934
Debentures	2.60-6.00	-	15,725,660	22,391,106	38,116,766
Total		15,060,313	57,963,262	22,761,495	95,785,070

	Effective interest rate (% per annum)	Within 1 year	Separate financial statements		
			After 1 year but within 5 years (in thousand Baht)	After 5 years	Total
2018					
Current					
Short-term loans from financial institutions	1.70-2.10	2,833,000	-	-	2,833,000
Long-term loans from financial institutions	3.38-5.06	1,620,602	-	-	1,620,602
Debentures	4.50-5.09	2,299,803	-	-	2,299,803
Non-current					
Long-term loans from financial institutions	3.38-5.06	-	3,249,009	-	3,249,009
Debentures	2.31-6.00	-	20,522,033	28,281,428	48,803,461
Total		6,753,405	23,771,042	28,281,428	58,805,875
2017					
Current					
Debentures	4.40-5.50	2,728,847	-	-	2,728,847
Non-current					
Long-term loans from financial institutions	2.79-3.95	-	13,765,704	-	13,765,704
Debentures	2.60-6.00	-	15,725,660	17,893,796	33,619,456
Total		2,728,847	29,491,364	17,893,796	50,114,007

Interest rate swap contract

On 30 September 2016, the Company entered into an interest rate swap agreement for short-term loan amounted of USD 25 million swapping a floating interest rate of 3 month LIBOR per annum to a fixed interest rate of 1.085% per annum, with settlement every 3 months starting on 30 December 2016 until 30 June 2019.

Foreign currency risk

The Group/Company is exposed to foreign currency risk relating to purchases and sales and borrowings which are denominated in foreign currencies. The Group/Company primarily utilises forward exchange contracts with maturities of less than one year to hedge certain financial assets and liabilities denominated in foreign currencies. The forward exchange contracts entered into at the reporting date also relate to anticipated purchases, sales and borrowings denominated in foreign currencies, for the subsequent period.

As 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	
	2018	2017	2018	2017
	(in thousand Baht)			
United States Dollars				
Cash and cash equivalents	3,003,287	1,278,396	39	9
Other investments	5,080	4,307	-	-
Trade accounts receivable	20,136,051	19,090,285	-	-
Short-term loans to related parties	80,854	106,053	4,995,249	14,780,147

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
United States Dollars				
Long-term loans to related parties	42,590	53,096	8,203,731	5,165,146
Interest-bearing liabilities	(50,711,259)	(44,479,130)	(4,892,220)	(13,765,704)
Trade accounts payable	(28,829,530)	(23,526,683)	-	-
Gross balance sheet exposure (a)	(56,272,927)	(47,473,676)	8,306,799	6,179,598
Euro				
Cash and cash equivalents	895,668	1,114,554	15	15
Other investments	16,933	10,376	-	-
Trade accounts receivable	7,897,278	6,873,855	-	-
Short-term loans to related parties	22,615	25,030	7,794	177,783
Long-term loans to related parties	-	-	1,174,146	1,196,414
Interest-bearing liabilities	(14,205,920)	(7,344,427)	-	-
Trade accounts payable	(10,803,215)	(8,228,640)	-	-
Gross balance sheet exposure (b)	(16,176,641)	(7,549,252)	1,181,955	1,374,212

- (a) As at 31 December 2018, net financial assets and liabilities denominated in USD of Baht 13,350.1 million (2017: 18,461.3 million) pertain to subsidiaries located in the United States for which their functional currencies is USD. The Group's balance sheet exposure is mitigated to that extent.
- (b) As at 31 December 2018, net financial assets and liabilities denominated in Euro of Baht 14,031.9 million (2017: 6,511.3 million) pertain to subsidiaries located in Europe for which their functional currencies is Euro. The Group's balance sheet exposure is mitigated to that extent.

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Pounds Sterling				
Cash and cash equivalents	27,217	30,939	-	-
Trade accounts receivable	394,649	487,027	-	-
Interest-bearing liabilities	(277,712)	(351,166)	-	-
Trade accounts payable	(131,663)	(72,036)	-	-
Gross balance sheet exposure	12,491	94,764	-	-
Nigerian Naira				
Cash and cash equivalents	338,260	409,206	-	-
Trade accounts receivable	333,146	258,692	-	-
Trade accounts payable	(35,803)	(119,203)	-	-
Gross balance sheet exposure	635,603	548,695	-	-
Chinese Yuan				
Cash and cash equivalents	333,882	283,579	-	-
Other investments	127,434	135,988	-	-
Trade accounts receivable	1,087,132	933,228	-	-
Interest-bearing liabilities	(1,752,282)	(1,421,496)	-	-
Trade accounts payable	(1,880,893)	(1,026,530)	-	-
Gross balance sheet exposure	(2,084,727)	(1,095,231)	-	-

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
<i>Mexican Peso</i>				
Cash and cash equivalents	11,011	37,385	-	-
Trade accounts receivable	639,952	220,488	-	-
Short-term loans to related parties	67,463	24,528	-	-
Trade accounts payable	(492,899)	(554,883)	-	-
Gross balance sheet exposure	225,527	(272,482)	-	-
<i>Polish Zloty</i>				
Cash and cash equivalents	14,989	19,638	-	-
Trade accounts receivable	65,106	103,030	-	-
Trade accounts payable	(218,696)	(115,341)	-	-
Gross balance sheet exposure	(138,601)	7,327	-	-
<i>Indonesian Rupiah</i>				
Cash and cash equivalents	144,374	114,525	-	-
Trade accounts receivable	1,346,490	1,523,300	-	-
Interest-bearing liabilities	(34,754)	-	-	-
Trade accounts payable	(2,198,729)	(319,680)	-	-
Gross balance sheet exposure	(742,619)	1,318,145	-	-
<i>Danish Krone</i>				
Cash and cash equivalents	239,503	137,808	-	-
Trade accounts receivable	279,823	218,562	-	-
Trade accounts payable	(472,965)	(354,536)	-	-
Gross balance sheet exposure	46,361	1,834	-	-
<i>Philippines Peso</i>				
Cash and cash equivalents	4,337	81,582	-	-
Trade accounts receivable	212,763	145,291	-	-
Interest-bearing liabilities	(1,148,183)	(840,807)	-	-
Trade accounts payable	(15,322)	(53,632)	-	-
Gross balance sheet exposure	(946,405)	(667,566)	-	-
<i>Turkish Lira</i>				
Cash and cash equivalents	154	22	-	-
Trade accounts receivable	201,233	392,647	-	-
Interest-bearing liabilities	(9,083)	(293,064)	-	-
Trade accounts payable	(5,494)	(4)	-	-
Gross balance sheet exposure	186,810	99,601	-	-
<i>Indian Rupee</i>				
Cash and cash equivalents	45,706	-	-	-
Trade accounts receivable	27,647	-	-	-
Trade accounts payable	(4,965)	(50)	-	-
Gross balance sheet exposure	68,388	(50)	-	-

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
<i>Czech Koruna</i>				
Cash and cash equivalents	17,631	2,179	-	-
Trade accounts receivable	4,391	1,769	-	-
Interest-bearing liabilities	(58,730)	(54,802)	-	-
Trade accounts payable	(84,543)	(36,491)	-	-
Gross balance sheet exposure	(121,251)	(87,345)	-	-
<i>Egyptian pound</i>				
Cash and cash equivalents	10,410	-	-	-
Trade accounts receivable	328,990	-	-	-
Interest-bearing liabilities	(961,951)	-	-	-
Trade accounts payable	(18,950)	-	-	-
Gross balance sheet exposure	(641,501)	-	-	-
<i>Brazilian real</i>				
Cash and cash equivalents	112,992	-	-	-
Trade accounts receivable	2,603,751	-	-	-
Interest-bearing liabilities	(670,018)	-	-	-
Trade accounts payable	(2,138,142)	-	-	-
Gross balance sheet exposure	(91,417)	-	-	-
<i>Israeli New Shekels</i>				
Cash and cash equivalents	136,971	-	-	-
Trade accounts receivable	32,450	-	-	-
Interest-bearing liabilities	(2,181,600)	-	-	-
Trade accounts payable	(38,615)	-	-	-
Gross balance sheet exposure	(2,050,794)	-	-	-
<i>Russian ruble</i>				
Cash and cash equivalents	15,381	-	-	-
Trade accounts receivable	142,130	-	-	-
Trade accounts payable	(8,437)	-	-	-
Gross balance sheet exposure	149,074	-	-	-

The net fair value position of currency swaps and forward exchange contracts at 31 December 2018 was Baht 12,252.0 million (net asset transactions) (2017: Baht 7,261.0 million (net asset transactions)).

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 all customers requiring credit over a certain amount. 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/Company monitors its liquidity risk and maintains a level of cash and cash equivalents deemed adequate by management to finance the Group's/Company's operations and to mitigate the effects of fluctuations in cash flows.

Carrying amount and fair values

The following table shows the carrying amounts and fair values of financial assets and financial liabilities, including their levels in the fair value hierarchy. 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			
	Carrying amount	Fair value			Total
		Level 1	Level 2	Level 3	
(in million Baht)					
31 December 2018					
<i>Financial assets and Financial liabilities measured at fair value</i>					
Derivatives assets	1,055	-	1,055	-	1,055
Derivatives liabilities	267	-	267	-	267
Commodity hedge assets	-	-	6	-	6
Commodity hedge liabilities	-	-	1,154	-	1,154
31 December 2017					
<i>Financial assets and Financial liabilities measured at fair value</i>					
Derivatives assets	1,282	-	1,282	-	1,282
Derivatives liabilities	425	-	425	-	425
Commodity hedge assets	-	-	188	-	188
Commodity hedge liabilities	-	-	9	-	9
		Separate financial statements			
	Carrying amount	Fair value			Total
		Level 1	Level 2	Level 3	
(in million Baht)					
31 December 2018					
<i>Financial assets measured at fair value</i>					
Derivatives assets	228	-	228	-	228
31 December 2017					
<i>Financial assets measured at fair value</i>					
Derivatives assets	636	-	636	-	636

Measurement of fair values

The Group's/Company's investments in equity instrument do not have a quoted price in an active market for an identical instrument, that is measured at cost because its fair value cannot otherwise be measured reliably.

The Group determines Level 2 fair values for non-derivative financial assets and liabilities using a discounted cash flow technique, which uses contractual cash flows and a market-related discount rate.

Level 2 fair values for simple over-the-counter derivative financial instruments are based on broker quotes. Those quotes are tested for reasonableness by discounting expected future cash flows using market interest rate for a similar instrument at the measurement date. Fair values reflect the credit risk of the instrument and include adjustments to take account of the credit risk of the Group/Company and counterparty when appropriate.

The fair value of commodity futures, which is determined for disclosure purpose, is based on their listed market price, if available. Substantial part of commodity futures relate to fixed price sales contract entered into with a customer for future sale.

39 Commitments with non-related parties

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in million Baht)			
Capital commitments				
<i>Contracted but not provided for:</i>				
Land and land improvements	110	119	-	-
Buildings and other construction	274	372	-	-
Machinery and equipment	1,890	4,313	-	-
Total	2,274	4,804	-	-
Future minimum lease payments under non-cancellable operating leases				
Within one year	989	969	-	-
After one year but within five years	2,394	2,323	-	-
After five years	2,111	1,456	-	-
Total	5,494	4,748	-	-
Other commitments				
Purchase orders and unused letters of credit for goods and supplies	15,549	14,793	-	-
Bank guarantees	2,502	2,031	512	1,525
Others	421	11	-	-
Total	18,472	16,835	512	1,525

Certain subsidiaries have executed long-term purchase agreements committing them to purchase agreed quantities of raw materials for periods up to three years, at prices limited to the market prices of the underlying commodities.

IVL, through its indirect subsidiary, Indorama Netherlands B.V. (“INBV”), signed a definitive Share Purchase Agreement on 10 October 2017, with DuPont Teijin to acquire a 100% stake in their Films business which comprises of eight production assets in the USA, Europe, China and a global innovation center in United Kingdom with a total film/polymer capacity of 277,000 tons per annum.

IVL, through its indirect subsidiary, Indorama Ventures Holdings LP, USA, entered into a Joint Venture Agreement with Loop Innovations, LLC, USA on 24 September 2018 to form a 50:50 joint venture limited liability company in USA, by the name of Indorama Loop Technologies, LLC (“ILT”).

IVL, through its indirect subsidiary, PHP Fibers GmbH (“PHP Fibers”), signed a definitive Share Purchase and Transfer Agreement on 7 December 2018 with Mr. Wilfried Trumpp and Ms. Venere Polito, to acquire a 100% stake in UTT Beteiligungsgesellschaft mbH (“UTT”), Germany.

IVL, through its indirect subsidiary, Indorama Netherlands B.V., signed a definitive agreement on 20 December 2018 with Arteva Holdings GmbH, INVISTA Textiles (U.K.) Limited, and INVISTA Equities, LLC, to acquire a 100% stake in the PET business of INVISTA Resins & Fibers GmbH, Germany (“IRFG”), and certain Intellectual Property Rights of INVISTA Textiles (U.K.) Limited with regards to its barrier technology.

40 Events after the reporting period

The Company’s board of directors, on 9 January 2019, approved the purchase by its indirect subsidiary Indorama Netherlands B.V. (“INBV”) of newly issued shares in Indo Rama Synthetics (India) Limited (“IRSL”), equaling to approximately 31.79% of IRSL’s enlarged share capital.

IVL, through its indirect subsidiary, Indorama Ventures Holdings LP, signed a definitive Asset Purchase Agreement on 21 December 2018 with Custom Polymers PET, LLC, to acquire their PET recycling facility (the “Facility”) in Alabama, USA. The transaction has been completed on 15 January 2019.

IVL, through its indirect subsidiary, Indorama Netherlands B.V. (“INBV”), signed a definitive Share Purchase Agreement on 6 February 2019 with Church Street Trustees Limited as trustees of the SI Trust, BTI Overseas Limited and Capital Alliance Private Equity II Limited, for the acquisition of 100% of the share capital of Bevpak (Nigeria) Limited (“Bevpak”).

IVL, through its indirect subsidiary, Indorama Ventures Brazil Participações S.A. (“IVBRZ”), signed a definitive Sale and Purchase Agreement on 1 November 2018 with M&G Fibras Holding S.A., M&G Fibras Participações Ltda. and M&G Fibras e Resinas Ltda. to acquire a 100% stake in M&G Fibras Brasil Ltda. located in Cabo de Santo Agostinho, Brazil. The transaction has been completed on 22 February 2019.

On 26 February 2019, the board of directors proposed for the dividend payment of Baht 0.35 per share, amounting to Baht 1,965.1 million. This dividend payment is subject to the approval by the shareholders of the Company.

41 Thai Financial Reporting Standards (TFRS) not yet adopted

A number of new and revised TFRS which relevant to the Group's/Company's operations are expected to have significant impact on the consolidated and separate financial statements on the date of initial application. Those TFRS become effective for annual financial reporting periods beginning on or after 1 January of the following years.

TFRS	Topic	Effective
TFRS 7*	Financial Instruments: Disclosures	2020
TFRS 9*	Financial Instruments	2020
TFRS 15	Revenue from Contracts with Customers	2019
TFRS 16	Leases	2020
TAS 32*	Financial Instruments: Presentation	2020
TFRIC 16*	Hedges of a Net Investment in a Foreign Operation	2020
TFRIC 19*	Extinguishing Financial Liabilities with Equity Instruments	2020

* TFRS - Financial instruments standards

(a) TFRS 15 Revenue from Contracts with Customers

TFRS 15 establishes a comprehensive framework for determining whether, how much and when revenue is recognised. Revenue should be recognised when (or as) an entity transfers control over goods or services to a customer, measured at the amount to which the entity expects to be entitled.

Management completed its initial assessment of the potential impact of TFRS 15 on the consolidated and separate's financial statements, management does not expect that TFRS15, when initially applied, will have material impact on the consolidated and separate's financial statements. The timing and measurement of the Group/Company's revenues are not expected to change under TFRS 15 because of the nature of the Group/Company's operations and the types of revenues it earns.

(b) TFRS - Financial instruments standards

These TFRS establish requirements related to definition, recognition, measurement, impairment and derecognition of financial assets and financial liabilities, including accounting for derivatives and hedge accounting.

Management is presently considering the potential impact of adopting and initially applying TFRS - Financial instruments standards on the consolidated and separate financial statements.

(c) TFRS 16 Leases

TFRS 16 introduces a single lessee accounting model for lessees. A lessee recognises a right-of-use asset representing its right to use the underlying asset and a lease liability representing its obligation to make lease payments. There are recognition exemptions for short-term leases and leases of low-value items. Lessor accounting remains similar to the current standard, i.e. lessors continue to classify leases as finance or operating leases.

Management is presently considering the potential impact of adopting and initially applying TFRS 16 on the consolidated financial statements.

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