



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

**INDORAMA**  
VENTURES > Empowering potential.™

ANNUAL REPORT 2019

INDORAMA VENTURES PUBLIC COMPANY LIMITED



## 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.

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## 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.

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## 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 safe and responsible.**  
In our pursuit of business growth and profitability we do things the right way with regard to health and safety, socially, environmentally, and economically.



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# PERFORMANCE HIGHLIGHTS





# PERFORMANCE HIGHLIGHTS

\$million (except where stated otherwise)	USD Million		
	2017	2018	2019
<b>Production Volume (kt)</b>	<b>9,103</b>	<b>10,419</b>	<b>12,340</b>
Consolidated Revenue <sup>1,2</sup>	8,438	10,741	11,361
<b>Core EBITDA<sup>3</sup></b>	<b>1,004</b>	<b>1,441</b>	<b>1,147</b>
PET	296	588	563
Fibers	208	240	246
Feedstock	501	613	354
<b><u>New Segments</u></b>			
Integrated PET	414	791	754
Fibers	181	211	222
Packaging	37	48	71
Integrated Oxides and Derivatives	145	232	75
Specialty Chemicals	229	158	40
Core EBIT	647	1,000	598
<b>Core Net Profit after Tax and NCI<sup>4</sup></b>	<b>459</b>	<b>789</b>	<b>387</b>
Core Net Profit after Tax and NCI (THBm)	15,576	25,488	12,002
<b>Reported EPS after PERP Interest (THB)</b>	<b>3.98</b>	<b>4.61</b>	<b>0.76</b>
<b>Core EBITDA/ton (\$)</b>	<b>110</b>	<b>138</b>	<b>93</b>
<b>Operating Cash Flow<sup>5</sup></b>	<b>852</b>	<b>989</b>	<b>1,316</b>
<b>Net Debt to Equity (times)</b>	<b>0.75</b>	<b>0.87</b>	<b>0.99</b>

\* 'Integrated Oxides and Derivatives' was previously called Olefins.

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

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

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

<sup>4</sup> Core Net Profit after Tax and NCI is Reported Net Profit less Inventory gains/(losses) and one-time extraordinary items.

<sup>5</sup> Operating Cash Flow is after change in net working capital and cash tax, before maintenance capex.

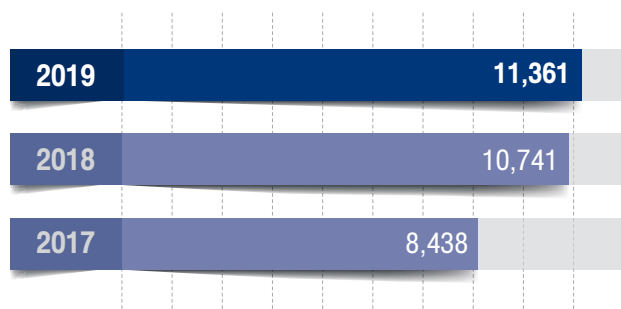
	USD Million		
	2017	2018	2019
<b>Core Net Profit after Tax and NCI</b>	<b>459</b>	<b>789</b>	<b>387</b>
Inventory gain (loss)	37	17	(215)
Total tax on Inventory gain/(loss)	(5)	(8)	21
<b>Net profit, before extraordinary items</b>	<b>491</b>	<b>798</b>	<b>192</b>
<b>Add: Non Operational/Extraordinary income/(expense)</b>	<b>124</b>	<b>21</b>	<b>(23)</b>
Acquisition cost & pre-operative expense	(16)	(35)	(26)
Gain on Bargain Purchases, impairments and feasibility study (Net)*	41	58	12
Other Extraordinary Income/(Expense)	99	(2)	(9)
<b>= Net profit after tax and NCI</b>	<b>615</b>	<b>819</b>	<b>169</b>

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

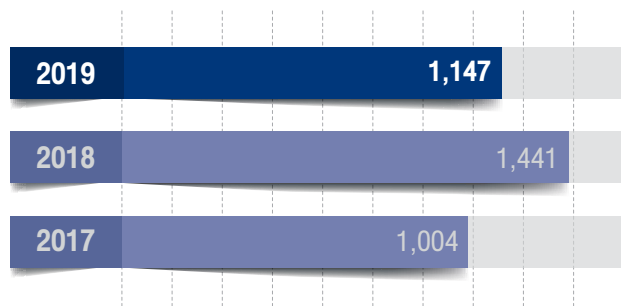


# PERFORMANCE CHARTS

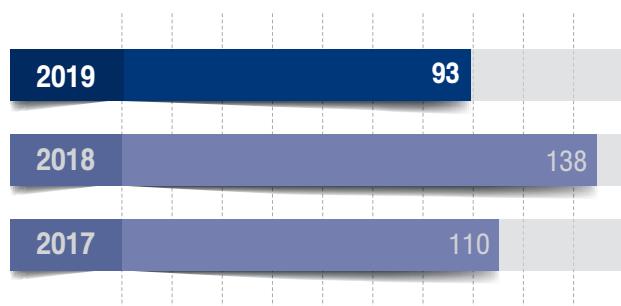
**Net Sales** (USD Million)



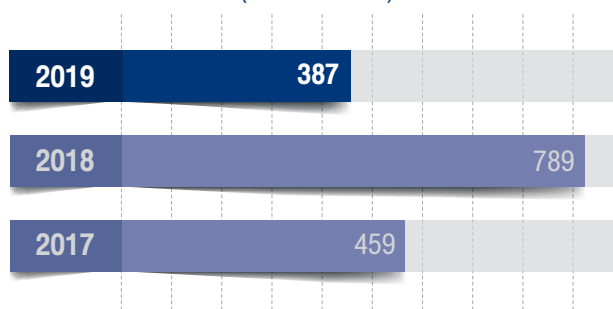
**CORE EBITDA** (USD Million)



**CORE EBITDA/ton** (\$)



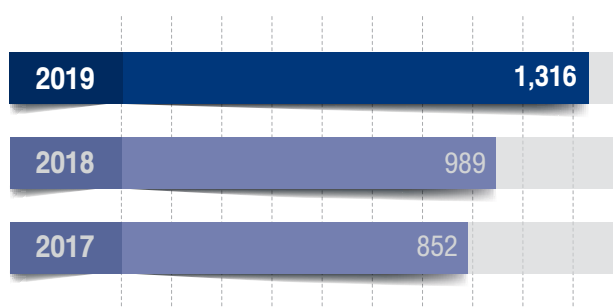
**Core Net Profit after Tax and NCI** (USD Million)



**Net Debt to Equity** (Times)



**Operating Cash Flow** (USD Million)



# FINANCIAL HIGHLIGHTS

The following table sets forth summary of the consolidated financial statements of Indorama Ventures Public Company Limited from 2017 to 2019

## Statements of Financial Position (Consolidated Financial Statements)

Unit: Baht million	As of December 31					
	2017	%	2018	%	2019	%
<b>Assets</b>						
<b>Current assets</b>						
Cash and cash equivalents	6,877.0	2.4	5,578.4	1.5	10,446.7	2.7
Current investments	138.0	0.0	134.3	0.0	7.7	0.0
Trade accounts receivable	32,098.2	11.4	37,636.6	9.9	34,304.9	9.0
Other receivables	1,056.8	0.4	1,324.6	0.3	1,286.0	0.3
Short-term loans to related parties and interest receivable from related parties	155.6	0.1	170.9	0.0	174.3	0.0
Inventories	46,036.5	16.3	70,085.3	18.5	62,164.9	16.3
Other current assets	6,590.8	2.3	9,354.1	2.5	10,372.4	2.7
<b>Total current assets</b>	<b>92,953.0</b>	<b>32.9</b>	<b>124,284.2</b>	<b>32.8</b>	<b>118,757.0</b>	<b>31.2</b>
<b>Non-current assets</b>						
Investments in joint ventures	6,247.1	2.2	5,294.0	1.4	2,492.2	0.7
Other long-term investments	14.9	0.0	15.2	0.0	27.4	0.0
Long-term loans to related parties	53.1	0.0	42.6	0.0	28.3	0.0
Property, plant and equipment	151,202.0	53.5	205,182.4	54.1	212,422.9	55.8
Goodwill	9,837.7	3.5	15,210.0	4.0	15,249.9	4.0
Other intangible assets	18,027.2	6.4	25,139.3	6.6	24,165.1	6.3
Deferred tax assets	2,620.5	0.9	2,713.9	0.7	2,321.9	0.6
Other non-current assets	1,402.8	0.5	1,313.2	0.3	5,103.3	1.3
<b>Total non-current assets</b>	<b>189,405.4</b>	<b>67.1</b>	<b>254,910.6</b>	<b>67.2</b>	<b>261,810.9</b>	<b>68.8</b>
<b>Total assets</b>	<b>282,358.4</b>	<b>100.0</b>	<b>379,194.8</b>	<b>100.0</b>	<b>380,567.9</b>	<b>100.0</b>
<b>Liabilities and equity</b>						
<b>Current liabilities</b>						
Bank overdrafts and short-term loans from financial institutions	6,115.1	2.2	31,272.0	8.2	30,379.5	8.0
Trade accounts payable	39,301.4	13.9	54,564.8	14.4	57,172.9	15.0
Current portion of long-term loans from financial institutions	6,167.8	2.2	8,626.7	2.3	6,033.5	1.6
Current portion of debentures	2,728.8	1.0	3,013.1	0.8	4,107.8	1.1
Current portion of finance lease liabilities	48.5	0.0	110.2	0.0	130.0	0.0
Current tax payable	1,327.3	0.5	2,974.1	0.8	1,049.5	0.3
Other current liabilities	9,932.5	3.5	13,139.1	3.5	14,117.4	3.7
<b>Total current liabilities</b>	<b>65,621.6</b>	<b>23.2</b>	<b>113,700.1</b>	<b>30.0</b>	<b>112,990.6</b>	<b>29.7</b>



Unit: Baht million	As of December 31					
	2017	%	2018	%	2019	%
<b>Non-current liabilities</b>						
Long-term loans from financial institutions	42,329.1	15.0	34,640.0	9.1	42,551.2	11.2
Debentures	38,116.8	13.5	58,604.3	15.5	63,060.0	16.6
Finance lease liabilities	278.9	0.1	498.1	0.1	689.2	0.2
Deferred tax liabilities	13,138.6	4.7	15,788.5	4.2	17,010.0	4.5
Non-current provisions for employee benefits	2,209.6	0.8	2,327.2	0.6	4,696.2	1.2
Other non-current liabilities	1,677.1	0.6	1,781.3	0.5	1,403.4	0.4
<b>Total non-current liabilities</b>	<b>97,750.1</b>	<b>34.6</b>	<b>113,639.4</b>	<b>30.0</b>	<b>129,410.0</b>	<b>34.0</b>
<b>Total liabilities</b>	<b>163,371.7</b>	<b>57.9</b>	<b>227,339.5</b>	<b>60.0</b>	<b>242,400.6</b>	<b>63.7</b>
<b>Equity</b>						
Share capital						
Authorised share capital	5,666.0	2.0	5,666.0	1.5	5,666.0	1.5
Issued and paid-up share capital	5,245.4	1.9	5,614.6	1.5	5,614.6	1.5
Share premium:						
Share premium on ordinary shares	44,848.2	15.9	60,331.4	15.9	60,331.4	15.9
Gain (Loss) on cash flow hedges	305.1	0.1	(157.2)	(0.0)	731.5	0.2
Exchange differences on translating foreign operations	(2,639.6)	(0.9)	(6,638.2)	(1.8)	(16,674.5)	(4.4)
Excess of cost over book value of acquired subsidiaries	(2,862.3)	(1.0)	(2,973.7)	(0.8)	(3,778.1)	(1.0)
Differences arising from common control transactions	(1,235.6)	(0.4)	(1,235.6)	(0.3)	(1,235.6)	(0.3)
Retained earnings						
Appropriated						
Legal reserve	2,956.8	1.0	3,207.1	0.8	4,146.6	1.1
Unappropriated	55,569.5	19.7	71,815.3	18.9	66,350.0	17.4
<b>Equity attributable to owners of the parent</b>	<b>102,187.6</b>	<b>36.2</b>	<b>129,963.7</b>	<b>34.3</b>	<b>115,486.0</b>	<b>30.3</b>
Subordinated perpetual debentures	14,874.1	5.3	14,874.1	3.9	14,905.6	3.9
Subordinated perpetual debentures acquired by subsidiary	0.0	0.0	0.0	0.0	(679.6)	(0.2)
<b>Equity attributable to equity holders of the Company</b>	<b>117,061.7</b>	<b>41.5</b>	<b>144,837.8</b>	<b>38.2</b>	<b>129,711.9</b>	<b>34.1</b>
Non-controlling interests	1,925.0	0.7	7,017.6	1.9	8,455.4	2.2
<b>Total equity</b>	<b>118,986.7</b>	<b>42.1</b>	<b>151,855.4</b>	<b>40.0</b>	<b>138,167.3</b>	<b>36.3</b>
<b>Total liabilities and equity</b>	<b>282,358.4</b>	<b>100.0</b>	<b>379,194.8</b>	<b>100.0</b>	<b>380,567.9</b>	<b>100.0</b>

## Statements of Income (Consolidated Financial Statements)

Unit: Baht million	For the year ended December 31					
	2017	%	2018	%	2019	%
<b>Revenue</b>						
Revenue from sale of goods	286,332.3	100.0	347,170.9	100.0	352,692.4	100.0
Interest income	102.4	0.0	247.2	0.1	183.2	0.1
Net foreign exchange gain	0.0	0.0	586.2	0.2	0.0	0.0
Gain on a bargain purchases	3,672.7	1.3	1,928.5	0.6	805.5	0.2
Other income	1,160.2	0.4	1,952.6	0.6	2,183.7	0.6
<b>Total revenue</b>	<b>291,267.7</b>	<b>101.7</b>	<b>351,885.4</b>	<b>101.4</b>	<b>355,864.8</b>	<b>100.9</b>

Unit: Baht million	For the year ended December 31					
	2017	%	2018	%	2019	%
<b>Expenses</b>						
Cost of sale of goods	240,888.6	84.1	289,232.0	83.3	309,344.5	87.7
Selling and administrative expenses	25,766.7	9.0	28,593.1	8.2	34,005.3	9.6
Management benefit expenses	136.9	0.0	190.8	0.1	307.1	0.1
Loss on impairment and written-off of property, plant and equipment	899.4	0.3	78.0	0.0	404.2	0.1
Net foreign exchange loss	61.9	0.0	0.0	0.0	296.1	0.1
<b>Total expenses</b>	<b>267,753.5</b>	<b>93.5</b>	<b>318,093.8</b>	<b>91.6</b>	<b>344,357.3</b>	<b>97.6</b>
Share of net profit of joint ventures	28.4	0.0	585.9	0.2	5.3	0.0
<b>Profit before finance costs and tax expense (benefit)</b>	<b>23,542.6</b>	<b>8.2</b>	<b>34,377.4</b>	<b>9.9</b>	<b>11,512.8</b>	<b>3.3</b>
Finance costs	3,864.5	1.3	4,227.4	1.2	5,615.1	1.6
<b>Profit before tax expense (benefit)</b>	<b>19,678.1</b>	<b>6.9</b>	<b>30,150.0</b>	<b>8.7</b>	<b>5,897.7</b>	<b>1.7</b>
Tax expense (benefit)	(1,400.2)	(0.5)	3,812.4	1.1	1,534.0	0.4
<b>Profit for the year</b>	<b>21,078.3</b>	<b>7.4</b>	<b>26,337.6</b>	<b>7.6</b>	<b>4,363.7</b>	<b>1.2</b>
<b>Attributable to:</b>						
Owners of the parent	20,882.9	7.3	26,465.4	7.6	5,252.1	1.5
Non-controlling interests	195.4	0.1	(127.8)	(0.0)	(888.4)	(0.3)
<b>Profit for the year</b>	<b>21,078.3</b>	<b>7.4</b>	<b>26,337.6</b>	<b>7.6</b>	<b>4,363.7</b>	<b>1.2</b>
<b>Earnings per share (in Baht)</b>	<b>3.98</b>		<b>4.61</b>		<b>0.76</b>	
<b>Core earnings per share (in Baht)*</b>	<b>2.91</b>		<b>4.43</b>		<b>1.96</b>	

\*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		
	2017	2018	2019
<b>Cash flows from operation activities</b>			
Profit for the year	21,078.3	26,337.6	4,363.7
<i>Adjustments to reconcile profit to cash receipts (payments)</i>			
Depreciation	10,678.8	12,161.2	14,343.8
Amortisation of intangible assets and other assets	1,560.0	2,112.1	2,696.6
Interest income	(102.4)	(247.2)	(183.2)
Gain on bargain purchases	(3,672.7)	(1,928.5)	(805.5)
Gain on previously held interest in a jointly-controlled entity	-	(1.4)	-
Share of net profit of joint ventures	(28.4)	(585.9)	(5.3)
Finance costs	3,864.5	4,227.4	5,615.1
Unrealised foreign exchange loss	45.1	39.7	237.7
Provision for bad and doubtful debts expenses, net	1,978.6	23.9	91.6
(Reversal) Provision for loss on inventories devaluation	(37.4)	345.9	396.6
Provision for impairment on property, plant and equipment	427.6	49.8	374.9
Employee benefits expense related to defined benefit plans	268.2	397.0	510.5
Loss (gain) on disposal of property, plant and equipment, net	6.0	(6.5)	(181.1)
Loss on written-off of property, plant and equipment	471.8	28.1	29.3
Tax expense (benefit)	(1,400.2)	3,812.4	1,534.0
	<b>35,137.8</b>	<b>46,765.7</b>	<b>29,018.8</b>
<i>Changes in operating assets and liabilities</i>			
Trade accounts receivable	(895.5)	(596.3)	9,825.4



Unit: Baht million	For the year ended December 31		
	2017	2018	2019
Inventories	(3,672.2)	(18,054.9)	14,857.4
Other current assets	693.9	(818.0)	613.4
Other non-current assets	732.1	1,269.4	(3,162.5)
Trade accounts payable	35.8	8,149.8	(6,477.1)
Other current liabilities	(897.3)	(1,354.3)	447.5
Other non-current liabilities	198.7	20.6	(651.0)
Repayment of employee benefit relating to defined benefit plans	(178.9)	(215.9)	(378.8)
Taxes paid	(2,247.4)	(3,185.5)	(3,248.1)
<b>Net cash from operating activities</b>	<b>28,906.8</b>	<b>31,980.6</b>	<b>40,845.0</b>
<b>Cash flows from investing activities</b>			
Interest received	122.5	250.6	177.4
Acquisition of property, plant and equipment	(19,773.6)	(16,353.0)	(16,673.9)
Proceeds from sale of property, plant and equipment	336.6	78.4	441.1
Proceeds from sale of other investments	51.3	2.3	116.3
Acquisition of intangible assets	(281.9)	(190.2)	(126.1)
Proceeds from sale of intangible assets	0.1	0.2	6.4
Net cash outflow on acquisitions of businesses	(8,453.0)	(26,191.2)	(7,018.6)
Net cash outflow on investment in joint operation	-	(11,535.3)	-
Net cash outflow on additional investments in subsidiaries and joint ventures	(558.3)	(2,289.0)	(2,220.9)
Advance payment on additional investments in subsidiary and a joint venture	(229.3)	-	-
<b>Net cash used in investing activities</b>	<b>(28,785.7)</b>	<b>(56,227.3)</b>	<b>(25,298.2)</b>
<b>Cash flow from financing activities</b>			
Interest paid	(4,425.8)	(5,141.6)	(6,641.9)
Deferred financing cost paid	(32.8)	(73.4)	(360.1)
Dividends paid to owners of the Company	(4,048.7)	(8,925.2)	(7,860.2)
Dividends paid to non-controlling interests	(134.5)	(67.3)	(199.7)
Proceeds from short and long-term borrowings	13,726.4	28,434.9	23,691.8
Repayment of short and long-term borrowings	(21,038.6)	(20,310.3)	(22,373.5)
Repayment of debentures	(5,500.0)	(3,551.4)	(4,018.5)
Payment by a lessee for reduction of the outstanding liability relating to a finance lease	(25.8)	(63.6)	(197.5)
Repayment of subordinated perpetual debentures	-	-	(15,000.0)
Proceeds from issue of ordinary shares due to warrants exercised	15,504.1	15,852.4	-
Proceeds from debenture, net of debenture issuance costs	9,477.6	17,471.7	9,039.0
Issuance of subordinated perpetual debentures, net of issuance cost of Baht 94 million	-	-	14,905.6
Subordinated perpetual debentures of the Company acquired by subsidiary	-	-	(679.6)
Coupon payment on subordinated perpetual debentures	(1,050.0)	(1,050.0)	(1,050.0)
Loans to joint ventures, net	277.9	(9.3)	(51.4)
<b>Net cash from (used in) financing activities</b>	<b>2,729.9</b>	<b>22,566.7</b>	<b>(10,796.1)</b>
<b>Net increases (decrease) in cash and cash equivalents, before effect of exchange rates</b>			
	<b>2,851.0</b>	<b>(1,680.0)</b>	<b>4,750.6</b>
Cash and cash equivalents at 1 January	4,025.6	6,877.0	5,578.4
Effect of exchange rate changes on cash and cash equivalents	0.4	381.4	117.6
<b>Cash and cash equivalents at 31 December</b>	<b>6,877.0</b>	<b>5,578.4</b>	<b>10,446.7</b>

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**Mr. Sri Prakash Lohia**  
Chairman

# MESSAGE FROM THE CHAIRMAN

## Dear Shareholders,

The past decade has been exciting to say the least – notably that Indorama Ventures Limited has become a global leader in most of its businesses. This has been achieved as a consequence of a well-articulated strategy spearheaded by the Group CEO, his senior management team and generous support of the members of the Board of Directors. As a result, IVL has a track record of profitable growth, a global manufacturing footprint with a diversified chemicals portfolio, a strong balance sheet and customer satisfaction that is constantly on the rise. What is immensely satisfying is the passion and drive of employees, all of whom are equally aligned in the goal of making IVL a truly world class chemical company.

As an organization that is continually looking to stay relevant and focused on its sustainable future, I want to share with you our goals and aspirations for the future.

From a financial point of view, 2019 has been a challenging year for the petrochemicals industry as a whole and for IVL as well. That said, what gives me great satisfaction are the many achievements of our teams.

Having established the building blocks and created a strong foundation, IVL is embarking on its next journey in this new decade – a journey that promises to usher in a new era of growth and value creation.

## Creating an Enabling Framework

Having completed the strategy of consolidation in the Combined PET and high-value Fibers portfolio, IVL embarked on developing its high-growth Integrated Oxides and Derivatives portfolio. The completion of the ethane cracker re-commissioning project and the experience gained in the EO-EG business created a strong framework for the acquisition of selected assets from Huntsman Corporation. This acquisition, the largest in the history of the Company, comes with best-in-class manufacturing assets in

the USA, India and Australia and a fantastic team of over 1,000 well-trained employees.

Business expansions also necessitate developing organizational capabilities and at the top of the list of priorities is strengthening our intellectual capital.

I am glad that at the Annual General Meeting of 2019, shareholders approved the appointment of two new members to the Board of Directors of Indorama Ventures Public Company Limited.

Mr. Tevin Vongvanich joined the Board as an Independent Director and is a graduate in Chemical Engineering with over 30 years of management experience in the integrated energy and chemicals industry. Mr. Vongvanich is also a member of the Sustainability and Risk Management Committee at IVL.

Mr. Yashovardhan Lohia joined the Board as an Executive Director. After completing a decade in leadership roles, he was appointed as IVL's Chief Recycling Officer and is also a member of its Sustainability and Risk Management Committee.

## Proud of our Progress

On the sustainability front, IVL is raising the bar and increasingly being recognized as the gold standard in the industry. In its most recent update, FTSE Russell ranked IVL number one among all global chemical companies on its ESG score. We were ranked second amongst top global chemical companies in the Dow Jones Sustainability Index and for the third consecutive year, maintained inclusion in the DJSI - Emerging Markets. IVL achieved the highest score amongst companies in the Stock Exchange of Thailand main index SET50 and in the GICS100 Chemical Companies on Bloomberg ESG assessment. These ratings reflect our performances in lowering the Company's impact on the environment, improvements in labor and human rights, ethics and



sustainable procurement and rightly position us as a responsible player in the global business community.

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.

## Ongoing Focus on Governance

IVL continues to strive towards strong ethics and corporate governance, and the Board has been a key catalyst in all that we have accomplished.

The Company's effort to maintain the highest level of transparency and corporate governance were duly recognized by the Thailand Institute of Directors in conjunction with the Stock Exchange and Security Exchange Commission of Thailand. In 2019 IVL continued on its track and was awarded an "Excellent – 5 Star" rating for its Corporate Governance Report for the seventh consecutive year.

All Corporate Governance related policies and code of conduct were reviewed and updated to the corporate governance manual in order to provide clear. The manual was translated in to 20 international languages, uploaded on the IVL website and widely distributed to all IVL entities globally during the year. To ensure

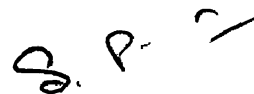
wide dissemination and understanding, a Corporate Governance policy awareness campaign was undertaken in the form of in-room training and tele-conferencing.

IVL's Whistleblower Policy was made General Data Protection Regulation (GDPR) compliant to enhance protection of personal information. In order to improve governance and good business practice, an online option for whistleblower reporting was introduced.

We have long recognized the importance of diversity and inclusion echoed in IVL's values. Our commitment to bringing together people of diverse backgrounds, cultures and nationalities helps drive our business globally.

## Extending Our Appreciation

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



Sri Prakash Lohia  
Chairman



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**Mr. Alope Lohia**  
Group Chief Executive Officer



# MESSAGE FROM THE GROUP CEO

## Dear Shareholders,

The theme for IVL in the 2020's involves the intersection of two defining, but critical attributes: firstly, the increasingly important aspects of the global, circular economy and IVL's leading role within this ecosystem; and secondly, IVL's portfolio transformation and expansion, to ensure the business remains durable to perform under all conditions, a portfolio of all seasons if you like.

## 2019 Introspection / Reflection

Globally and socially, there is unprecedented pressure on plastic. The truth is that our key product, PET, remains the only 100% recyclable plastic and produces a much more environmentally friendly bottle compared to materials such as glass and aluminum. Following China's ban on waste plastics in 2018, a number of places around the world banned 'Single Use Plastics.' This social and political pressure on plastics and their recyclability actually creates a tremendous opportunity for IVL to enlarge our recycling investments and create a positive impact on global circular economy initiatives. I have personally made a pledge to the Ellen MacArthur Foundation to achieve 750,000 metric tons of recycled content by 2025. It is important for our stakeholders to understand that this will not negatively affect our existing PET resin business, which has grown by 1,000,000 tons per annum, and will continue growing together with the recycled material.

In 2019 many global chemical companies had challenging results, including IVL; however, our overall business outlook remains positive with growing consumer needs and increasing urbanization supporting polyester and its value chain. IVL remains well-positioned to leverage our global footprint, customer focus and diversified businesses.

We also saw a slowdown in economic growth in 2019 due to a number of global, geo-political events: the China trade war escalation; Brexit uncertainty and the increasing risk of a global recession. The combination of these macro-economic factors

translated into reduced consumption growth and subsequently the global chemical and petrochemical market experienced lower growth than during the chemical cycle upswing from 2015-2018. However, this cyclical change was not consistent across the value chain and IVL's portfolio is, to some degree, resilient to many of these headwinds. The effect of trade wars is a redistribution of global trade flows of many commodity petrochemicals and this creates an opportunity for IVL to increase our market share having a well-matured, regional presence across the globe.

Our US Olefin portfolio of Integrated Oxides provides IVL with a cost advantage over Asia, and our integrated PET also benefits from import parity premium pricing. The seeds of this excess capacity were planted during the top of the chemical cycle and means lower operating rates and profitability across the petrochemical sector in the short term; however, IVL's strong position on the cost curve combined with our geographic diversity means that we remain one of the most cost competitive players from a total delivered price perspective.

## IVL's Performance in 2019

IVL's volumes grew from 10.4 in 2018 to 12.4 million metric tons in 2019, a 19% year-on-year increase. This represents our highest ever-operating cash flow, growing from US\$1 billion to US\$1.38 billion in 2019E. The company now has 119 operating sites, in 33 countries, across six continents, with 23,851 employees. TRIS has reaffirmed our AA- rating after the announcement of the Spindletop acquisition from Huntsman and remains a testament to our prudent financial policy. We successfully refinanced our perpetual debentures of THB 15 billion at a 200 bps lower coupon rate and received our first Green financing in Thailand from Mizuho Bank, at a lower interest rate and this has further motivated us to scale up our sustainable business model. Although Thai baht appreciation in the second half of 2019 affected our earnings translation, we

have a robust risk management policy in place to manage our exposures in various regions of the world.

Looking at our 2019 financial figures, it is evident that we did not deliver on our earnings targets. **What are the reasons for this and what step are we taking?** We already began working intensely on making IVL fit for the future.

- With the sharp decline in industry prices and margins quarter-on-quarter in 2019, we suffered unprecedented inventory losses. Going forward our management team is adopting and modifying our operational strategies to reduce inventory days and thus avoid future mark-to-market adjustments.
- Unplanned shutdowns in some of our western assets adversely affected our performance. Our operational excellence teams have geared up to drive asset reliability through machine learning tools, Lean Six Sigma principles and enhancing predictive maintenance, while continuing to focus on improving manufacturing costs.
- We have successfully started-up our Louisiana cracker operations since mid-December 2019, satisfying revised emission norms imposed by the local authorities. Operations should ramp-up to full capacity in the first quarter of 2020.
- Our Fibers business portfolio was severely affected by the global slowdown, especially in the automotive sector, and has yet to deliver the returns that we expect. The leadership team has developed an aggressive but achievable business plan to turnaround low performing assets and increases the synergies from integrating with IVL.

## STRATEGIC Thrust – Portfolio Transformation

In 2019 we made IVL's largest ever acquisition – the US\$2 billion Integrated Oxides and Surfactants business of Huntsman across the USA, India and Australia. This acquisition closed in Q1 2020 and supplements our already well-balanced chemicals portfolio of involving the polyester value chain and specialty fibers. Huntsman's assets help us to enlarge our customer focus with a broader product offering under one umbrella. It marks our entry into the large and growing space of surfactants in customer segments catering to personal care, detergents, paints, agriculture, adhesives and food processing, with additional opportunities to enter into the polyurethane and oxyfuels businesses. This transformational portfolio is the anchor for our aspiration to generate 15% ROCE by 2023.

Our portfolio expansion includes the following:

- Two recycling assets acquired in the US that have a combined capacity of 71,000 metric tons, namely Custom Polymers PET LLC and Green Fiber International (GFI). These strategic acquisitions enhance IVL's capability to drive closed loop sustainable solutions and embrace the Circular Economy. While Custom Polymers will provide us with secured supply of rPET flake and food-grade 100% rPET pellets in US, the second asset GFI, a recycling company offers high-quality recycled PET bottle flakes to support our customer's efforts in creating a circular economy.
- We made a debut into the fiber business in Brazil, by adding M&G Fibra, Brazil's largest Polyester Fibers plant, with total capacity of 75,000 metric tons per annum. It provides IVL a unique opportunity to establish its presence in South America's largest economy and achieve synergies between M&G Fibra and Brazil's largest PET asset that we acquired in late 2018.
- We completed the acquisition of specialty assets of Invista Germany, this provides us intellectual property rights for specialty resin that can be marketed globally and fits neatly with its sister facility in South Carolina, which we acquired back in 2012. These sites serve as our PET R&D hub.
- We completed the share purchase in Indo Rama Synthetics (India), which is a strong strategic fit with IVL's Fiber strategy in the home and apparel market. India is the second largest polyester market in the world after China with consumption growing at about 7.0% per annum.
- We have further consolidated our packaging portfolio position in the African market with the acquisition of Bevpak Nigeria, with a production capacity of 18,000 metric tons per annum.
- Finally, we completed the acquisition of Sinterama, a leading Global polyester automotive interiors and high performance colored yarns manufacturer with facilities in Italy, Brazil, China and Bulgaria.

With the expansion of our Integrated Oxides Portfolio via the Spindletop acquisition, IVL now has a strategic and sizeable portfolio of businesses under the three differentiated value chains of Aromatics, Olefins and Fibers. This diversity and resiliency transforms IVL into a unique and diversified chemical company versus a pure play petrochemical company.

Value Chain	Capacity in MMT	No. of Sites	Manpower	Net Capital Employed (US\$M)
Aromatics	13.0	59	9,112	5,028
Olefins	4.2	10	1,335	3,535
Fibers	2.3	50	14,022	2,565
<b>IVL</b>	<b>19.5</b>	<b>119</b>	<b>24,469</b>	<b>11,128</b>

## Climate Change / IVL Drives towards a Circular Economy

IVL achieved several important milestones in 2019. We were ranked second among the top global chemical companies in the DJSI World Index and included in the DJSI Emerging Markets Index for the third consecutive year. We maintained the MSCI ESG at level BB, similar to last year, wherein we have received the highest ESG score out of all chemical companies from FTSE4Good Index Series in 2019. We received the Coca-Cola Sustainability Award from the Coca Cola's Supplier Summit 2019, given to our FuTuRePET Single Pellet Sustainability Solution (SPSS). The achievements reflect IVL's operational excellence regarding our sustainable development supporting our **vision of being a world class chemical company making great products for society**.

IVL management continued their efforts on continuous customer focus, commitment and responsiveness to Innovation and Sustainability. During the year, EcoVadis, a prominent industry-leading monitoring platform for sustainable procurement recognized us as one of the top 3% of suppliers with a Gold Level recognition. This rating reflects our performances in lowering the company's impact on the Environment, Labor & Human Rights, Ethics and Sustainable Procurement. Besides this, IVL achieved the highest score amongst companies in the SET50 and GICS100 Chemical Companies on Bloomberg's ESG assessment. All these achievements reflect the company's excellent performance in taking further steps for effectively reduce emissions, indicating more advanced environmental stewardship.

A keyword for our business remains **sustainability**. It serves as a beacon of our business strategy, orienting all of our activities and shaping our product portfolio to ensure they make a positive contribution to the circular economy ensure environmental protection, optimize our supply chain, minimize risks, and generate positive employee engagement.

## IVL on a journey towards Future Readiness

Our strategy focuses on growth: Our objective remains to grow profitably and sustainably. We invest where we see opportunities for growth and where we believe we have relevant competence. At the same time, we continue to rigorously reduce costs wherever it makes sense. Given our global leadership position in PET, we have set an internal target to drive the circular economy and have formed a dedicated team focusing on the recycling business, under the leadership of one of IVL's board member. I am pleased to see the commitment of this team and their passion to grow our recycling footprint across the globe, striving to build a global, scaled business with a robust supply chain resulting in an innovative and profitable business model. This year also marks onboarding of two senior executives – a Chief Human Resources Officer and Chief Strategy Officer, thus enriching our leadership bandwidth. We have also created the Indorama Management Council (IMC),

consisting of IVL's most senior and experienced executives. As part of our talent initiatives we have also created the Indorama Business Council (IBC), where the next generation of IVL leaders are provided with a platform to further develop a winning mindset and grow their capabilities. The two structures of the IMC and the IBC also creates an effective pool of top-talent to address concerns on IVL's succession planning. It is refreshing to find young talented managers displaying their creativity and conviction under the V-Lead program led by our segment CEOs.

Our new strategy encompasses a number of new priority areas: ERP transformation, operational excellence, and digitalization and employee development. In each of these areas we strive to raise the bar and be the pacesetter in our industry. In 2019 we had announced our intention to implement S/4 Hana, an integrated SAP ERP, group wide. IVL has grown tremendously over the last decade and it is now imperative that we adopt a common and fully integrated ERP solution across all functions. The full implementation of the ERP, to be completed in three years, will help drive down costs, improve overall efficiency and make our businesses even more agile.

As the organization has mostly grown inorganically, we have a strategy to enhance the role and value of our finance operations through several transformation projects, partly linked to the single ERP system. We are progressing with back office operations in India and Mexico to get global coverage of our shared services function and improve our interaction with customers and suppliers.

## Our Mid-Term Focus

Following on from the highs of 2018, we have experienced a roller coaster ride in 2019. Alongside geopolitical issues, the chemical industry is witnessing a glut of overcapacity resulting in margin pressure across the value chain. Nevertheless, we have experienced such headwinds in the past and our management team remain confident in our well-thought out and executed game plan to fortify our businesses and maximize our resilience to short-term volatility. Our value add is something that is exclusively available to IVL due to our combination of global scale, variety of locations, synergies with rest of the businesses, our specialties, our lean organization, our circular economy mindset and our alignment with customers and suppliers. At the same time, we are also aware of a number of challenges on the horizon and have mitigation plans in place. Our leadership team is already making plans to turn-around underperforming assets and maximum synergies, while growing our market share and maintaining our leading position.

The tectonic shift in IVL's portfolio was deliberate and executed at scale. I am thankful to our management team for having worked tirelessly on the due diligence and timely closing of the Spindletop assets. This large and complex transaction is nearing completion and it is up to us to deploy our experience to derive the best possible synergies by integrating with IVLs' existing Integrated Oxides assets and also further develop the downstream surfactants. Once



successful this business will emerge as another “core” for IVL, alongside our Integrated PET business. We have announced our new Integrated Oxides leadership team structure and their primary objective remains to implement cross learnings and operational and commercial excellence the IVL way. As the Lake Charles cracker has started and is operating smoothly, we are in the perfect position to maximize the integration benefits between Lake Charles, Clear Lake and Port Neches sites, fully leveraging the cheap feedstock availability in USA Gulf Coast region.

In addition, we now have several specialty assets in our portfolio in our PET and Fibers businesses with an experienced R&D team that is committed to drive product innovation. We have also made our plans to scale up our business development and branding initiatives with customers to achieve desired growth across the businesses.

Our global asset base of Integrated PET, Integrated Oxides and Fibers businesses have unique and untapped potential to allow IVL to enter into new applications with minimal capex. This presents organic growth opportunities in spaces adjacent to our existing portfolio, further enhanced by potential bolt-on acquisitions that are both attractive and value accretive to IVL's scale and portfolio diversity.

## Marching Towards Excellence, A Better Way

With our balanced business portfolio, further augmented with a positive demand growth outlook, I remain optimistic about IVL's future prospects. Our leadership team continues to work cohesively on the key issues of resource allocation, capital expenditures, productivity improvement and differentiated enhancements to our procurement leverage, all with the aim of strengthening the pillars of an already robust and sustainable organization. **Winning is in our DNA and we will leave no stone unturned to augment value for our stakeholders!**

Let me share with you how are we going to deliver the best-in-class performance over the next four years. We have our entire organization aligned on following five strategic priorities. Let me elaborate.

1. **Cost Transformation:** With the launch of project Olympus, IVL is targeting to save around US\$350 million cumulatively by the year 2023 through a series of corporate and business-led strategies.
2. **Asset Full Potential:** IVL aims to maximize our growth and margin potential by retaining a razor-sharp focus on realizing the full commercial potential of assets already acquired and operational.
3. **Adjacency Growth:** Our core areas of business are now well established. Leveraging these businesses to their full potential can also come by looking at adjacencies that allow for enhanced customer offerings and also enhanced earnings. More often than not, a move in to adjacencies does not necessitate large financial commitments and at the same time allows for management and business synergies.

4. **Recycling Leadership:** this is a truly once-in-a-lifetime opportunity of combining the inherent strengths of PET as a 100% recyclable material and heightened demand for rPET from leading beverage companies and other industrial companies alike. We are fully committed towards playing our role in addressing the issue of waste management and sizably enhancing circularity.

5. **Leadership Development:** Last but not the least, we need to continually invest in enhancing our leadership resources. In 2019, we recruited our Chief HR Officer and the Chief Strategy Officer. We are enriching the capabilities of our HR organization and our Strategy group to serve as business partners with our existing senior executive to implement effective tools and KPIs. Our culture and leadership development is fundamental as we seek to manage our businesses and lead us sustainably over the next decade.

These five priorities have been arrived at following deliberations involving the leadership teams and esteemed members of IVL's Board of Directors.

2020 will be an exceptionally demanding year of transformation - economically, politically and strategically. Our goal is to ensure IVL becomes more agile, flexible and customer-oriented. At the same time, we will maintain a balance. We will introduce structural changes while doubling down on what already works. This will require focus, energy and strength – and these are all things we have.

We are at a turning point in IVL history – we are well-positioned to effectively navigate the challenging horizons ahead. We have prioritized and committed ourselves to transforming the business, portfolio and processes to continue to lead in this new era of business and technology in the 2020's, in order to remain relevant – and highly essential – to our customers, our shareholders and to society.

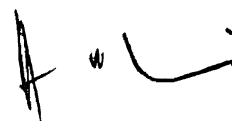
**“We have the right strategy, the skills and the passion necessary to make IVL fit for the future.”**

Together with my fellow members of the Board, I wish to thank all our stakeholders, and remain grateful to you, our shareholders, for your ongoing and steadfast support.

*“The need to shift mind-sets is the biggest block to successful transformations. The key lies in making the shift both individual and institutional – at the same time.”*

– By Scott Keller & Bill Schaninger

Sincerely,



Alope Lohia  
Group Chief Executive Officer  
Indorama Ventures Public Company Limited

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# MESSAGE FROM THE CEO OF FEEDSTOCK AND PET BUSINESS



## Dear Shareholders,

"Growth is life" for IVL and this has helped us evolve from a small PET resin producer in Thailand to the world's leading integrated PET resin player. Over the years, we have achieved tremendous growth in the integrated PET segment by geographical diversification and both upstream and downstream integration. Today we stand as the world's largest integrated PET resin producer with 25% global market share, having 119 manufacturing sites located in 33 countries and considered to be a first quartile producer due to our high level of integration and operational excellence. In the last five years, our integrated PET core EBITDA grew from US\$252 million in 2014 to US\$754 million in 2019 – an increase of 200%. Our ROCE also improved to 15% in 2019.

## Opportunities from ban on single use Plastics

In 2019, we witnessed unprecedented pressure to take global action on plastic pollution. The main challenge with plastic is waste management as single-use plastics becomes waste within a day or a year and is not biodegradable. Several countries are banning single-use plastics items like carrier bags, straws, cutlery, plates, etc. However PET bottles have been excluded from this ban as it is 100% recyclable and thus provides a growth opportunity by substituting other plastic packaging polymers.

As a part of building a circular value chain for PET, we have taken the strategic step to invest in and create global recycling assets as a new vertical for growth as well as to support our brand owners to reach their PET recycled content goals. Recent acquisitions like Sorepla in France, Customer Polymer and Green Fiber in the USA show our commitment to adding recycling assets to the portfolio. We have also invested in chemical recycling through a joint venture with Loop Industries in the US and a partnership with Ioniqa in the Netherlands. We have committed to the Ellen MacArthur Foundation that we will increase our PET recycling capacity to 750,000 metric tons by 2025 while leading the development of the circular PET ecosystem. Our investments in recycled assets not only show our sincere commitment towards sustainability, but also we believe they would be highly value accretive in the future.

We have a competitive advantage in rPET driven by our global footprint, recycling expertise and strong partnership across the value chain. Our target is 15% ROCE on our recycling assets.

## 2019: A challenging year

We witnessed a lot of global uncertainty in 2019 and low GDP growth due to the US-China trade war and Brexit. Global GDP growth slowed to 3% in 2019, almost one percent lower than mid-2017. The global petrochemical industry faced numerous challenges in 2019 due to Sino-US trade conflicts, the emergence of China's new mega refineries impacting trade flows, the build-up of large crackers based on cheaper shale gas in the US, currency fluctuations and compressed product margins along the entire value chain of petrochemical products.

However 2019 ended positively with a de-escalation of trade tensions as the US and China signed a trade agreement, thus we expect an upward revision of 2020 GDP growth. Further monetary easing policies and fiscal stimulus measures globally will stimulate demand and global growth. Emerging and developing economies like Latin American countries, China, India, etc. are expected to have stronger GDP growth in 2020. We foresee a year of better results and profitability with the expectation of future global growth, barring any geopolitical tensions. We believe the impact of novel coronavirus, or COVID-19, would be temporary and very limited direct impact on our operations.

## 2019 Earnings

Integrated PET core EBITDA in 2019 grew by 83% from 2017, through geographical expansions, better integration, efficient operations and continuous cost improvements. However Core EBITDA in 2019 dropped by 4.7% from 2018. Record earnings and solid margins in 2018 due to significant supply shortages were caused by the financial distress of two major suppliers. This was eased and returned to normal in 2019. Our 2019 earnings were also hit by compressed margins along the entire polyester value chain and by unplanned shutdowns. The reported EBITDA fell due to significant feedstock-driven inventory loss.

Our PIA and specialty chemicals EBITDA dropped by 74% from 2018 due to a lower margin driven by lower PIA spreads and volume loss due to an unplanned shutdown of our Auriga asset.

Our integrated oxide segment also faced a challenging year due to a decline in MEG spreads and extended shutdowns. Though EO margins, which represent 40% of the production volume, remained relatively stable, the decline in EG margins impacted EBITDA of our integrated oxides segment.

Though our Lake Charles cracker startup was delayed, we are happy to inform it is now running at 85% of rated capacity. We expect to achieve full production within the first quarter of 2020.

## Spindletop (A Transformative Deal and Game Changer)

In 2019, we made our largest and most strategic acquisition through the purchase of certain Huntsman assets, known as "Spindletop", which is a transformative steps towards creating a new vertical, integrated oxides and derivatives. Now with the startup of our Lake Charles cracker, we are well-integrated, from ethane to EG, and able to leverage low-cost shale gas feedstock. The acquisition of Spindletop brings both scale and portfolio diversification to our business and allows us to accelerate our growth in the integrated oxides and derivatives segment (IOD's). This acquisition also provides us the manufacturing infrastructure and technical capabilities to expand into high value-added chemicals such as surfactants, oxyfuels, ethanolamines, and LAB, as well as the propylene oxide value chain.

We also gained a new management team and employees consisting of 1,200 individuals who will broaden our segment knowledge in operations, products and R&D initiatives. With the acquisition of a downstream business consisting of both EO and PO, we now have an opportunity to make this a core platform for continuous growth over the next 5 to 10 years. The acquisition also adds two geographical regions, in Australia and India, which provide an opportunity for further diversification and new business growth in those countries.

EBITDA from acquired assets was US\$360 million in the last twelve months ending September 2019. We expect that EBITDA from the acquired assets will significantly increase 40% by 2023. This will be achieved by better margins, the integration of Spindletop, operational and procurement efficiencies, synergy benefits and specialty surfactants projects

The integrated oxide and derivative business will become a significant business and contribute 29% of IVL's total EBITDA by 2023. Our mission is to become a leading downstream producer in IODs.

## Stable PET Demand Growth

PET is considered the preferred beverage packaging material over aluminum cans and glass, since PET is highly competitive and offers the lowest cost packaging form due to its light weight, affordability and superior transparency characteristics. PET plastic bottles outperform aluminum cans and glass bottles in terms of environmental footprint by using less energy, generating less solid waste, and creating significantly fewer greenhouse gases.

PET growth is driven with the aid of rising living standards, urbanization and the growth of the retail segment, particularly in Asia, the Middle East and Africa. We have witnessed stable demand growth of between 5-7% during 2011-2019 and expect it to grow by 4.5 % in future as the growth of virgin PET will be centered on developing economies. PET demand in developed economies,



like the US and Europe, is expected to grow in line with GDP but demand in future will be primarily in rPET.

A number of Polyester fiber and PET producers are back-integrated into PTA, MEG and PX and thereby replacing import cargoes. Higher base chemical demand and feedstock security are driving the development of a new wave of mega-integrated refinery and chemical sites in China.

## Consolidation of Chinese PET industry and lack of investments in PET assets outside China

PET capacities built up outside China now are very limited due to high capital cost and poor margins in the polyester value chain. However China is continuously adding capacities and building highly cost-competitive assets that are integrated into feedstocks and thereby form a potential threat to the global polyester value chain. However, Chinese companies have added huge debt to their balance sheets due to capacity expansion, which require replacement margins to service their debt.

Due to our strong regional presence and better geographical diversification, our margins globally will remain protected as they are based on import parity from China. Further trade barriers and the initiation of anti-dumping duties on Chinese exports will offer margin protection. Increasing freight costs from China due to IMO 2020 regulations will help us to achieve higher margins in domestic markets.

Our growth strategy in PET is focused on specialty polymers and recycling, which are in line with the PET industry transition to a circular economy. Our major investments in Europe and the USA will primarily be in both mechanical and chemical recycling assets.

Our downstream packaging segment is strengthening in line with growing PET demand. Volumes have increased by way of acquisition and organic growth, which we expect to grow consistently in future.

## Compressed value chain margin due to influx of huge PX and MEG Capacities

Today's Polyester value chain is entering its worst period due to the collapse of margins since China added 10 million metric tons of PX capacities leading to a decrease in PX imports. We see drastic cutbacks in PX operating rates among many Asian exporters, and potential capacity rationalization in sites where integrated refining-aromatics margins are poor. Rationalization of PX capacities outside China could bring us opportunities to create strategic alliances and partnerships to source PX requirements.

In MEG, 2.5 million metric tons of new capacity was added globally in 2019, primarily on the US Gulf Coast, due to low cost shale gas. This led to a significant fall in MEG margins globally in 2019. Further, new MEG capacity of 9 to 10 million metric tons will be added globally in 2020-2022. China alone is adding around 6 million metric tons of new MEG capacity in the same period. Some are very large and highly cost competitive as they are integrated into big oil refineries. MEG margins will continue to face pressure in future due to a huge oversupply and lower Chinese imports.

As we are a net buyer of PX and MEG for PET, we will be the key beneficiary from weaker PX and MEG prices.

## Specialty Polymers, PIA and NDC

We are enhancing the production of high-value PET specialty polymers and barrier resins, leveraging on our global marketing presence and asset portfolio.

We are also investing in an in-house PNDA production facility as a part of our strategic plan to increase NDC production for captive use. We will further expand our PEN production and provide unique solutions to our customers.

Our PIA business has been impacted by lower spreads due to industry oversupply in 2019. Current PIA spreads are below a sustainable point. The rationalization of high cost facilities has begun, which should normalize the PIA margin in future.

## Future Outlook

We expect stable PET resin demand as it is preferred over other packaging materials such as glass, paper, metal and aluminum. We are excited that the combined EBITDA of integrated PET and integrated oxides and derivatives will see an increase of 94% by 2023 as compared to 2019, which is in line with our target to double the EBITDA in every five years. We expect to create a ROCE of 15% on these assets. This will be achieved from the following actions:

- Realize US\$45 million from operational and other efficiencies as well as synergy benefits from integration of the Spindletop assets.
- Pursue specialty surfactants projects contributing annualized EBITDA of US\$60 million and expand PEO production contributing an annualized EBITDA of US\$12 million.
- Ensure high capacity utilizations of all assets.
- Increase domestic market share across most products.
- Operational excellence and reliability programs in our integrated PET segment, such as Lean Six Sigma, digitalization, reduced maintenance cost and improved labor productivity to generate significant savings of US\$95 million.

- Expand our recycling footprint (both mechanical and chemical) in line with the plastics industry transition to a circular economy.
- Complete our Corpus Christi project.
- Focus on growth of value-added products.

## Our Key Drivers of Business Success

We have successfully integrated all acquisitions in the past and are confident of integrating the new Spindletop assets and unlocking synergy benefits by following the management recipe below:

- Robust risk management
- Participative management with great team work rather than silo management
- Continuous benchmarking of operations
- Strong MIS monitoring system

## Acknowledgements

We are thankful to our shareholders, investors, lenders, suppliers and customers for their consistent and resolute support. We have special words to acknowledge the collective efforts of the entire IVL team, working tirelessly to create and sustain a world-class enterprise.



Dilip Kumar Agarwal  
Chief Executive Officer of  
Feedstock and PET Business

# MESSAGE FROM THE CEO OF FIBERS BUSINESS



## Dear Shareholders,

It gives me great pleasure to share with you that during 2019, IVL's fiber business grew its revenue by 12.9% and core EBITDA by 15.1%. This was achieved through increasing the spreads year-on-year to 39.7% while maintaining the total per ton cost at the same level as 2018.

Economic conditions remained subdued in 2019 mainly due to geopolitics and trade tensions in key markets, resulting in increased trade volatility and the realignment of global supply chains. IVL is aligned with our customers with over 66% of volume sold in domestic markets that allow natural protection from tariffs. We have feedstock integration that reduces volatility and a high value-added (HVA) portfolio that adds superior margins with high barriers to entry. Our HVA portfolio backed by proprietary technologies, contributed 74% of revenue and 86% of core EBITDA. Our business model once again demonstrated its resilience and helped achieve stable results despite the headwinds from a worldwide economic slowdown.

To continue to serve our global customers locally and extend our offerings, we expanded our footprint and integrated into downstream fabric businesses for airbags, tire cords and hygiene non-woven fibers. A part of these acquisitions was underperforming at the time but strategically located and aligned to our growth strategy. I am happy to share that in the past five years, we grew our core EBITDA 2.5X.

Our profit model is driven by collaborative innovation. This has helped enhance our customer-centricity and resulted in higher spreads through diversification of our product mix and new innovative solutions. Furthermore, our team's focus on controlling costs has been highly successful in containing overall cost increase to 5% during the five-year period. We have firm plans to cut costs aggressively over the next four years by 4% while maintaining spread at over 39%. This will help improve our core EBITDA margin from 7.7% in 2019 to 11.6% in 2023 and improve the segment ROCE from 4.5% to 14.8%.

## Business transformation into focused verticals

In order to reduce the complexity in running multiple standalone and diverse businesses, in 2019 we launched three verticals, Lifestyle, Hygiene and Mobility, led by empowered teams that have been mandated to run independent business units with bottom line responsibilities. We have created support structures consisting of an innovation platform, an operational excellence team, along with human resources and financial services to maximize resource efficiency. The fiber business transformation initiatives will continue through 2020 and we expect that synergies will be unlocked over time.

**Our Lifestyle vertical** was rolled out in 2019, comprising of 12 units in seven countries with a turnover of US\$1.3 billion catering to home, apparel and athleisure applications. We expanded its footprint in India, Brazil, Italy and Bulgaria by adding capacity of over 600,000 tons through strategic acquisitions. We are focusing on improving performance of the new assets by increasing utilization rates, reducing cost and creating operating efficiencies. We see significant potential as we upgrade technologies and optimize operations.

The global lifestyle market is over US\$2 trillion with a profit pool of over US\$150 billion. IVL Lifestyle is focused on growing domestic capacity in high-growth emerging markets like India, Indonesia, Thailand and Brazil. Although Lifestyle is in a competitive ecosystem, we are creating a niche for ourselves to produce innovative premium, recycled, active-wear applications, protective textiles and sustainable solutions including biomaterials, composites and colored yarns using dope-dyeing technology. We will continue to pursue our sustainable objectives with recycled offerings under the DEJA™ brand, launched in 2019.

As emerging economies improve from their current low per capita fiber consumption, they will continue to generate demand for textiles underpinned by increasing affluence and changing lifestyle preferences, while the demand in developed economies remains stable. We expect to grow at 7.8% to 2023 by improving utilization and cost reduction driven by operational excellence.

**The Indorama Hygiene vertical** was launched in 2019, comprising 16 units in nine countries with a turnover of a billion dollars, catering to baby diapers, fem care and adult incontinence applications. In 2018, we had expanded to India, Israel and Russia, mainly through the acquisition of downstream nonwoven fabric business and becoming a Tier-1 supplier to leading multinational brands. We also carried out brownfield expansions in China and the USA for high-end hygiene applications.

Our Hygiene business will continue to grow rapidly in the baby care and feminine care segments driven by the demand coming from emerging markets from a growing population, growing purchasing power of an affluent middle class coupled with increased awareness

towards hygiene leading to improvement of penetration rates. Changing demographics in many advanced economies is creating demand for adult incontinence products, the fastest growing sub-segment. While the global Hygiene market grew 2015 to 2019 and is projected to continue growing from 2019 to 2023, our Hygiene vertical outpaced the industry. However, our focus remains on increasing capacity utilization and improving the product mix.

The global **Mobility** market is projected to grow at 5.1% from 2019 to 2023 while the **Indorama Mobility vertical** expects to grow at 9.4%. This business comprises 16 units in nine countries with a turnover of a billion dollars, catering to tire-cord, airbags, seatbelts and industrial applications. We expanded further into the downstream airbag, tire cord fabric business in Europe and consolidated our share in the tire cord market to 32%, becoming the largest supplier in the region. In the airbag fabric market we acquired the number one position in Europe with 16% market share.

## Cost innovation and operational excellence

The key focus area has been cost reduction without impairing product and service quality. The reorganization and transformation of businesses has opened new opportunities for improvement in areas such as energy intensity, operational efficiencies, purchasing, logistics and fixed cost reduction. Implementation of Lean Six Sigma at every manufacturing site has resulted in a cumulative saving of US\$36.4 million since 2014.

In 2019, we further enhanced our intellectual property protected business portfolio in Asia, with the capability to produce heavy-metal-free polymer, a requirement of our key customers. We were able to save US\$24.4 million through various operational excellence projects. Out of this, savings of US\$19 million was achieved through cost innovation that did not require any capital expenditure.

## Innovation

Innovation and customization are keys to enabling future success. In 2019, 21% of revenue in the fiber segment came from products that were introduced over the last five years. We have focused development activities on skin care, light weighting and soft-feel fibers using state-of-the-art technologies and new materials. Over 25% of our revenues are protected by patents or proprietary rights. We are running over 100 collaborative programs with our customers that have helped us deepen our relationship with the customer and improved our joint speed-to-market. Brand customers prefer to deal with approved suppliers that continuously invest in innovation and technology.



## ROCE improvement plan

We have been investing to reach our targeted market position, including acquisitions that fit strategically but are currently underperforming. These valuable assets have turnaround plans to deliver double digit ROCE by 2023. Meanwhile, the global slowdown in automotive and other businesses has created a short-term tempering of overall ROCE.

In addition to operational excellence and HVA expansion, the segment is also focusing on improving financial performance by enhancing working capital and liquidity. In 2019, we reduced our net working capital days to 39 from 44 in 2018 and plan to reduce it by a further 8 days to 31 in 2020, with a corresponding release of US\$36 million in cash.

As a result of many initiatives, and the underlying superior performance of the legacy assets, we are confident of improving segment ROCE to 7.2% in 2020 and further improving it to 14.8% by 2023.

## Awards and Recognitions

Our values guide us in everything we do and the way we conduct ourselves, to build our reputation and trust with our customers. I am pleased to inform that Trevira won the "Brandenburg Innovation Award for Plastics and Chemistry 2019" for its new flame retardant, UV-resistant polyester yarn, which is available in a variety of colors and specially designed for outdoor applications.

PHP was part of a partnership that won the 2019 AVK Innovation Prize for process development for functional composites with hollow complex shapes. This application is designed for car seat frames based on our proprietary Enka Tec-Tape hybrid roving, thereby enhancing our Mobility value proposition.

## Sustainability

Sustainability is embedded in our values that continue to push the limits of creativity and technology to develop and implement meaningful solutions. From continuously improving operational efficiency and the environmental performance of our facilities, to pursuing low-carbon footprint solutions, we view sustainable practices as the only way to ensuring that our business remains viable in the long run. In 2019, we reduced water intensity saving over 1.2 billion liters of water and increased our recycled fiber

production volume to 10% of total production. We also completed the installation of 1.2 MWH solar panels in Nakhon Pathom, Thailand, as a pilot project and will extend this technology to other locations. We are continuously engaged in upgrading our portfolio to become resource-light using sustainable new materials including bio-PE, PLA and PBS to provide green solution for our customers

## Outlook 2020

The fiber segment has industry leading manufacturing assets, an unbeatable geographic spread and most importantly, best-in-class talent. We are committed to deliver robust performance through our continued focus on:

- Increased market share in high growth high margin businesses backed by proprietary technologies.
- Fully optimizing assets to increase utilization rate and asset flexibility to improve product mix.
- Cost reduction through operational excellence and cost innovation.
- Unlocking vertical synergies through consolidation and optimization of resources.
- Enhancing our innovation-led culture to extend competitive advantage.

Synthetic fiber demand continues to grow at healthy rates supported by affluence, changing demographics and lifestyle. The total fiber market is expected to grow by 3% in 2020, with synthetic fibers gaining 90% of this incremental demand for fibers. Within synthetic fibers, 50% growth will come from high value-added opportunities, which offer IVL substantial room for organic growth in coming years.

The opportunities ahead are huge. By staying true to our mission and values, and by continually investing in building new capabilities, we are well positioned to become the foremost partner of choice for all our stakeholders.

Thank you,



Udey Paul Singh Gill  
Chief Executive Officer of Fibers Business

# MESSAGE FROM THE CFO



## Dear Shareholders,

While 2018 should have provided the springboard for our high-quality assets to deliver their full potential in 2019, there were many challenges faced by the industry in 2019, particularly in the second half of the year that slowed us down. Industry-wide weakness was the trigger for IVL to seek diversification and add operational management bandwidth at an attractive valuations. In August 2019, IVL announced our largest acquisition ever, the US\$ 2 billion integration of Huntsman's carved out assets (Spindletop).

IVL delivered a 9% Core ROE and 8% Core ROCE in 2019. The Core EBITDA of US\$1.14 billion was 20% lower than the US\$1.44 billion generated in 2018. The lower performance in 2019 led to us embarking upon a number of cost reduction initiatives not only to achieve targeted returns but also to transform into a more agile and sustainable business model.

## Operating Cash Flows & Working Capital Optimization

I had stated in the Annual Report of 2018 that going forward IVL would focus on optimizing working capital. We have achieved a working capital release of US\$273 million, partially due to lower working capital requirements as absolute prices fell along the whole value chain driven by lower feedstock prices and partially due to the efforts of our business and finance teams. We reported an operating cash flow of US\$1.32 billion, which is 33% higher than the US\$0.99 billion achieved in 2018. These strong operating cash flows provided the financial foundation for the Spindletop acquisition. Over the years, the strong visibility of these operating cash flows has helped us to deploy it in a strategic and accretive manner, building the business portfolio, providing handsome returns to shareholders, as well as securing lenders who have shown faith in our proven business model.

The focus on optimizing net working capital is going to be further enhanced in 2020 by deleveraging. Our largest acquisition also results in increased debt by 50% over where it was at the end of 2019. Our priorities will include reducing net working capital by ~US\$150 million on our legacy businesses, which effectively implies improving our cash cycle by five days. The reduced cash cycle will put us in the first quartile when benchmarked in the Industry.

## Capital Allocation & Balance Sheet Strength

Our Integrated PET and Fibers business portfolio is projected to grow organically and therefore we have allocated a significant amount of capital to the Integrated Oxides Segment in 2019 (completed in early 2020). This further enhances our diversification of revenues and resultant cash flows. With the latest acquisition, the revenues mix for the Integrated PET, Fibers and Integrated Oxides Segments will be approximately 55%, 28%, 17% as compared to 71%, 27%, 2% prior to the acquisition. Recycling is going to be the major beneficiary of capital in 2020. Each acquisition or capex made in recycling is going to be in the range of US\$30-40 million.

In October 2019, TRIS re-affirmed IVL's credit rating of AA- Stable Outlook in 2019 following the acquisition of Huntsman's Integrated Oxides and Derivatives business (spindletop). TRIS recognized the strengthening of our business profile while acknowledging the increase in IVL's leverage post completion of the acquisition.

Economic headwinds arising from the evolving geopolitical and trade landscape favor strengthening corporate balance sheet. Our net debt-equity ratio at end of 2019 is around one time. On completion of the acquisition of the Spindletop business, the net debt-equity ratio has moved up and we expect it to peak at around 1.35:1 at the end of Q1 2020. Our focus in 2020 is to maintain financial discipline and reduce our leverage to our long-term target of net debt to equity of 1:1 or less.

In September 2019, we were ranked 35th (43rd in 2018) in the Top 100 Chemical companies globally. The Board of Directors and the senior management are aligned on the company's vision to be one of the top 15 Chemical companies globally. We continue to optimize shareholder value by striking a healthy balance between the objectives of growth, dividends and leverage.

## Financing Strategy

2019 was a year of landmark financing transactions, while 2020 will be a year where our natural hedge between capital employed and financing will be improved. Our recent focus has been on diversifying our funding base with access to different markets, so that in 2019 we made progress on increasing this diversity.

In April 2019, we became the first company in Thailand to obtain funds linked to ESG (Environment, Social and Governance) performance. We raised our first Green Loan from Japan's Mizuho Bank. The five-year long-term loans, for US\$100 million and EUR 100 million. Subsequently, both these amounts were doubled.

In September 2019, our first ever REG S Unrated Senior Unsecured Bonds of US\$300 million in the international market received an overwhelming response. These Bonds, with a tenor of five years, carry an interest coupon of 4.375% per annum.

In October 2019, we exercised our first call option after five years from issue date, to redeem our outstanding Thai Baht Perpetual

Debentures of Thai Baht 15 billion, carrying a coupon of 7%. These were replaced by similar debentures, complying with TAS 32, with a coupon of 5%, thereby reducing the cost by 200 basis points.

In November 2019, we signed a long-term loan agreement for US\$1,800 million with Bangkok Bank Public Company Limited, Kasikorn Bank Public Company Limited, Krungthai Bank Public Company Limited, Siam Commercial Bank Public Company Limited and Sumitomo Mitsui Banking Corporation primarily to finance our Spindletop (Huntsman assets) acquisition. We also refinanced our existing Asset Backed Lending "ABL" of US\$450 million with a new similar facility of US\$650 Million for a committed period of five years. The ABL financing was led by Regions Bank USA. The participating banks increased from five to nine, Regions Bank, Bank of America, Bank of Nova Scotia, HSBC, Bangkok Bank New York and the banks that joined the consortium are Wells Fargo, JP Morgan, PNC and Truist. The purpose of this financing is for working capital requirements of all US operating facilities, including Spindletop requirements.

In 2020, our focus remains on refinancing long-term maturities to increase the average maturity of long-term debt and further increase financing in matching currency of capital employed, decrease Thai Baht exposure and increase Euro and US dollar. To manage interest rate risk we will opportunistically increase the proportion of fixed rate financing from 60% at the end of 2019, which will decrease to 40% after the drawdown of long-term loans of US\$1,800 million in the USA. We will continue our relentless focus on supply chain financing solutions for short-term financing requirements that have the advantage of lower rates as compared to traditional working capital financing and also the ability to transfer risk to counter parties.

## Effective Tax Rates

Our Core Effective tax rate for 2019 was 13% (similar to last year). With further diversification of earnings in future, we expect the effective tax rates to be in range of 16.0%-19.0%. Fiscal year 2019 was a challenging year for tax globally, with a number of new tax action plans initiated by the OECD to prevent tax evasion. We are committed to aligning with these plans. From a Transfer Pricing perspective, we ensure that transactions made between our related party companies adhere to the "arm's length principle," which results in our fair share of taxes being paid. We expect to keep the tax rates optimized through regular review of relevant tax laws and work transparently with the various tax authorities, ultimately for the benefit of our shareholders.

## Risk Management

### Macroeconomic overview

We enter 2020 on a cautiously optimistic note. Some major downside risks to the global economy have been avoided due to

positive resolutions on the political and trade front, as well as the accommodative monetary policies of various central banks. There is a belief that global growth will gain some speed over in the coming months. However geopolitical risks are here to stay and could reduce the positive forecasts. Important trade negotiations will continue with the US-China trade talks moving towards their second phase. There remains a bearish view on oil. Overall, we expect to continue with commodity and financial markets volatility.

## Forex Risk Management

IVL's business is predominantly US dollar denominated, thereby giving us a natural hedge; however, our entry into certain emerging markets with volatile currencies requires us to continuously monitor and adjust our actions to ensure that the small, open exposure, does not result in forex losses. We have prudently managed our open forex exposures over the years but will look to benchmark to global best practices this year.

Our pain in the last couple of years has been the strengthening of the Thai Baht. In 2019 the Baht continued to strengthen viz-viz other developed market and emerging market currencies. In 2019 it was Asia's best performing currency, recording an 8% gain over the US dollar. The impact on us has been two-fold.

Even with our unexceptional earnings in 2019, we lost over 0.40 baht EPS when we compare ending 2019 exchange rate to the ending 2016 exchange rate.

The continuous strengthening of the Thai Baht has also resulted in an increased amount of translation loss in shareholders equity (no impact on the Income Statement). More than 90% of our capital employed is in overseas subsidiaries in Asia, Americas and EMEA. Long-term capital needs that are funded through Thai Baht Equity and Thai Baht Debentures resulted in open forex exposure with translation gain (loss) in the shareholders equity. Our net debt to equity ratio shows a negative impact of 8-10 bps due to translation losses. Post our last equity raise (August 2018), we have ensured that the open exposure prevailing at that time does not increase with new projects funded by matching currencies.

## Insurance

While we strongly embrace entrepreneurial risk and pursue risk-bearing strategic opportunities, we have developed a strong risk management framework to identify, manage, mitigate and transfer risk to ensure sustainable growth. We procure adequate insurance cover for all the assets covering property damage while in operation or in construction; business interruption; public, third party and product liability, marine risks, D&O covers etc. IVL insures its risk with best in class underwriters with strong A.M. Best ratings.

In 2019 we conducted risk management workshops involving our insurers/underwriters, risk engineers and our management teams, to further reinforce and constantly improve our risk quality.

We expect significant challenges to insurance premiums globally in 2020 as the chemical sector comes off one of its worst years in 2019, with a number of incidents reported by our peers that resulted in hefty insurance claims.

## Receivables Risk Coverage

We continue to maintain high quality Accounts Receivables by ensuring a strong oversight on receivables recovery and the adoption of a robust credit review mechanism before we accept any receivables exposure. We mitigate risk by procuring adequate credit insurance cover and securitization of non-recourse factoring facilities, letters of credit, bank guarantees etc. Since last year we have improved our open exposure and it now stands reduced by 5% with minimal losses reported in 2019.

## Future Readiness

While we have demonstrated our finance functions ability to integrate both bolt-on acquisitions as well as mega deals in quick time, we do believe in adopting new technologies and tools to bring further efficiency in our modus operandi. We have started our journey on creating an integrated common ERP platform that is expected to bring tremendous synergies in not only finance but across the functions of procurement, supply chain, IT and so on. We have also embarked upon certain finance transformation programs that would help achieve economies of scale in transactional but high volume operations in various support functions, optimizing working capital, enabling a faster quarterly closing of our books, standardized reports, prioritizing the development of future talent and creating a pipeline of successors. Digital Initiatives like machine learning, production optimization tools have been successfully applied to certain operational sites. These initiatives are now to be scaled up by implementing at other sites.

The above Corporate-led initiatives i.e. ERP, Digitalization, Global business solutions and finance transformation along with business initiatives on manufacturing excellence, procurement, supply chain and the reduction of SG&A costs will not only make the operations more sustainable but provide for significant savings in the coming years. We are committing internal and external subject matter experts to implement these initiatives successfully.

My sincere gratitude to the Audit Committee and Board members for their continuous guidance both to me and the Corporate Center function. I would also like to thank my colleagues across the globe who work tirelessly to make this organization strong and sustainable.

Thank you



Sanjay Ahuja  
Chief Financial Officer



# MESSAGE FROM CHIEF STRATEGY OFFICER



## Dear Shareholders,

IVL is embarking on the next phase of our journey that promises to be a new era of growth and value creation. The key elements of strategy reside in three areas. Firstly, increasingly important aspects of the global, circular economy; IVL's portfolio transformation and expansion and lastly, our Business Transformation for Future Readiness by transforming ourselves into a global, diversified, chemical company.

## Circular Economy

IVL is extremely sensitive about global climate change, its impact on the sustainability of the ecosystem and its impact on people. We have initiated various business transformation strategies to improve our efficiency and reduce waste from our operations. We are actively gearing up for the creation of a circular economy. As a global leader in PET, IVL is committed to growing its recycling footprint with capital investment of US\$1 Billion over the next four years. Together with this new investment, IVL will work closely with society and partners to enhance the technology and capability of PET recycling in order to reduce PET waste.

Key sustainability metrics clearly demonstrate the significant advantages PET has when compared to other, less frequently used materials, like glass and aluminum in food and beverage packaging.

## Portfolio Transformation

IVL has completed our strategy on the consolidation of integrated PET and high-value fibers. We have now embarked on the development of a third leg of high-growth – Integrated Oxides and Derivatives. This is a part of the acquisition from Huntsman Chemicals of strategic assets that will enrich our overall portfolio performance, and expand market reach into several new consumer segments and geographies.

## Business Transformation for Future Readiness

### Digitalization

We are pursuing the implementation of digital and IT technologies to improve our business operations. Information technologies play a major role in maintaining our competitiveness. With these in place, we believe that we could be a better company to cope with market dynamic environment, better control on risks, and better synergy with our colleagues and portfolio all over the globe.

### One Enterprise Resource Planning Platform

IVL has multiple ERP platforms and several legacy ERP systems from our acquisitions over the past decade. We have embarked on a journey to consolidate everywhere onto one ERP platform, SAP S/4 HANA, which is one of the world's most advanced platforms and widely used in the Petrochemical industry. This will enable us to simplify and standardize information across all our businesses and enhance our productivity, agility and data analytics.

## Manufacturing Excellence

As we have acquired our assets from multiple sources over the past decade, we are also working on sharing best practices, reducing waste or excess via the Lean Six Sigma (LSS) methodology. We are proceeding on a reliability assessment of all of our Integrated PET and Integrated Oxides and Derivatives assets and conducting an energy audit/conservation for all our fiber assets. This is part of our effort to enhance our asset reliability, extend uptime and also reduce the use of energy while enhancing our operational efficiency.

To ensure safe and seamless end-to-end flawless execution of our products and services, we are also strengthening our health and safety organization and creating a robust business continuity plan.

I want to take this opportunity to thank you and count on your continued support in shaping our organization on its journey towards becoming a world-class chemical company making great products for society. We are creating and shaping the future of the chemical industry.

Sincerely,



Dr. Deepak Parikh  
Group Chief Sustainability Officer  
Indorama Ventures Public Company Limited

# MESSAGE FROM CHIEF HUMAN RESOURCES OFFICER



## Dear Shareholders,

The IVL group has identified five strategic priorities to steer the business through the current cycle and beyond. One of these five, seen as a fundamental enabler, is spelled out as follows: **“Leadership Development – invest in and develop the best management team in the industry.”**

The quality of leaders for an organization like the IVL Group, with its global reach and ambitions to superior and sustainable performance, is paramount. This is why leadership development has been the highest priority in 2019 and will be in the years to come.

In 2019 we have launched several activities linked to this priority, starting from the alignment of the **Performance Management Process** applicable to the top 50+ roles in the group. The Group CEO objectives have been aligned to the company’s vision and its strategic business priorities. Those objectives have been cascaded down to the roles reporting to the GCEO and thereafter to the level below, following a coordinated process. This has resulted in a structured and well-aligned coverage of all the important business levers, with both short-term and long-term impacts.

Linked to this, we have introduced a new and aligned **Incentive Compensation Program**, applicable to those roles, and effective from 2020 performance year.

Sustainable long term results depend also from ensuring that new generation of leaders will be ready to succeed current leaders, and with this purpose in mind we introduced in 2019 the Group **Succession Planning Process**, targeting at first the top 50+ positions in the group, resulting in a defined pool of successors and dedicated development plans already in action.

Following this successful introduction, in 2020 the ambition is to deploy the Succession Planning Process to the level below (approx. 250 roles).

2019 has also been the year of the introduction of the **IVL Group Leadership Curriculum**, started with the definition of the set of skills and qualities needed by our leaders to bring the IVL Group into the future, by achieving its ambitious long term targets. Those skills have been detailed and the corresponding expected behaviors have been anchored within the organization. Those leadership skills have also been grouped into three categories which are becoming the IVL leadership branding:

1. Drive Results
2. Energize Others
3. Champion Change

Around those skills we have established development tools and initiative, a group Leadership Training portfolio, a Coaching program, and a Mentoring program.

In 2020, all these initiatives of the Leadership Curriculum will be

implemented, following a plan that will touch, over time, all IVL leaders, in all geographies and organization levels.

The HR journey will continue following a road map detailing the priorities for the three years to come, and touching all the people management fundamentals: Leadership and People Development, Talent Management, Talent Acquisition, Total Reward, Performance Management, Employee Engagement, HR tools and digitalization as well as HR Function Capabilities.

To deliver all the above, the IVL Group is in need of a re-foundation of the HR Function, with the aim of ushering in a higher level of ambition in people management practices. The HR function has already been reinforced with several new senior HR professionals with best-in-class experience, in both a central HR Center of Expertize, as well as HR Business Partners roles dedicated to the different business segments.

Thank you.

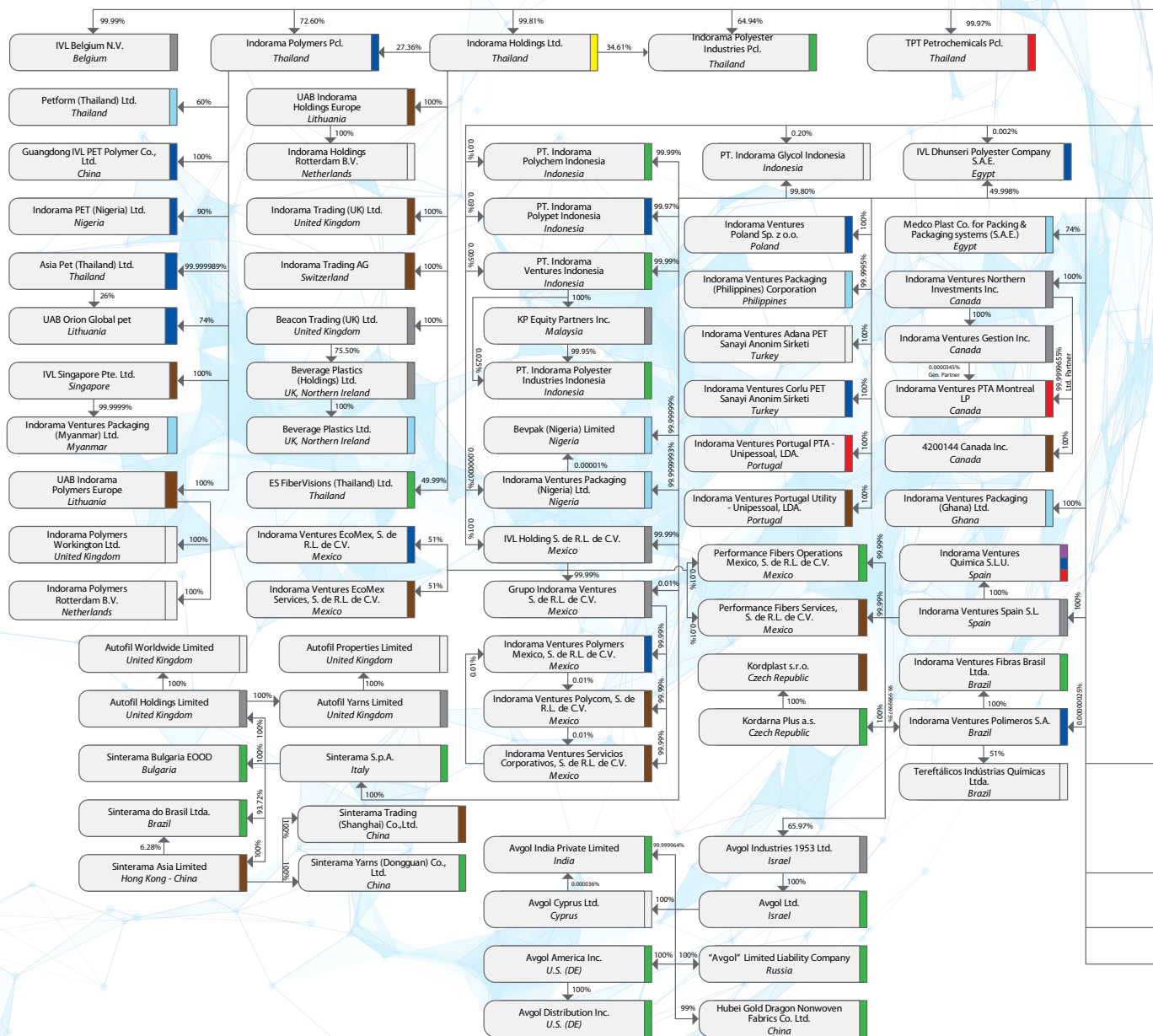


Roberto Bettini  
Chief HR Officer



# IVL GROUP CORPORATE STRUCTURE

As of 31<sup>st</sup> December 2019





# GENERAL INFORMATION AND OTHER INFORMATION

## General Information

<b>Name</b>	: Indorama Ventures Public Company Limited
<b>Symbol</b>	: IVL
<b>Head Office</b>	: 75/102 Ocean Tower 2, 37 <sup>th</sup> 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
<b>Type of Business</b>	: Holding Company
<b>Company Registration No.</b>	: 0107552000201
<b>Registered Capital</b>	: Baht 5,666,010,449 divided into 5,666,010,449 common shares of par value at Baht 1
<b>Paid-Up Capital</b>	: Baht 5,614,551,908 divided into 5,614,551,908 common shares of par value at Baht 1

## References

<b>Share Registrar</b>	: Thailand Securities Depository Company Limited 93 Ratchadapisek Road, Dindaeng, Dindaeng, Bangkok 10400, Thailand Tel: 0-2-009-9999 Fax: 0-2-009-9991
<b>Debenture Registrar</b>	: Bangkok Bank Public Company Limited 333 Silom Road, Silom, Bangrak, Bangkok 10500, Thailand Tel: 0-2-230-1136 Fax: 0-2-626-4545-6
<b>Debenture Registrar</b> (For IVL Debenture No. 1/2015 Tranche 1 & 2)	: Siam Commercial Bank Public Company Limited 1060 SCB Chidlom Tower 2, 3 <sup>rd</sup> Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand Tel: 0-2-256-2339 Fax: 0-2-256-2406
<b>Debenture Registrar</b> (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
<b>Debenture Holders' Representative</b>	: 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
<b>Debenture Holders' Representative</b> (For Subordinated Perpetual Debentures of Indorama Ventures Public Company Limited No.1/2019)	: Bangkok Bank Public Company Limited 333 Silom Road, Silom, Bangrak, Bangkok 10500, Thailand Tel: 0-2-230-1136 Fax: 0-2-626-4545-6
<b>Auditor</b>	: KPMG Phoomchai Audit Limited 195 Empire Tower, 50 <sup>th</sup> – 51 <sup>st</sup> Floor, South Sathorn Road, Yannawa, Sathorn, Bangkok 10120, Thailand Tel: 0-2-677-2000 Fax: 0-2-677-2222
<b>Legal Advisor</b>	: The Capital Law Office Limited 44 Smooth Life Tower, 18 <sup>th</sup> Floor, North Sathorn Road, Silom, Bangrak, Bangkok, 10500, Thailand Tel: 0-2-633-9088 Fax: 0-2-633-9089

# 109

operating sites

# 32

countries

# 5

continents



## NORTH AMERICA

### Canada

Entreprise Indorama PTA Montreal

### Mexico

Indorama Ventures EcoMex

Indorama Ventures Polymers Mexico

Performance Fibers Mexico Operations

UTT de México Technical Textiles

### USA

AlphaPet

Auriga Polymers

Avgol America

Corpus Christi Polymers\*

FiberVisions Manufacturing

FiberVisions Products

Indorama Ventures Sustainable Solutions

Indorama Ventures (Oxide & Glycols)

Indorama Ventures Olefins

Indorama Ventures Xylenes & PTA

PHP Fibers

StarPet

Winnsboro Fibres

Green Fiber International

## SOUTH AMERICA

### Brazil

Indorama Ventures Polimeros

Indorama Ventures Fibras Brasil

Sinterama do Brasil

## AFRICA

### Egypt

Egyptian Indian Polyester Company

Medco Plast for Packing and Packaging Systems

### Ghana

Indorama Ventures Packaging (Ghana)

### Nigeria

Indorama Ventures Packaging (Nigeria)

Indorama Ventures PET (Nigeria)

BevPak (Nigeria) Ltd.

## ASIA

### China

ES FiberVisions (Suzhou)

FiberVisions (China) Textile Products

Glanzstoff Industires (Qingdao)

Guangdong IVL PET Polymer

Hubei Gold Dragon Nonwoven Fabric

Performance Fibers (Kaiping)

ShenMa-PHP (Pingdingshan)

Air Bag Yarn Manufacturing

Sinterama Asia Limited

### India

Avgol India

IVL Dhunseri Petrochem Industries

Indo Rama Synthetics (India)

### Indonesia

Indorama Petrochemicals

Indorama Polychem Indonesia

Indorama Polypet Indonesia

Indorama Polyester Industries Indonesia

Indorama Ventures Indonesia

### Israel

Avgol Industries 1953

Avgol Israel

### Philippines

Indorama Ventures

Packaging (Philippines)

### Myanmar

Indorama Ventures Packaging (Myanmar)

### Thailand

ES FiberVisions (Thailand)

Petform (Thailand)

Indorama Holdings (Thailand)

Indorama Petrochem

Indorama Polyester Industries (Nakhon Pathom)

Indorama Polyester Industries (Rayong)

Indorama Polymers and AsiaPet (Thailand)

TPT Petrochemicals

## EUROPE

### Austria

Schoeller

### Bulgaria

Sinterama Bulgaria

Autofil Bulgaria

### Czech Republic

Glanzstoff Bohemia

Kordarna Plus

Schoeller Kresice

### Denmark

FiberVisions

### France

Glanzstoff Longlaville

Wellman France Recyclage

Wellman Neufchateau

### Germany

Indorama Ventures Polymers Germany

PHP Fibers

Trevira

UTT Technische Textilien

### Ireland

Wellman International

### Italy

Glanzstoff Industries - Sicrem

Sinterama

### 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

Indorama Ventures Europe

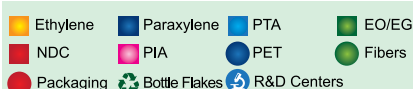
Wellman Recycling Spijk

### Turkey

Indorama Ventures Corlu PET

### United Kingdom

Beverage Plastics



\* Undercontruction

As of Dec 12, 2019



# INVESTMENTS OF THE COMPANY

As of 31 December 2019

EG&EO Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	<b>Indorama Ventures (Oxide &amp; Glycols) LLC</b> 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	<b>Indorama Ventures Olefins LLC</b> 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	<b>TPT Petrochemicals Public Company Limited</b> 75/116-117, Ocean Tower 2, 41 <sup>st</sup> 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	<b>PT. Indorama Petrochemicals</b> Graha Irama, 16 <sup>th</sup> 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	99.99%
3	<b>Indorama Ventures PTA Montreal LP.</b> 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	<b>Indorama Ventures Portugal PTA - Unipessoal, LDA.</b> 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	<b>Indorama Ventures Europe B.V.</b> Markweg 201, 3198NB Europoort Rotterdam, The Netherlands Tel: +31 181 285 400 Fax: +31 181 285 405	Netherlands	Common Share	100	99.99%
2	<b>Indorama Petrochem Limited</b> 75/93, Ocean Tower 2, 35 <sup>th</sup> 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	<b>Corpus Christi Polymers LLC</b> 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	<b>Indorama Ventures Quimica S.L.U.</b> 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	<b>Indorama Ventures Xylenes &amp; PTA LLC</b> 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	<b>Indorama Polymers Public Company Limited</b> 75/102, 103 Ocean Tower 2, 37 <sup>th</sup> 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	<b>Asia Pet (Thailand) Limited</b> 75/102 Ocean Tower 2, 37 <sup>th</sup> 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	<b>Guangdong IVL PET Polymer Co., Ltd.</b> 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%

PET Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
4	<b>UAB Orion Global pet</b> Metalo G.16, Klaipeda, Republic of Lithuania, LT-94102 Tel: +370 46 300749 Fax: +370 46 314323	Lithuania	Common Share	776,880	99.91%
5	<b>Indorama PET (Nigeria) Limited</b> 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	<b>PT. Indorama Polypet Indonesia</b> 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	<b>Indorama Ventures Corlu PET Sanayi Anonim Sirketi</b> 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	<b>Indorama Ventures Poland Sp. z o.o.</b> ul. Krzywa Gora 19, 87-805 Wloclawek, Poland Tel: +4854 416 6442 Fax: +4854 416 6449	Poland	Common Share	993,988	99.99%
9	<b>Indorama Ventures Ecomex, S. de R.L. de C.V.</b> 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	<b>Indorama Ventures Polymers Mexico, S. de R.L. de C.V.</b> 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	<b>Alphapet, Inc.</b> Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808 USA Tel: +1 256 308 1180 Fax: +1 256 341 5926	USA	Common Share	4,400	99.99%
12	<b>Auriga Polymers Inc.</b> 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%

PET Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
13	<b>Starpet Inc.</b> 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	<b>IVL Dhunseri Petrochem Industries Private Limited</b> 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%
15	<b>Indorama Ventures Polimeros S.A.</b> 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	1,578,454,842	99.99%
16	<b>IVL Dhunseri Polyester Company S.A.E.</b> 10 Nehru St., 5 <sup>th</sup> 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	<b>Wellman Neufchateau Recyclage S.A.</b> Chemin de Gretty 88300 Rebeuville, France Tel: N/A Fax: N/A	France	Common Share	320,866	99.99%
18	<b>Indorama Loop Technologies, LLC</b> Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808 USA. Tel: N/A Fax: N/A	USA	(Membership Interest)	-	50.00%
19	<b>Indorama Ventures Sustainable Solutions Fontana, Inc.</b> Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808 USA. Tel: N/A Fax: N/A	USA	Common Share	1,000	99.99%
20	<b>Indorama Ventures Sustainable Solutions LLC</b> 251 Little Falls Drive, Wilmington, Delaware 19808 USA Tel: 256-308-1180 Fax: 256-341-5926	USA	(Membership Interest)	-	99.99%
21	<b>Indorama Ventures Polymers Germany GmbH</b> Philipp-Reis-Straße 2, 65795 Hattersheim am Main, Federal Republic of Germany Tel: +49 69 305 6025 Fax: N/A	Germany	(Capital Contribution)	-	99.99%



Packaging Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	<b>Petform (Thailand) Limited</b> 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	<b>Beverage Plastics Limited</b> 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	<b>Indorama Ventures Packaging (Nigeria) Limited</b> 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	<b>Indorama Ventures Packaging (Ghana) Limited</b> 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	<b>Indorama Ventures Packaging (Philippines) Corporation</b> 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%
6	<b>Indorama Ventures Packaging (Myanmar) Limited</b> 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	<b>Medco Plast Co. for Packing &amp; Packaging systems (S.A.E.)</b> 6 October City Blots No. 189-190-191 at the Second Industrial Zone, Egypt Tel: +202 37481730 Fax: +202 37499685	Egypt	Common Share	4,950,000	73.99%
8	<b>Bevpak (Nigeria) Limited</b> Km 3, Ibadan-Lagos Expressway Sanyo Ibadan Oyo State Nigeria Tel: +234 - 8151100040 Fax: N/A	Nigeria	Common Share	10,000,000	99.99%

Fibers Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	<b>Indorama Polyester Industries Public Company Limited</b> 75/92, Ocean Tower 2, 35 <sup>th</sup> 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	<b>ES Fibervisions (Thailand) Company Limited</b> 75/64, 65 Ocean Tower 2, 28 <sup>th</sup> 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	<b>PT. Indorama Polychem Indonesia</b> 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	<b>PT. Indorama Ventures Indonesia</b> 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	<b>PT. Indorama Polyester Industries Indonesia</b> 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	<b>Trevira GmbH</b> 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%
7	<b>PHP Fibers GmbH</b> Industrie Center Obernburg, 63784 Obernburg, Federal Republic of Germany Tel: +49 6022 81 2552 Fax: +49 6022 81 31 2552	Germany	Common Share	25,001	79.99%
8	<b>Shenma-PHP (Pingdingshan) Air Bag Yarn Manufacturing Co., Ltd.</b> 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%

Fibers Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
9	<b>PHP Fibers Inc.</b> 300 Serrano Way, Scottsboro, AL 35769, USA Tel: +1-256-218-4000 Fax: +1-256-218-4062	USA	Common Share	1,000	79.99%
10	<b>SafeTweave, Inc.</b> 302 Serrano Way, Scottsboro, AL 35769, USA Tel: +1-256-218-4000 Fax: +1-256-218-4062	USA	Common Share	1,000	79.99%
11	<b>FiberVisions A/S</b> 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	<b>FiberVisions (China) Textile Products Limited</b> 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	<b>ES FiberVisions (Suzhou) Co., Ltd.</b> 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	<b>FiberVisions Manufacturing Company</b> Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808 USA Tel: +1 302 658-7581 Fax: +1 302 655-2480	USA	Common Share	100	99.99%
15	<b>FiberVisions Products, Inc.</b> Corporation Service Company, 40 Technology Pkwy South, #300, Norcross, GA 30092 USA Tel: +1 800 241 8922 Fax: +1 404 888 7795	USA	Common Share	25,000	99.99%
16	<b>Wellman France Recyclage S.A.S.</b> 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	<b>Wellman International Limited</b> Mullagh, Kells, Co.Meath, A82 NN93, Ireland Tel: +353 46 9280200 Fax: +353 46 9280300	Ireland	Common Share	1,100,850	99.99%
18	<b>Performance Fibers (Kaiping) Company Limited</b> 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%

Fibers Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
19	<b>Performance Fibers (Kaiping) No.2 Company Limited</b> 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	<b>Performance Fibers (Kaiping) No.3 Company Limited</b> 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	<b>Glanzstoff Industries (Qingdao) Co., Ltd.</b> • 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	<b>Glanzstoff Longlaville S.A.S.</b> 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	<b>Società Industriale Cremonese SICREM s.p.a.</b> Pizzighettone, Via G.B. Pirelli, 56, Italy Tel: +39 0372 738011 Fax: +39 0372 730001	Italy	Common Share	9,180,000	99.99%
24	<b>Textilcord Steinfurt S.A.</b> 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	<b>Glanzstoff - Bohemia s.r.o.</b> Terežinská 60, 41002 Lovosice, Czech Republic Tel: +420 416 575 111 Fax: +420 416 575 107	Czech Republic	Common Share	750	99.99%
26	<b>Winnsboro Fibres LLC</b> 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	<b>Performance Fibers Operations Mexico, S. de R.L. de C.V.</b> 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	<b>Huvis Indorama Advanced Materials, LLC</b> Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: N/A Fax: N/A	USA	(Membership Interest)	-	50.00%
29	<b>Hubei Gold Dragon Nonwoven Fabrics Co., Ltd.</b> 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)	-	65.30%
30	<b>Avgol India Private Limited</b> 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	65.96%
31	<b>“Avgol” Limited Liability Company</b> Building 1 Druzhby Street, town of Uzlovaya, Tula Region, 301605, Russian Federation Tel: 74 872 710 653 Fax: N/A	Russia	(Membership Interest)	-	65.96%
32	<b>Avgol America Inc.</b> 178 Avgol Drive Mocksville, NC, 27028-2558, USA Tel: +1 336 936 2503 Fax: N/A	USA	Common Share	150,000	65.96%
33	<b>Avgol Distribution Company Inc.</b> 178 Avgol Drive Mocksville, NC, 27028-2558, USA Tel: +1 336 936 2503 Fax: N/A	USA	Common Share	3,000	65.96%
34	<b>Avgol Ltd.</b> 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	65.96%
35	<b>KORDANA Plus a.s.</b> No. 890, 696 74 Velká nad Velickou, Czech Republic Tel: N/A Fax: N/A	Czech Republic	Common Share	248,409,200	99.99%

Fibers Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
36	<b>Glanzstoff Industries Mexico, S. de R.L. de C.V.</b> 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%
37	<b>UTT Technische Textilien GmbH &amp; Co. KG</b> Robert-Steiger-Straße 111, 86381 Krumbach, Federal Republic of Germany Tel: +49 (0) 82 82 – 8 97-0 Fax: +49 (0) 82 82 – 8 97-100	Germany	(Partnership Interest)	-	79.99%
38	<b>UTT de México Technical Textiles, S.A. de C.V.</b> Circuito Esteban de Antuñano N° 12 MANZANA 3 Parque Industrial Ciudad Textil Huejotzingo, Puebla C.P. 74160, Mexico Tel: +52 (0) 222 454 3660 Fax: N/A	Mexico	Equity Quota Series A	100	79.99%
39	<b>Indorama Ventures Fibras Brasil Ltda.</b> Rodovia BR 101 Sul, no. 2426, Distrito Industrial, Cabo de Santo Agostinho-PE, 54500-000 Brazil Tel: +55 11 2111-1388 Fax: +55 11 2111-1470	Brazil	Common Share	218,393,287	99.99%
40	<b>Indo Rama Synthetics (India) Limited</b> A-31, MIDC Industrial Area, Butibori, Nagpur - 441122, Maharashtra, India Tel: 07104 - 663000 / 01 Fax: 07104 - 663200	India	Common Share	100,696,588	38.56%
41	<b>Sinterama Yarns (Dongguan) Co.,Ltd.</b> East Jinsha Avenue, Shajiao Village, Shipai County, Dongguan City 523348, Guangdong Province, People's Republic of China Tel: +86 769 8136 0800 Fax: +86 769 8136 0900	China	(Capital Contribution)	-	99.99%
42	<b>Sinterama Bulgaria EOOD</b> Nova Zagora 8900, Industrial zone, Bulgaria Tel: +35944612800 Fax: +35945762850	Bulgaria	Common Share	750,000	99.99%
43	<b>Sinterama S.p.A.</b> Sandigliano, Via Gramsci 5, 13876, Italy Tel: +39 015 24951 Fax: +39 015 2495301	Italy	Common Share	86,937,487	99.99%
44	<b>Sinterama do Brasil Ltda.</b> Av. Alberto Vieira Romao, 1650 CEP 37135-516 - Distrito Industrial, Alfenas, Minas Gerais, Brazil Tel: +55 353 299 1950 Fax: N/A	Brazil	Common Share	1,630,277,567	99.99%
45	<b>Indorama Yarns Private Limited</b> A-31, MIDC Industrial Area, Butibori, Nagpur - 441122, Maharashtra, India Tel: 07104 - 663000 / 01 Fax: 07104 - 663200	India	Common Share	1,000,000	38.56%

Wool Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	<b>Indorama Holdings Limited</b> 75/64, 65 Ocean Tower 2, 28 <sup>th</sup> 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	<b>Schoeller GmbH &amp; Co KG</b> Politischer Gemeinde Hard, Austria Tel: 0043 5574 609 0 Fax: N/A	Austria	(Capital Contribution)	-	99.99%
3	<b>Schoeller Kresice s.r.o.</b> 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	<b>Indorama Netherlands Cooperatief U.A.</b> Markweg 201, 3198NB Europoort, Rotterdam, The Netherlands Tel: +31 181 285 400 Fax: +31 181 285 405	Netherlands	(Ownership Interest)	-	99.99%
2	<b>Indorama Netherlands B.V.</b> Markweg 201, 3198NB Europoort, Rotterdam, The Netherlands Tel: +31 181 285 400 Fax: +31 181 285 405	Netherlands	Common Share	18,000	99.99%
3	<b>Beacon Trading (UK) Limited</b> 23 Northiam, Woodside Park, N12 7ET, London, United Kingdom Tel: N/A Fax: N/A	United Kingdom	Common Share	320,000	99.81%
4	<b>Beverage Plastics (Holdings) Limited</b> 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	<b>KP Equity Partners Inc.</b> 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	<b>Indorama Germany GmbH</b> Max-Fischer-Strasse 11, 86399 Bobingen, Federal Republic of Germany Tel: N/A Fax: N/A	Germany	Common Share	25,000	99.99%

Holding Company Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
7	<b>Indorama Ventures Recycling Netherlands B.V.</b> Markweg 201, 3198 NB Europoort, Rotterdam, The Netherlands Tel: +31 181 285 400 Fax: N/A	Netherlands	Common Share	18,000	99.99%
8	<b>Indorama Ventures Holdings LP</b> 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	<b>Indorama Ventures USA Holdings LP</b> 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	<b>Indorama Ventures Performance Fibers Holdings USA LLC</b> 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	<b>FiberVisions Corporation</b> Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808 USA Tel: +1 678 578 7240 Fax: +1 678 578 7276	USA	Common Share	1,000	99.99%
12	<b>FiberVisions (China) A/S</b> Engdraget 22, Varde Denmark, DK-6800, Denmark Tel: +45 7994 2200 Fax: +45 7994 2201	Denmark	Common Share	100,000	99.99%
13	<b>ES FiberVisions Holdings ApS</b> Engdraget 22, Varde Denmark, DK- 6800, Denmark Tel: +45 7994 2200 Fax: +45 7994 2201	Denmark	Common Share	48,500	50.00%
14	<b>Indorama Ventures OGL Holdings LP</b> 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	<b>FiberVisions, L.P.</b> Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808 USA Tel: +1 302 658-7581 Fax: +1 302 655-2480	USA	(Partnership Interest)	-	99.99%



Holding Company Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
16	<b>ES FiberVisions, Inc.</b> Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808 USA Tel: +1 302 636 5401 Fax: +1 302 636 5454	USA	Common Share	100	50.00%
17	<b>IVL Holding, S. de R.L. de C.V.</b> 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%
18	<b>Grupo Indorama Ventures, S.de R.L. de C.V.</b> 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	<b>Indorama Ventures Polyholding LLC</b> 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	<b>Indorama Polymers (USA) LLC</b> 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%
21	<b>Indorama Ventures USA LLC</b> 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	<b>IVL Belgium N.V.</b> Jules Bordetlaan 160, 1140 Evere, Belgium Tel: N/A Fax: N/A	Belgium	Common Share	30,615	99.99%
23	<b>Performance Fibers Holdings Finance, Inc.</b> Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808 USA Tel: +1 678 578 7240 Fax: +1 678 578 7276	USA	Common Share	1,000	99.99%
24	<b>Performance Fibers Asia Holdings, LLC</b> Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808 USA Tel: +1 678 578 7240 Fax: +1 678 578 7276	USA	(Membership Interest)	-	99.99%

Holding Company Business				
No.	Company Name/Address	Country	Type of Shares	Shares Issued Shareholding
25	<b>Performance Fibers Asia, LLC</b> Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808 USA Tel: +1 678 578 7240 Fax: +1 678 578 7276	USA	(Membership Interest)	- 99.99%
26	<b>Indorama Ventures Northern Investments Inc.</b> 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	10,401 149,889,750 256,766,500 99.99%
27	<b>Indorama Ventures Gestion Inc.</b> 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%
28	<b>Indorama Ventures Dutch Investments B.V.</b> Markweg 201, 3198NB Europoort, Rotterdam, The Netherlands Tel: +31 181 285 400 Fax: +31 181 285 405	Netherlands	Common Share	8,914,320 51.00%
29	<b>Indorama Ventures Investments USA LLC</b> 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	<b>Indorama Ventures Olefins Holding LLC</b> 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	<b>Glanzstoff Holding (Hong Kong) Limited</b> Unit 1301, 13/F. Chung Nam Building, 1 Lockhart Road, Wanchai, Hong Kong Tel: + 852 2153 9718 Fax: + 852 2117 1879	Hong Kong- China	Common Share	100 99.99%
32	<b>Glanzstoff Industries S.r.l.</b> Pizzighettone, Via G.B. Pirelli, 56, Italy Tel: +39 0372 738011 Fax: +39 0372 730001	Italy	Quota	10,000 99.99%
33	<b>Indorama Ventures Spain S.L.</b> Poligono Industrial Guadarranque, S/N, 11360 San Roque, Cadiz, Spain Tel: N/A Fax: N/A	Spain	Common Share	10,000 99.99%
34	<b>Indorama Ventures Corpus Christi Holding LLC</b> Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: N/A Fax: N/A	USA	(Membership Interest)	- 99.99%

Holding Company Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
35	<b>Avgol Industries 1953 Ltd.</b> 20 Lincoln st., Rubinstien House, Tel Aviv, 67134-12, Israel Tel: 972-3-9061555 Fax: 972-3-9364376	Israel	Common Share	304,221,602	65.96%
36	<b>Indorama Austria GmbH</b> Politischer Gemeinde Wien, Austria Tel: N/A Fax: N/A	Austria	(Capital Contribution)	-	99.99%
37	<b>AE BG AlphaOmega Holding GmbH</b> Politischer Gemeinde Wien, Austria Tel: N/A Fax: N/A	Austria	(Capital Contribution)	-	99.99%
38	<b>UTT Beteiligungsgesellschaft mbH</b> Robert-Steiger-Straße 111, 86381 Krumbach, Federal Republic of Germany Tel: +49 (0) 82 82 – 8 97-0 Fax: +49 (0) 82 82 – 8 97-100	Germany	Common Share	100,000	79.99%
39	<b>UTT Technische Textilien Geschäftsführung GmbH</b> Robert-Steiger-Straße 111, 86381 Krumbach, Federal Republic of Germany Tel: +49 (0) 82 82 – 8 97-0 Fax: +49 (0) 82 82 – 8 97-100	Germany	Common Share	50,000	79.99%
40	<b>Indorama Ventures Holdings PTY Ltd</b> 61 Market Road, Brooklyn, Victoria, 3012 Australia Tel: N/A Fax: N/A	Australia	Common Share	10	99.99%
41	<b>Autofil Holdings Limited</b> Unit 3, Orchard Court, Nunn Brook Road, Sutton-in-Ashfield, Nottinghamshire, United Kingdom, NG17 2HU Tel: +44 (0) 1623 426 100 Fax: +44 (0) 1623 426 101	United Kingdom	Common Share	594,090	99.99%
42	<b>Autofil Yarns Limited</b> Unit 3, Orchard Court, Nunn Brook Road, Sutton-in-Ashfield, Nottinghamshire, United Kingdom, NG17 2HU Tel: +44 (0) 1623 426 100 Fax: +44 (0) 1623 426 101	United Kingdom	Common Share	1	99.99%
43	<b>Indorama Ventures Oxides LLC</b> 251 Little Falls Drive, Wilmington, New Castle Country, Delaware 19808, USA Tel: N/A Fax: N/A	USA	(Membership Interest)	-	99.99%

International Headquarter Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	<b>Indorama Ventures Global Services Limited</b> 75/80-81 Ocean Tower 2, 32 <sup>nd</sup> 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	<b>IVL Singapore Pte. Ltd.</b> 9 Raffles Place, #27-00 Republic Plaza, Singapore 048619 Tel: N/A Fax: N/A	Singapore	Common Share	19,000,000	99.91%
2	<b>UAB Indorama Polymers Europe</b> 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	<b>UAB Indorama Holdings Europe</b> 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	<b>Indorama Trading (UK) Limited</b> 23 Northiam, Woodside Park, N12 7ET, London, United Kingdom Tel: N/A Fax: N/A	United Kingdom	Common Share	10,000	99.81%
5	<b>Indorama Trading AG</b> 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	<b>PHP-Shenma Air Bag Yarn Marketing (Shanghai) Co., Ltd.</b> 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	<b>ES FiberVisions Shanghai Co., Ltd.</b> 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	<b>Performance Fibers (Kaiping) Trading Company Limited</b> 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	<b>TTI GmbH</b> Kasinostr. 19 – 21, 42103 Wuppertal, Federal Republic of Germany Tel: +49 6022 81 2552 Fax: +49 6022 81 31 2552	Germany	Common Share	25,100	40.00%
10	<b>Trevira North America, LLC</b> 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	<b>ES FiberVisions Co., Ltd.</b> 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	<b>ES Fiber Visions Limited Partnership</b> Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808 USA Tel: +706 357 5100 Fax: +706 966 4247	USA	(Partnership Interest)	-	50.00%
13	<b>Indorama Ventures Alphapet Holdings, Inc.</b> 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	<b>ES FiberVisions ApS</b> Engdraget 22, Varde Denmark, DK- 6800 Tel: +45 7994 2200 Fax: +45 7994 2201	Denmark	Common Share	10,000	50.00%
15	<b>Indorama Ventures Ecomex Services, S. de R.L. de C.V.</b> 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	<b>Indorama Ventures Polycom, S. de R.L. de C.V.</b> 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	<b>Indorama Ventures Servicios Corporativos, S. de R.L. de C.V.</b> 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	<b>Performance Fibers (Hongkong) Limited</b> Room 3B, 22 <sup>nd</sup> Floor, 148 Electric Road, North Point, Hong Kong Tel: + 852 2566-1918 Fax: + 852 2110 0033	Hong Kong-China	Common Share	1,000	99.99%
19	<b>ES FiberVisions Hong Kong Limited</b> Unit No. 2810, 28/F, The Metropolis Tower, 10 Metropolis Drive, Hung Hom, Kowloon, Hong Kong Tel: +852 2970 5555 Fax: +852 2970 5678	Hong Kong-China	Common Share	616,010	50.00%
20	<b>4200144 Canada Inc.</b> 3400 First Canadian Centre, 350 - 7 <sup>th</sup> 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	<b>Indorama Ventures Exporter Inc.</b> Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, USA Tel: +1-864-579-5750 Fax: +1-964-579-5166	USA	Common Share	2,500	99.99%
22	<b>Glanzstoff Services S.A.S.</b> 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	<b>Glanzstoff Industries A.G.</b> 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	<b>Glanzstoff Management GmbH</b> Technologiezentrum, Haus C, Technopark 1, 3430 Tulln, Austria Tel: N/A Fax: N/A	Austria	Common Share	500	99.99%

Trading & Services Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
25	<b>Indorama Ventures Portugal Utility - Unipessoal, LDA.</b> 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%
26	<b>Performance Fibers Services, S. de R.L. de C.V.</b> 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	<b>Schoeller Süssen GmbH</b> Bühlstrasse 14, 73079 Süssen, Federal Republic of Germany Tel: 0049 7162 930 5015 Fax: N/A	Germany	(Capital Contribution)	-	99.99%
28	<b>KORDPLAST s.r.o.</b> No. 897, 696 74 Velká nad Velickou, Czech Republic Tel: N/A Fax: N/A	Czech Republic	Common Share	200,000	99.99%
29	<b>Indorama Ventures Global Shared Services Private Limited</b> The Metropolitan, 6 <sup>th</sup> Floor, C-26/27, Bandra Kurla Complex, Bandra East, MUMBAI, Mumbai City, Maharashtra, 400051, India Tel: 022-26571234 Fax: N/A	India	Common Share	10,000	99.98%
30	<b>Sinterama Trading (Shanghai) Co., Ltd.</b> 1804 Zheng Da Cube Edifice, 58 Changliu Road, Rudong New Area, Shanghai 200 135, People's Republic of China Tel: +86 21 6854 4230 Fax: +86 21 6854 4230	China	(Capital Contribution)	-	99.99%
31	<b>Sinterama Asia Limited</b> Unit B 5/F, Max Share Centre, 373 King's Road, North Point, Hong Kong Tel: +86 21 6854 4232 Fax: +86 21 6854 4230	HongKong- China	Common Share	14,286	99.99%
Logistic Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	<b>Indorama Ventures Logistics LLC</b> 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%

Surfactants Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	<b>Indorama Ventures Oxides Ankleshwar Private Limited</b> The Metropolitan, 6 <sup>th</sup> Floor, C-26/27, Bandra Kurla Complex, Bandra East, MUMBAI, Mumbai City, Maharashtra, 400051, India, Tel: 022-26571234 Fax: N/A	India	Common Share	10,000	99.98%
Non-Operating Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
1	<b>Indorama Polymers Rotterdam B.V.</b> Markweg 201, 3198 NB, Europoort, Harbour No.6347, Rotterdam, The Netherlands Tel: +31 181 285 400 Fax: +31 181 285 405	Netherlands	Common Share	18,002	99.91%
2	<b>Indorama Holdings Rotterdam B.V.</b> Markweg 201, 3198 NB, Europoort, Rotterdam, The Netherlands Tel: +31 181 285 400 Fax: +31 181 285 405	Netherlands	Common Share	18,002	99.81%
3	<b>MJR Recycling B.V.</b> Tengnagelwaard 5, NL-6917 AE Spijk(Gld), The Netherlands Tel: +31 656 6250 Fax: +31 656 6251	Netherlands	Common Share	18,100	99.99%
4	<b>FiberVisions Vermögensverwaltungsgesellschaft mbH</b> Local Court of Dusseldorf, Werdener Straße 1, 40227 Düsseldorf, Federal Republic of Germany Tel: +49 211 8306-0 Fax: +49 211 87565 116-0	Germany	Common Share	3,000,000	99.99%
5	<b>Indorama Ventures Adana PET Sanayi Anonim Sirketi</b> 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%
6	<b>Indo Polymers Mauritius Limited</b> Les Cascades, Edith Cavell Street, Port Louis, Republic of Mauritius Tel: N/A Fax: N/A	Mauritius	Common Share	58,827	100.00%
7	<b>Indorama Polymers Workington Limited</b> Finsgate, 5-7 Cranwood Street, London, EC1V 9EE, England Tel: +31 181 285 440 Fax: +31 181 285 400	United Kingdom	Common Share	1	99.91%

Non-Operating Business					
No.	Company Name/Address	Country	Type of Shares	Shares Issued	Shareholding
8	<b>Tereftálicos Indústrias Químicas Ltda.</b> Fazenda São Francisco, s/nº, CEP: 13140-971 - Paulínia - São Paulo - SP/ Brazil Tel: +55 11 2111 1388 Fax: +55 11 2111 1470	Brazil	Common Share	37,573,293	51.00%
9	<b>Avgol Cyprus Ltd.</b> Arch. Makariou III, 284 FORTUNA COURT, BLOCK B, 2 <sup>nd</sup> floor P.C. 3105, Limassol, Cyprus Tel: N/A Fax: N/A	Cyprus	Common Share	1,000	65.96%
10	<b>PT. Indorama Glycol Indonesia</b> Gedung Graha Irama Building, 7th 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%
11	<b>Autofil Properties Limited</b> Unit 3, Orchard Court, Nunn Brook Road, Sutton- in-Ashfield, Nottinghamshire, United Kingdom, NG17 2HU Tel: +44 (0) 1623 426 100 Fax: +44 (0) 1623 426 101	United Kingdom	Common Share	2	99.99%
12	<b>Autofil Worldwide Limited</b> Unit 3, Orchard Court, Nunn Brook Road, Sutton- in-Ashfield, Nottinghamshire, United Kingdom, NG17 2HU Tel: +44 (0) 1623 426 100 Fax: +44 (0) 1623 426 101	United Kingdom	Common Share	250,002	99.99%

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# BOARD OF DIRECTORS





## Mr. Sri Prakash Lohia

**Chairman of the Board**

Director Type  
**Non - Executive Director**

Age **67**

### 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: 14 companies (as of 31 December 2019)

- President Commissioner of other subsidiaries of Indorama Ventures Public Company Limited. (6 companies)
- Chairman, President Commissioner and Director of Indorama Corporation Pte. Ltd. and its subsidiaries (7 companies)
- Commissioner, PT. Irama Unggul

### % of shareholding in IVL

#### As of 31 December 2019

-None-



## Mr. Aloke Lohia

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

**Director Type  
Executive Director**

**Age 61**

### **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 2019)*

- Chairman, Director, Vice President Commissioner and Commissioner of other subsidiaries of Indorama Ventures Public Company Limited (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 2019**

1,000,010 shares or 0.018%



## Mrs. Suchitra Lohia

**Executive Director  
and Chairperson of  
the Corporate Social  
Responsibility  
Committee**

**Director Type  
Executive Director**

**Age 55**

### 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: 20 companies/organizations (as of 31 December 2019)

- Director and Commissioner of other subsidiaries of Indorama Ventures Public Company Limited (9 companies)
- Director, IVL Foundation
- Director, Volta Circle Limited
- 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 2019

-None- (held by her spouse 1,000,010 shares or 0.018%)



## Mr. Amit Lohia

### Director

Director Type  
**Non-Executive  
Director**

Age **45**

#### 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: 13 companies*

*(as of 31 December 2019)*

- Commissioner of other subsidiaries of Indorama Ventures Public Company Limited (6 companies)
- Vice Chairman, Vice President Commissioner and Director of Indorama Corporation Pte. Ltd. and its subsidiaries (7 companies)

#### % of shareholding in IVL

**As of 31 December 2019**

-None-





## Mr. Yashovardhan Lohia

**Executive Director,  
Member of the  
Sustainability and  
Risk Management  
Committee and  
Chief Recycling  
Officer**

Director Type  
**Executive Director**

Age **32**

### Appointment Date of Directorship

24 April 2019

### Education

- Bachelor of Engineering Business Management, Warwick Business School, Warwickshire, UK

### Training Program

- Director Certification Program (DCP), Class 214/2015, Thai Institute of Directors Association (IOD)

### Working Experience (during the recent 5 years)

#### Other Listed Companies in SET

- 2015 - Present Thai Plaspac Public Company Limited  
Director

#### Other Companies and/or Organizations: 9 companies (as of 31 December 2019)

- Director of other subsidiaries of Indorama Ventures Public Company Limited (7 companies)
- Director, Beacon Chemicals Limited
- Director, Aurus Speciality Company Limited

### % of shareholding in IVL

#### As of 31 December 2019

-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 **62**

### 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/or Organizations: 51 companies (as of 31 December 2019)

- Chairman, Vice Chairman, Director and Manager of other subsidiaries of Indorama Ventures Public Company Limited

### % of shareholding in IVL

#### As of 31 December 2019

293,452 shares or 0.005%



## 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 66**

### **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: 20 companies (as of 31 December 2019)*

- Chairman, President Director, Director, Chief Executive Officer and Manager of other subsidiaries of Indorama Ventures Public Company Limited

### **% of shareholding in IVL**

#### **As of 31 December 2019**

89,659 shares or 0.002%



## 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 60**

### 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 Member of 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 Chief Executive Officer

#### Other Companies and/or Organizations: (as of 31 December 2019)

- 2019 – Present Chairman  
Islamic Bank of Thailand
- 2018 – Present Chairman  
Tobacco Authority of Thailand
- 2015 – Present Vice President  
Thai Listed Companies Association

### % of shareholding in IVL

#### As of 31 December 2019

715,200 shares or 0.013%



## Mr. William Ellwood Heinecke

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

Director Type  
Independent  
Director

Age 70

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

#### Other Companies and/or Organizations:

(as of 31 December 2019)

- 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 2019

4,934,932 shares or 0.088%





## Mr. Maris Samaram

**Independent Director and Member of the Audit Committee**

Director Type  
**Independent Director**

Age **77**

### 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

- None-

#### Other Companies and/or Organizations: (as of 31 December 2019)

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

### % of shareholding in IVL

#### As of 31 December 2019

- None-



## Dr. Siri Ganjarerndee

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

Director Type  
Independent  
Director

Age 71

### 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 Nomination and Remuneration Committee, Chairman of Investment Committee and Chairman of Performance Assessment and Evaluation Committee

#### Other Companies and/or Organizations:

(as of 31 December 2019)

- 2018 – Present Member of University Council and Chairman of Finance Committee  
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 the Public Sector Development Sub-Commission in Finance and Budgetary System  
The Officer of 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 Enterprises  
State Enterprise Policy Office, Ministry of Finance

### % of shareholding in IVL

As of 31 December 2019

- 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 69**

### Appointment Date of Directorship

27 April 2010

### Education

- MBA, Finance & Quantitative Method University of New Orleans, USA.
- 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
- Ethical Leadership Program (class 16) 2019, Thai Institute of Directors, Thailand

### Working Experience (during the recent 5 years)

#### Other Listed Companies in SET

- 2018 – Present **Thai Oil Public Company Limited**  
Independent Director and Chairman of the Audit Committee
- 1998 - Present **Bangkok Bank Public Company Limited**  
Senior Executive Vice President

#### Other Companies and/or Organizations:

(as of 31 December 2019)

- 2000 – Present Director  
HMC Polymers Company Limited
- 2000 – Present Director  
Indorama Polyester Industries Public Company Limited
- 1999 – Present Director  
TPT Petrochemicals Public Company Limited

### % of shareholding in IVL

**As of 31 December 2019**

300,000 shares or 0.005%



## Mr. Russell Leighton Kekuewa

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

Director Type  
**Independent  
Director**

Age **65**

### Appointment Date of Directorship

20 October 2014

### Education

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

### 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 **Bangkok Post Public Company Limited**  
Independent Director and Chairman of the Risk Management Committee
- 2015 – Present **Boutique Corporation Public Company Limited**  
Independent Director, Member of Audit and Corporate Governance Committee and Chairman of Nomination and Remuneration Committee

#### Other Companies and/or Organizations:

(as of 31 December 2019)

-None-

#### % of shareholding in IVL

As of 31 December 2019

750,000 shares or 0.013%



## Mr. Chakramon Phasukavanich

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

**Director Type  
Independent  
Director**

**Age 71**

### Appointment Date of Directorship

13 November 2015

### Education

- M.A. (Economics), California State University, Northridge, USA.
- 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

- 2015 - Present **P.C.S. Machine Group Holding PCL**  
Chairman of the Board and Independent Director

#### Other Companies and/or Organizations:

(as of 31 December 2019)

- Present President  
Investor Club Association
- 2004 – Present Member  
Office of the Council of State (5<sup>th</sup> Law Committee)

### % of shareholding in IVL

As of 31 December 2019

-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 51

### 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
- E-learning CFO Refresh, Training for Continuing Accounting Knowledge (CFO's Refresh course), Thailand Securities Institute (TSI), Stock Exchange of Thailand (SET)

### Working Experience (during the recent 5 years)

#### Other Listed Companies in SET

-None-

#### Other Companies and/or Organizations: 14 companies (as of 31 December 2019)

- Director of other subsidiaries of Indorama Ventures Public Company Limited

### % of shareholding in IVL

#### As of 31 December 2019

63,285 shares or 0.001%



## Mr. Tevin Vongvanich

Independent Director  
and Member of the  
Sustainability and  
Risk Management  
Committee

Director Type  
Independent  
Director

Age 61

### Appointment Date of Directorship

24 April 2019

### Education

- Honorary Doctorate Degree, Faculty of Engineering, Chulalongkorn University, Thailand
- Honorary Doctorate of Philosophy, Civil Engineering Department, Faculty of Industry and Technology, Rajamangala University of Technology Isan, Thailand
- M.Sc. (Petroleum Engineering), University of Houston, USA
- M.Sc. (Chemical Engineering), Rice University, USA
- B.Eng. (Chemical Engineering) (Hons.), Chulalongkorn University, Thailand

### Training Program

- Thai Institute of Directors Association (IOD)
  - Director Certification Program (DCP), Class 21/2002
  - Financial Statements for Directors (FSD), Class 6/2009
  - Role of the Compensation Committee (RCC), Class 13/2011
  - Anti-Corruption for Executive Program (ACEP), Class 15/2015
  - Ethical Leadership Program (ELP), Class 7/2017
- Program for Global Leadership (PGL), Class 3, Harvard Business School
- Democratic Politics and Governance for High-Level Administrators Program, Class 10, King Prajadhipok's Institute
- Senior Executive Program (SEP), Class 7, Sasin Graduate Institute of Business Administration, Chulalongkorn University
- Diploma, National Defence College, the Joint State-Private Sector Course, Class 22.
- Corporate Governance for Directors and Senior Executives of State Enterprises and Public Organizations, Class 7, Public Director Institute (PDI), King Prajadhipok's Institute
- Certificate in Top Executive Program in Energy Literacy for a Sustainable Future (Class 3/2013), Thailand Energy Academy (TEA)

### Working Experience (during the recent 5 years)

#### Other Listed Companies in SET

- 2019 – Present **Berli Jucker Public Company Limited**  
Vice Chairman of the Board and Chairman of the Nomination and Remuneration Committee
- 2019 – Present **Amata Corporation Public Company Limited**  
Independent Director and Member of the Corporate Governance Committee

#### Other Companies and/or Organizations:

(as of 31 December 2019)

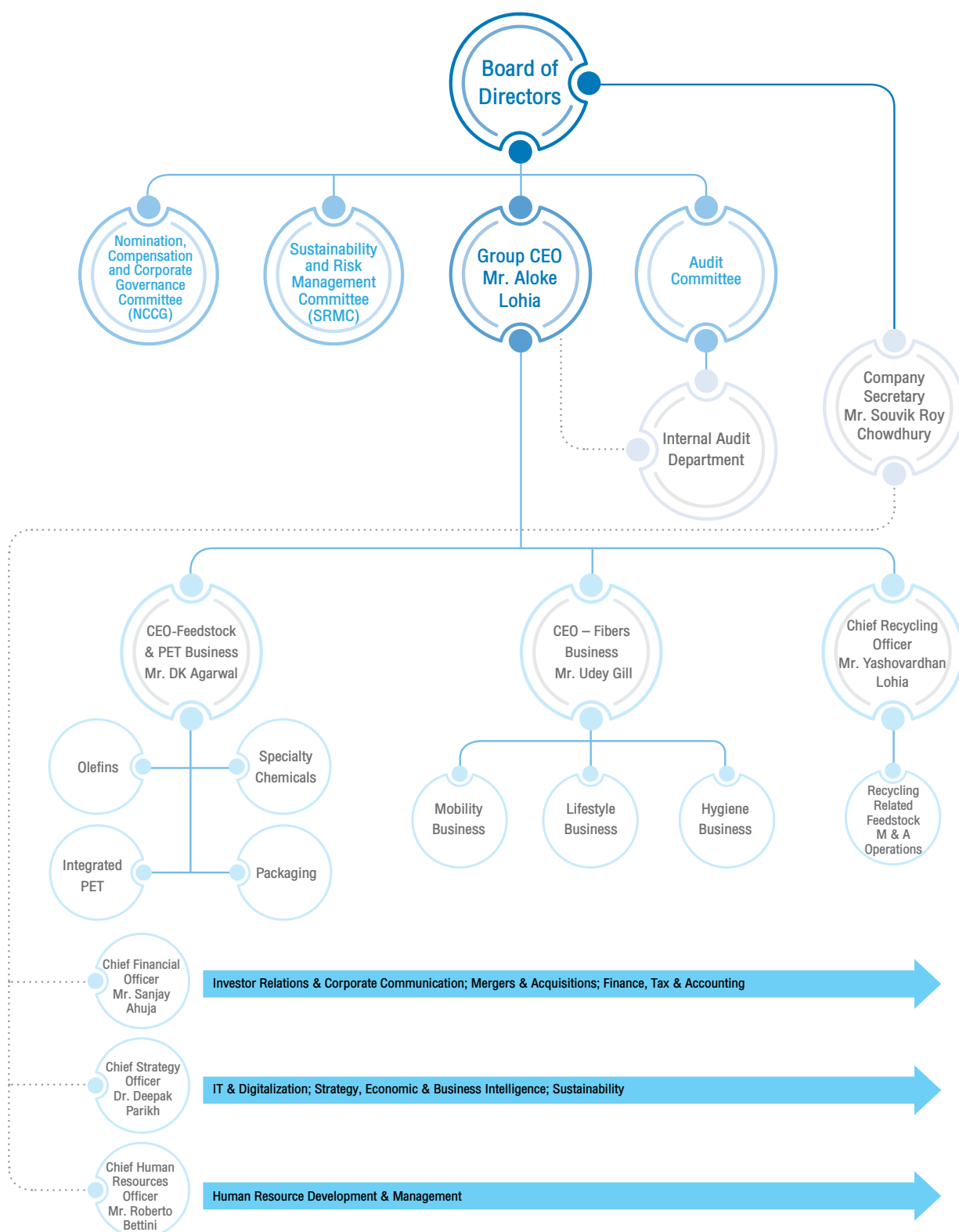
- 2019 – Present Chairman of the Board  
InnoSpace (Thailand) Co., Ltd.
- 2019 – Present Council Committee and Chairman of Sub-Committee on National Competitiveness  
National Economic and Social Development Council
- 2019 – Present Chairman of Sub-Committee on Capital Market Competitiveness Development  
The Securities and Exchange Commission
- 2019 – Present Chairman of Committee for Fund Management in National Competitiveness  
The National Higher Education, Science, Research and Innovation Policy Council
- 2019 – Present Chairman of EEC Sub Committee  
Investment Promotion in Food for the Future and Bio-Economy
- 2019 – Present Committee Member  
Public Organization Development and Promotion Committee
- 2019 – Present Advisor to the Deputy Prime Minister (Dr. Somkid Jatusripitak)
- 2017 – Present Advisory Board  
Chulalongkorn University Alumni Association under the Royal Patronage of His Majesty the King (CUAA)
- 2016 – Present Chairman of the Council  
Vidyasirimedhi Institute of Science and Technology (VISTEC)
- 2014 – Present Director to the Board of Trustees,  
Thailand Management Association (TMA)
- 2011 – Present Fellow Member  
Thai Institute of Directors Association (IOD)

### % of shareholding in IVL

As of 31 December 2019

-None-

# MANAGEMENT STRUCTURE



## The Board of Directors

As of December 31, 2019, IVL's Directors are:

Name	Position	Appointment Date of Directorship
1. Mr. Sri Prakash Lohia	<ul style="list-style-type: none"> <li>Chairman of the Board</li> <li>Non-Executive Director</li> </ul>	September 19, 2009
2. Mr. Aloke Lohia	<ul style="list-style-type: none"> <li>Vice Chairman of the Board</li> <li>Executive Director</li> <li>Chairman of the Sustainability and Risk Management Committee</li> <li>Group Chief Executive Officer</li> </ul>	September 19, 2009
3. Mrs. Suchitra Lohia	<ul style="list-style-type: none"> <li>Executive Director</li> <li>Chairperson of the Corporate Social Responsibility Committee</li> </ul>	September 19, 2009
4. Mr. Amit Lohia	<ul style="list-style-type: none"> <li>Non-Executive Director</li> </ul>	September 19, 2009
5. Mr. Yashovardhan Lohia*	<ul style="list-style-type: none"> <li>Executive Director</li> <li>Member of the Sustainability and Risk Management Committee</li> <li>Chief Recycling Officer</li> </ul>	April 24, 2019
6. Mr. Dilip Kumar Agarwal	<ul style="list-style-type: none"> <li>Executive Director</li> <li>Member of the Sustainability and Risk Management Committee</li> <li>Chief Executive Officer of Feedstock and PET Business</li> </ul>	April 27, 2010
7. Mr. Udey Paul Singh Gill	<ul style="list-style-type: none"> <li>Executive Director</li> <li>Member of the Sustainability and Risk Management Committee</li> <li>Chief Executive Officer of Fibers Business</li> </ul>	April 27, 2011
8. Mr. Sanjay Ahuja	<ul style="list-style-type: none"> <li>Executive Director</li> <li>Chief Financial Officer</li> </ul>	November 13, 2015
9. Mr. Rathian Srimongkol	<ul style="list-style-type: none"> <li>Vice Chairman of the Board</li> <li>Independent Director</li> <li>Lead Independent Director</li> <li>Chairman of the Audit Committee</li> <li>Member of the Sustainability and Risk Management Committee</li> </ul>	September 19, 2009
10.Mr. William Ellwood Heinecke**	<ul style="list-style-type: none"> <li>Independent Director</li> <li>Member of the Nomination, Compensation and Corporate Governance Committee</li> </ul>	September 19, 2009
11.Mr. Maris Samaram***	<ul style="list-style-type: none"> <li>Independent Director</li> <li>Member of the Audit Committee</li> </ul>	April 27, 2010
12.Dr. Siri Ganjarerndee	<ul style="list-style-type: none"> <li>Independent Director</li> <li>Member of the Audit Committee</li> <li>Member of the Nomination, Compensation and Corporate Governance Committee</li> </ul>	April 27, 2010
13.Mr. Kanit Si	<ul style="list-style-type: none"> <li>Independent Director</li> <li>Member of the Nomination, Compensation and Corporate Governance Committee</li> <li>Member of the Sustainability and Risk Management Committee</li> </ul>	April 27, 2010
14.Mr. Russell Leighton Kekuewa**	<ul style="list-style-type: none"> <li>Independent Director</li> <li>Chairman of the Nomination, Compensation and Corporate Governance Committee</li> <li>Member of the Sustainability and Risk Management Committee</li> </ul>	October 20, 2014
15.Mr. Chakramon Phasukavanich	<ul style="list-style-type: none"> <li>Independent Director</li> <li>Member of the Nomination, Compensation and Corporate Governance Committee</li> </ul>	November 13, 2015

Name	Position	Appointment Date of Directorship
16.Mr. Tevin Vongvanich****	<ul style="list-style-type: none"> <li>Independent Director</li> <li>Member of the Sustainability and Risk Management Committee</li> </ul>	April 24, 2019

\* Mr. Yashovardhan Lohia was appointed as: (i) an Executive Director on April 24, 2019, (ii) Chief Recycling Officer effective May 8, 2019, and (iii) a Member of the Sustainability and Risk Management Committee effective August 7, 2019.

\*\* Mr. Russell Leighton Kekuwa succeeded Mr. William Ellwood Heinecke as the Chairman of the Nomination, Compensation and Corporate Governance Committee in May 2019.

\*\*\* Mr. Maris Samaram resigned as a Member of the Sustainability and Risk Management Committee effective August 7, 2019.

\*\*\*\* Mr. Tevin Vongvanich was appointed as (i) an Independent Director on April 24, 2019 and (ii) a Member of the Sustainability and Risk Management Committee replacing Mr. Maris Samaram effective August 7, 2019.

## The Authorized Directors

The Authorized Directors who sign on behalf of the Company can be any two of the following directors: Mr. Alope Lohia, Mrs. Suchitra Lohia, Mr. Dilip Kumar Agarwal, Mr. Sanjay Ahuja, and Mr. Yashovardhan Lohia, together with the Company's affixed seal.

## Composition of the Board of Directors

There are six executive directors: (1) Mr. Alope Lohia, (2) Mrs. Suchitra Lohia, (3) Mr. Dilip Kumar Agarwal (4), Mr. Udey Paul Singh Gill, (5) Mr. Sanjay Ahuja, and (6) Mr. Yashovardhan Lohia.

There are eight 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, (7) Mr. Chakramon Phasukavanich, and (8) Mr. Tevin Vongvanich, in addition to two 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 "Corporate Governance Report."

## Sub-Committees

Indorama Ventures Public Company Limited consists of three sub-committees: 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 "Corporate Governance Report."

## Board Meetings

Meetings in 2019						
Name	Board of Directors (nine times)	Audit Committee (eight times)	Nomination, Compensation and Corporate Governance Committee (three times)	Sustainability and Risk Management Committee (two times)	Independent Directors (one time)	AGM 2019
1. Mr. Sri Prakash Lohia	3/9	-	-	-	-	1/1
2. Mr. Alope Lohia	9/9	-	-	2/2	-	1/1
3. Mrs. Suchitra Lohia	9/9	-	-	-	-	1/1
4. Mr. Amit Lohia	4/9	-	-	-	-	1/1
5. Mr. Yashovardhan Lohia*	6/6	-	-	1/1**	-	-
6. Mr. Dilip Kumar Agarwal	8/9	-	-	2/2	-	1/1
7. Mr. Udey Paul Singh Gill	8/9	-	-	1/2	-	1/1
8. Mr. Sanjay Ahuja	8/9	-	-	-	-	1/1
9. Mr. Rathian Srimongkol	8/9	8/8	-	2/2	1/1	1/1
10.Mr. William Ellwood Heinecke	7/9	-	2/3	-	1/1	1/1
11.Mr. Maris Samaram	9/9	7/8	-	0/1***	1/1	1/1
12.Dr. Siri Ganjarerndee	9/9	8/8	2/3	-	1/1	1/1
13.Mr. Kanit Si	9/9	-	3/3	2/2	1/1	1/1

Meetings in 2019						
Name	Board of Directors (nine times)	Audit Committee (eight times)	Nomination, Compensation and Corporate Governance Committee (three times)	Sustainability and Risk Management Committee (two times)	Independent Directors (one time)	AGM 2019
14.Mr. Russell Leighton Kekuewa	9/9	-	3/3	2/2	1/1	1/1
15.Mr. Chakramon Phasukavanich	9/9	-	3/3	-	1/1	0/1
16.Mr. Tevin Vongvanich*	5/6	-	-	1/1**	-	-

\* Mr. Yashovardhan Lohia and Mr. Tevin Vongvanich were appointed as IVL Directors on April 24, 2019.

\*\* Mr. Yashovardhan Lohia and Mr. Tevin Vongvanich were appointed as Members of the Sustainability and Risk Management Committee effective August 7, 2019.

\*\*\* Mr. Maris Samaram resigned as a Member of the Sustainability and Risk Management Committee with effect from August 7, 2019.

## Executives

As of December 31, 2019, IVL's executives are:

Name	Position
1. Mr. Aloke Lohia*	Group Chief Executive Officer
2. Mrs. Suchitra Lohia*	Chairperson of the Corporate Social Responsibility Committee
3. Mr. Yashovardhan Lohia	Chief Recycling Officer
4. Mr. Dilip Kumar Agarwal*	Chief Executive Officer of the Feedstock and PET Business
5. Mr. Udey Paul Singh Gill*	Chief Executive Officer of the Fibers Business
6. Mr. Sanjay Ahuja*	Chief Financial Officer
7. Dr. Deepak Parikh*	Chief Strategy Officer
8. Mr. Roberto Bettini*	Chief Human Resources Officer
9. Mr. Manoj Kumar Sharma	Head of Accounts
10.Mr. Souvik Roy Chowdhury	Company Secretary and Head of Corporate Compliance

\* Members of Indorama Management Council (IMC)

## The Company Secretary

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

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

- Preparation and maintenance of the following documents:
  - Registration of Directors
  - Notice of Board of Directors' Meetings, Minutes of Board of Directors' Meetings and annual reports
  - Notice of Shareholders' Meetings and Minutes of Shareholders' Meetings



2. Keeping reports on interest filed by Directors or Executives and submitting a copy of such report on interest under Section 89/14 to the Chairman of the Board and Chairman of the Audit Committee for acknowledgement within seven business days from the date on which the company has received such report.
3. Performing any other acts as specified in the notification of the Capital Market Supervisory Board.

In addition, the Company Secretary has the following additional duties as assigned by the Company:

- Providing basic advice pertaining to the securities laws and regulations and Articles of Association, 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 Shareholders' Meetings and Board of Directors' Meetings, and monitoring subsequent compliance with the resolutions of those meetings.
- Preparing and maintaining registrations of directors, annual reports, Notice of Shareholders' Meetings, Notice of Board of Directors' Meetings, Minutes of the Shareholders' Meeting and the Board of Directors' Meetings.

- Maintaining 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 in Thai and English).
- Timely reporting of all necessary disclosures to the Securities and Exchange Commission (SEC) and Stock Exchange of Thailand (SET).
- Assisting with Board activities including providing preliminary advice and recommendations pertaining to legal, regulatory, corporate governance issues and best practices related to the Board and Committees.
- Supporting directors ensuring that they all have sufficient information and knowledge to effectively fulfill their roles and responsibilities and reporting on these developments in the annual report.
- Frequently develops and updates information relating to the Company Secretary's duties.

## Remuneration of Directors and Management

Please see the details under "Corporate Governance Report."

## Personnel

### • Number of Employees

As of December 31, 2019, the Company, including its affiliates and in accordance with its business structure, has a total of 23,245 employees as outlined below:

Type of Business	Number of Employees
Integrated PET	5,774
Fibers/Wool	13,969
Packaging	1,352
Integrated Oxides and Derivatives	174
Specialty Chemicals	658
Recycling	1,075
Corporate Support	243

### • Employee Benefits paid out in 2019

Items	Amount (in Millions)
Wages, Salaries, Bonuses and Staff Welfare	24,061
Provident Funds	36
Long-term Employee Benefits	2,593
Other Long-term Benefits (EJIP)	19

For further details, please see the details under "Corporate Governance Report."

# SHAREHOLDERS INDORAMA VENTURES PUBLIC COMPANY LIMITED

## Major Shareholders of IVL

(as of December 31, 2019)<sup>1</sup>

### Top Ten Major Shareholders

No.	Shareholders	No. of Shares	%
1.	Indorama Resources Ltd. <sup>2</sup>	3,504,991,318	62.427
2.	Thai NVDR Ltd.	300,970,448	5.361
3.	Bangkok Bank Public Company Limited	270,905,264	4.825
4.	SOUTH EAST ASIA UK (TYPE C) NOMINEES LIMITED	104,317,298	1.858
5.	State Street Europe Limited	84,118,500	1.498
6.	CREDIT SUISSE AG, SINGAPORE BRANCH	75,297,500	1.341
7.	Canopus International Limited <sup>2</sup>	55,000,000	0.980
8.	SOCIAL SECURITY OFFICE	44,975,100	0.801
9.	PROVIDENT FUND OF ELECTRICITY GENERATING AUTHORITY STAFFS	24,198,800	0.431
10.	VAYU 1 BY MFC	22,215,100	0.396
	VAYU 1 BY KTB	22,215,100	0.396

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	<b>No. of Shares</b>	<b>%</b>
• Indorama Resources Ltd.*	3,504,991,318	62.43
• Canopus International Limited**	130,000,000***	2.32
• Mr. Alope Lohia****	1,000,010	0.02
• Mr. Anuj Lohia	10	0.00

\* Owned by Canopus International Limited 99.98%

\*\* Mr. Alope Lohia and his immediate family jointly hold voting rights of 76% and an equity interest of 50% in Canopus, while the remaining voting rights of 24% and 50% of the equity interest of Canopus are ultimately controlled by a Trust in which Mr. Sri Prakash Lohia and his immediate family members are the discretionary beneficiaries.

\*\*\* 75,000,000 shares out of 130,000,000 shares are in the custodian of CREDIT SUISSE AG, SINGAPORE BRANCH.

\*\*\*\* 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.



# BUSINESS OPERATIONS



## Strategy and Overview of Business Operations

### Group Strategy

Indorama Ventures Public Company Limited, listed in Thailand, is one of the world's leading petrochemicals producers, with a global manufacturing footprint across Africa, the Asia-Pacific, Europe and the Americas. Our portfolio comprises Integrated PET, Integrated Oxides and Derivatives, Fibers, Packaging and Specialty Chemicals. Indorama Ventures products serve major FMCG and automotive sectors, i.e. beverages, hygiene, personal care, tire and safety segments. Indorama Ventures has approximately 24,000 employees worldwide and consolidated revenue of USD 11.4 billion in 2019. We are listed in the Dow Jones Emerging Markets and World Sustainability Indices (DJSI).

IVL's vision is to be a world-class chemical company making great products for society. Through our clear strategy, we will succeed and continue to grow in any challenging environment by leveraging our unique differentiators - global scale, local presence, integration across the value chain, with a diversified source of earnings and M&A capabilities. Our enduring approach is to generate strong returns for our stakeholders through the ups and downs of the chemical cycle.

It is estimated that by 2030, the world's population will reach over 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.

## Strategic Priorities

Going forward, IVL will pursue five strategic themes:

- **Cost transformation** to accelerate performance through cost optimization.
- **Full asset potential** to focus on commercial excellence, and grow revenues and margins.
- **Adjacency growth** to pursue organic and bolt-on growth in attractive adjacencies.
- **Recycling leadership** to build a leading rPET business, setting a new bar for sustainability.
- **Leadership development** to invest in and develop the best management team in the industry.

## Cost Transformation

Our cost transformation program, the Olympus program, can be divided into two areas, corporate-led and business segment-led initiatives:

- Corporate

We have three priority areas: Enterprise Resource Planning (ERP), global business solutions and digitalization. First, we will implement an integrated SAP ERP system which will help with cost-savings, improve efficiencies and make our business more agile. Second, our Global Business Solution (GBS) aims to improve efficiencies and reduce costs by consolidating several key support functions in finance, HR, procurement and IT. Third, our digital initiatives, which were piloted in 2019, are being scaled up to realize cost-efficiencies from 2020 onwards.



- Business Segments

Each of our business segments is implementing their specific cost transformation plans, covering Lean Six Sigma to improve asset reliability and consolidate procurement and supply chains.

The initiatives of the Combined PET segment - comprising Integrated PET, Packaging and Specialty Chemicals - include:

1. Manufacturing excellence through plant automation and predictive maintenance tools
2. Procurement efficiency and supply chain optimization
3. Functional excellence by optimizing manpower headcount across all regions

For the Integrated Oxides and Derivatives (IOD) segment, cost synergies and operational excellence can be achieved through the integration of our existing facilities - IVOG and IVOL assets - and the recently acquired integrated oxides and derivatives businesses of Huntsman Corporation. The integration will focus on streamlining costs, restructuring the organization, enhancing reliability and leveraging benefits from ethylene integration through IVOL's gas cracker.

Cost transformation under the Fibers segment will target margin expansion, cost innovation and asset efficiency. We will improve operational efficiencies at each site and consolidate/integrate across multiple sites. Within each asset, we will improve the efficiency gains through: 1) manpower realization and automation; 2) cost innovation in operations, e.g. utilities, chemicals, additives and packing; and 3) yield improvements.

## Full asset potential

We are maximizing the growth and margin potential of each of our businesses through the following activities:

- Combined PET (a grouping of Integrated PET, Packaging and Specialty Chemicals segments)
  - Enhancing the existing product portfolio to be better aligned with customers' needs
  - Expanding our packaging business in new geographies or segments
  - Building a leading recycling business
- Integrated Oxides and Derivatives
  - Integrating and growing the recently acquired integrated oxides and derivatives businesses of Huntsman Corporation
  - Capturing backward integration benefits from the IVOL's gas cracker
  - Expanding into high value-added segments such as surfactants
- Fibers
  - Increasing market share in fast-growing segments

- Strengthening collaborations and long-term agreements with key customers in mobility and hygiene
- Investing in R&D to strengthen the HVA portfolio with high barriers to entry

### Adjacency growth

We will monitor adjacent growth opportunities that could be value accretive to IVL's stakeholders. For the Integrated PET segment, we aim to expand applications of our resins in food and homecare, substituting other rigid plastics. We also see that beverages, food, homecare and pharma are attractive markets for PET packaging. Within the Integrated Oxides and Derivatives space, we aim to expand geographic adjacency to high-growing emerging markets and product adjacency in specialty surfactants. For Fibers, we identified new applications for polyester and nylon, and the potential to leverage our composite fibers innovations such as Enka TecTape in mobility fibers.

### Recycling leadership

Growing concerns about plastic waste have led to legislation on several single-use plastic products. This creates opportunity for us as PET is 100 percent recyclable, making it a packaging material of choice. PET also has several environmental advantages. It is a lightweight material that allows for lower transport costs and reduces fuel emissions.

IVL developed a strategy to be the leader in recycled PET, leveraging our number one position in PET. We aim to serve the recycling needs of our customers by building a leading, differentiated and economically attractive recycling business. Our target is to scale up capacity to 750 kt, with an ROCE of around 12-14% by 2025.

We have five key areas of differentiation that underpin our ambitions. First, IVL's scale virgin PET business is a big advantage in the recycling business. It gives us both an extensive local footprint and distribution in many markets. Second, we have the ability to leverage the relationships and trust that we have developed with global brands. Third, we have acquired proprietary knowledge on mechanical recycling through our Wellman asset and are scaling up. Fourth, we have developed partnerships with innovative players to develop and test next-generation chemical recycling technologies. Lastly, we are proactively building the circular ecosystem for PET across technology owners, packaging players or converters, beverage companies and waste management players.

### Leadership development

IVL recognizes the importance of leadership development and we are working towards putting in place a structured and formalized talent management system. We are focusing on three priorities: structure and succession, performance management, and leadership development. In 2019, we set up two councils - the Indorama Management Council (IMC) and Indorama Business Council (IBC). Both act as forums to discuss and deliberate on future opportunities and challenges for our company.

## Changes and Important Developments

### Company Overview

Formerly known as Beacon Global Limited, the company was established on February 21, 2003 and renamed 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.

### 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 Integrated PET Business

This segment includes 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.

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

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

We also expanded our PET production footprint in Africa with the opening of 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, and 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.

We entered the purified terephthalic acid (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 2016, we entered the paraxylene (PX) business in the US with the acquisition of BP Amoco Chemical Company (BP) which manufactures PTA and PX and provides raw materials to AlphaPET Inc., a co-located business operation and to external customers worldwide.

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 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.

In 2019, we acquired PET recycling facilities in the US states of Alabama and California, in-line with our commitment to long-term sustainability and also meeting the circular economy objectives of packaging and consumer product manufacturers.

### **Entry into the Integrated Oxides and Derivatives Business**

We entered this segment by acquiring an MEG and PEO facility in the state of Texas in 2012. This facility is in the process of further enhancing its capacity as an ethylene cracker in the neighboring state of Louisiana will shortly commence production. 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.

In 2019, we invested in the Integrated EO and PO derivatives business of Huntsman Corporation, which is fully integrated downstream in surfactants (used in personal and home care) and in propylene oxides (used in insulation and foam materials).

### **Entry into the Fibers Business**

This segment includes all of our offerings in the mobility (automotive and tires), personal hygiene and lifestyle domains. Each of these domains continue to grow at a rate of 6-7% annually offering the potential to become multi-billion dollar businesses individually. Growth in the Fibers business comes as a result of trends towards light-weighting, use of sustainable materials, increasing attention being paid to personal hygiene and changes in the choice of personal wear, especially by the younger generation.

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 with the acquisition of Indo Poly, a polyester fiber plant in Thailand. In 2008, we acquired Tuntex Thailand, the country's largest polyester fiber producer. 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 Invista 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.

In 2019, we completed the acquisition of an airbag yarns business in Germany and Mexico, which provides an opportunity for IVL to further expand its portfolio in the airbag sector and become an integrated manufacturer of airbag yarns and textiles globally.

We also completed the acquisition of Sinterama, a polyester staple fiber producer in Brazil which provides an opportunity to establish a global footprint in the Fibers business in South America's largest economy and its specialty fibers business in four countries: Italy, Brazil, China and Bulgaria. Sinterama is vertically integrated from chips to yarns and offers a vast range of colored polyester yarns for automotive, furnishing, apparel and technical applications.

### **Entry into Specialty Chemicals Business**

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

In 2018, IVL further grew this portfolio by expanding its PIA production in Spain and additionally converted a PTA line to PIA in Alabama, thereby becoming the world's second largest producer. In 2019, IVL completed the acquisition of Invista's assets in Germany resulting in IVL possessing the IP for the Polyshield® and Oxyclear® resins, together with Invista's barrier technology in all markets globally.

### **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. In 2013, we expanded into Africa with the acquisition of Aurus in Nigeria, in the belief that Nigeria has considerable potential for further growth. In 2018, we acquired Medco Plast for Packing and Packaging Systems S.A.E. This acquisition provided 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. In 2019, we acquired Bevpak, a facility in Nigeria, to further expand our global footprint.



## 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 a ratio of one TSR for every nine existing ordinary shares held in 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 (EGM), 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

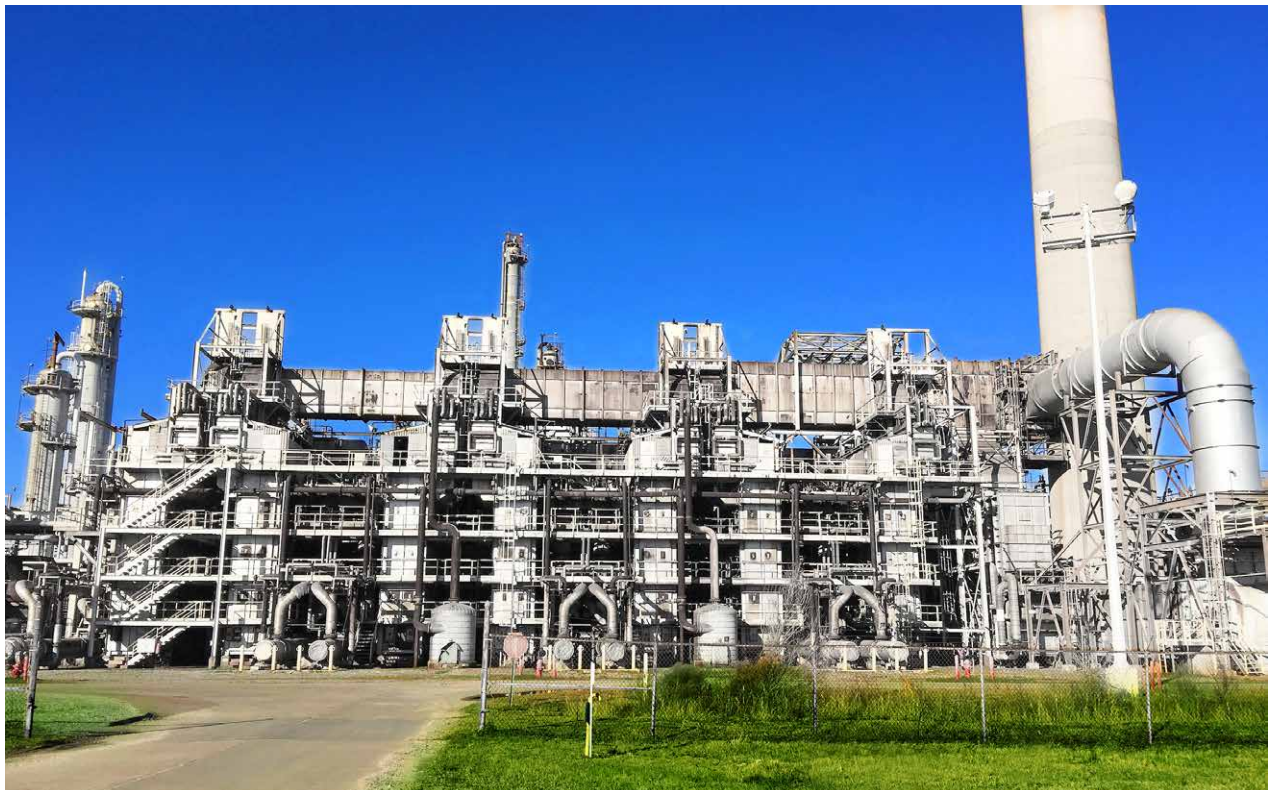
Our PET business was listed on the SET as Indorama Polymers Public Company Limited (IRP) in 2005. On December 24, 2009, IVL offered to purchase up to 100% of IRP through a tender offer whereby IRP shareholders (other than IVL and its subsidiaries) were offered IVL shares in exchange for IRP shares. The 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 of IVL-W1 until the last exercise date which took place 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 of IVL-W2 until the last exercise date which took place 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

We completed a comprehensive assessment of our portfolio, identified areas of synergies and natural alignment, and report our new segments as follows:

Year	Event	Location	New Segments
1994	Incorporation of Indorama Holdings Ltd.	Thailand	Fibers
1995	Established Indorama Polymers PCL's PET resin plant in Lopburi, Thailand.	Thailand	Integrated PET
1996	Established Petform (Thailand) Ltd., a joint venture with Serm Suk PCL.	Thailand	Packaging
2002	Completed various expansion projects leading to increased capacity in Thailand.	Thailand	Integrated PET & Fibers
2003	• Incorporation of Beacon Global Limited (subsequently re-named Indorama Ventures PCL in 2008).	Thailand	Integrated PET
	• First major international expansion with the acquisition of StarPet PET plant in Asheboro, North Carolina.	US	Integrated PET
2006	• Acquired a 94.57% interest in Indorama Holdings Ltd. from an entity controlled by Mr. Aloke Lohia.	Thailand	Fibers
	• Second major international expansion in Europe with the launch of the Orion Global PET plant in Klaipeda, Lithuania.	Lithuania	Integrated PET
2007	Completed various expansion projects leading to increased capacity.	US / Thailand	Integrated PET & Fibers
March 2008	• 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.	the Netherlands/ UK	Integrated PET
	• 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	Integrated PET
June 2008	Indorama Holdings Ltd. sold its shares representing 89.71% of Indo-Rama Chemicals (Thailand) Ltd., to an entity controlled by Mr. Aloke Lohia and his immediate family.	Thailand	Chemicals
August - October 2008	Acquired a 50.56% equity interest in TPT Petrochemicals PCL from various parties.	Thailand	Integrated PET
September 2008	• Acquired a 65.81% equity interest in Tuntex (Thailand) pursuant to Tuntex (Thailand)'s bankruptcy rehabilitation plan.	Thailand	Fibers
	• 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	Fibers
September - October 2008	Acquired a 100% equity interest in Indorama Petrochem Ltd. from various parties.	Thailand	Integrated PET
October 2008	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	Integrated PET

Year	Event	Location	New Segments
December 2008	Acquired an additional 31.20% of the outstanding shares of Tuntex (Thailand) PCL (re-named Indorama Polyester Industries PCL).	Thailand	Fibers
July 2009	<ul style="list-style-type: none"> <li>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)</li> <li>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%.</li> </ul>	Thailand	Fibers
August 2009	Jointly made a tender offer with Indorama Holdings Ltd. to purchase all outstanding shares of Indorama Polyester Industries PCL that were not already owned. After the tender offer, the Company and Indorama Holdings Ltd. increased their shareholdings of Indorama Polyester Industries PCL to 99.55% and delisted Indorama Polyester Industries PCL from the SET effective November 9, 2009.	Thailand	Fibers
October 2009	Startup of the AlphaPet PET plant in Decatur, Alabama.	US	Integrated PET
November 2009	TPT Utilities Co., Ltd. transferred all of its assets to TPT Petrochemicals PCL and subsequently completed its liquidation on October 29, 2011.	Thailand	Others
December 2009	<ul style="list-style-type: none"> <li>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%.</li> <li>Announced a tender offer on December 24, 2009 to purchase up to 100% of the shares of 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.</li> </ul>	Thailand	Integrated 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). IRP shares were simultaneously delisted from the SET on the first day of trading of IVL.	Thailand	Corporate
July 2010	Acquired 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	Integrated PET
August 2010	<ul style="list-style-type: none"> <li>Announced the establishment of a greenfield project for PET polymers in Port Harcourt, Nigeria with an installed capacity of 75,000 tpa.</li> <li>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.</li> </ul>	Nigeria the Netherlands	Integrated PET Integrated PET
October 2010	Acquired 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	Integrated PET

Year	Event	Location	New Segments
November 2010	<ul style="list-style-type: none"> <li>Announced the approval of an acquisition to make PET resins and Polyester polymers for fibers and yarns in Kaiping, Guangdong Province, 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.</li> </ul>	China	Integrated PET & Specialty Chemicals
	<ul style="list-style-type: none"> <li>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 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 providing access to new markets in Central and South America. The acquisitions were completed in March 2011.</li> </ul>	US / Mexico	Specialty Chemicals
	<ul style="list-style-type: none"> <li>The Board of Directors Meeting No. 8/2010 on November 10, 2010 approved the issuance of 481,585,672 free Transferable Subscription Rights (TSRs) to the Company's existing shareholders with an allocation ratio of nine existing shares to one new TSR. The conversion ratio of one TSR entitled the TSR holder to purchase one 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.</li> </ul>	Thailand	Corporate
December 2010	<ul style="list-style-type: none"> <li>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 its focus on the polyester value chain, while providing important access to two growth markets. The acquisitions were completed in March 2011.</li> </ul>	Indonesia / Poland	Fibers & Integrated PET
	<ul style="list-style-type: none"> <li>The Board of Directors Meeting No. 9/2010 on December 16, 2010 approved an exercise price of THB 36 per share to subscribe to newly issued shares by each TSR holder.</li> </ul>	Thailand	Corporate
	<ul style="list-style-type: none"> <li>The 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 nine existing shares to one TSR to existing shareholders.</li> </ul>	Thailand	Corporate
March 2011	<ul style="list-style-type: none"> <li>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.</li> </ul>	Thailand	Corporate
	<ul style="list-style-type: none"> <li>Announced a capacity expansion by 300,000 tpa for PET at an existing site in Purwakarta, Indonesia.</li> </ul>	Indonesia	Integrated 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	Integrated 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	Integrated PET
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, which has an installed capacity of 465,000 tpa.	Indonesia	Integrated PET

Year	Event	Location	New Segments
July 2011	Acquired 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	Fibers
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	Fibers
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 a 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 / the Netherlands	Fibers
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 US, 90,000 tpa capacity in Europe and 14,000 tpa capacity in China.	US	Fibers
February 2012	<ul style="list-style-type: none"> <li>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. 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).</li> <li>Acquired a 51% stake in a packaging business. Beacon Trading Limited acquired a 51% stake in Beverage Plastics (Holdings) Limited (BPL) in Northern Ireland, United Kingdom.</li> </ul>	US  UK	Integrated Oxides & Derivatives  Packaging
March 2012	Acquired 100% of the PET resin assets of PT Polypet Karyapersada. The PET facility is located in Cilegon, with a production capacity of 100,800 tpa.	Indonesia	Integrated PET
April 2012	Acquired a 100% partnership interest in Old World Industries I, Ltd. and Old World Transportation, Ltd. in the US. Old World is involved in the 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	Integrated Oxides & Derivatives
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	Integrated PET
August 2012	Completed the acquisition of the PET resin assets through wholly-owned subsidiary, PT Indorama Polypet Indonesia, with a capacity of 100,800 tpa in Cilegon.	Indonesia	Integrated PET
November 2012	<ul style="list-style-type: none"> <li>Announced the greenfield expansion of PET production in North America with the establishment of a new plant with a capacity of 540,000 tpa.</li> <li>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.</li> </ul>	US  Poland	Integrated PET  Integrated PET



Year	Event	Location	New Segments
February 2013	Acquired 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"> <li>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.</li> <li>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.</li> </ul>	Thailand  US	Fibers  Fibers
October 2013	<ul style="list-style-type: none"> <li>Established Indorama Ventures Packaging (Philippines) Corporation to start a new packaging business in the Philippines.</li> <li>Established 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.</li> </ul>	the Philippines  US US the Netherlands	Packaging  Holding Company
November 2013	Announced the mothballing 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	Integrated PET
December 2013	Established a new subsidiary: <ul style="list-style-type: none"> <li>Indorama Ventures Global Services Limited.</li> <li>Signed a joint venture agreement for Aromatics production in Abu Dhabi and to develop the Tacaamol Aromatics Plant on the 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.</li> </ul>	Thailand United Arab Emirates	Corporate Integrated PET
February 2014	<ul style="list-style-type: none"> <li>Acquired 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 April 30, 2014.</li> <li>Established a new indirect subsidiary company in the Republic of Ghana.</li> </ul>	Germany / US / China  Ghana	Fibers  Packaging
March 2014	Established 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	Fibers
June 2014	Acquired 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 June 2, 2014.	Turkey	Integrated PET
October 2014	Reorganized 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.	the Netherlands / US	Corporate
November 2014	Established two new joint venture companies: <ul style="list-style-type: none"> <li>Indorama Ventures EcoMex, S. de R. L de C.V.</li> <li>Indorama Ventures EcoMex Services, S. de R. L de C.V.</li> </ul>	Mexico	Integrated PET

Year	Event	Location	New Segments
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, Guangdong Province, 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 1, 2015.	China	Fibers
January 2015	Established 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"> <li>Completed the acquisition of a 100% stake in Polyplex Resins San. ve Tic. A.S. Polyplex Turkey owns a newly set-up greenfield PET plant with a planned capacity of 252,000 tpa located in Corlu, close to Istanbul.</li> <li>Acquired 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.</li> </ul>	Turkey  Canada	Integrated PET  Integrated PET
May 2015	Completed 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	Integrated PET
June 2015	Completed of the acquisition of CEPESA Chimie Montréal s.e.c in Montreal, Canada, including all of the closing formalities. 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	Integrated PET
September 2015	Established three new subsidiaries: <ul style="list-style-type: none"> <li>Indorama Ventures Dutch Investments B.V.</li> <li>Indorama Ventures Investments USA LLC</li> <li>Indorama Ventures Olefins LLC</li> </ul>	the Netherlands US US	Holding Company Holding Company Integrated Oxides & Derivatives
November 2015	<ul style="list-style-type: none"> <li>Acquired 100% of CEPESA's business in Spain. CEPESA Spain is Europe's largest producer of PIA (isophthalic acid) and the second largest producer in the world, with a capacity of 220,000 tons of PIA, 175,000 tons of PET, and 325,000 tons of PTA.</li> <li>Established a new indirect subsidiary company in the US: Indorama Ventures Olefins Holding LLC</li> </ul>	Spain  US	Integrated PET & Specialty Chemicals  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 December 23, 2015. MicroPet, located in Panipat district in the northern state of Haryana, has a PET capacity of 216,000 tpa and has virtual integration with a major refinery for its PTA and MEG feedstocks.	India	Integrated PET
January 2016	Acquired 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	Integrated PET & Specialty Chemicals

Year	Event	Location	New Segments
February 2016	Formed an equal joint venture in India with Dhunseri Petrochem Limited. IVL divested its 50% equity stake in its indirect, fully-owned PET manufacturing company - Micro Polypet Private Limited, India to Dhunseri Petrochem Limited. IVL also acquired a 50% equity stake in a newly carved-out entity from Dhunseri Petrochem Limited. The new entity owns 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	Integrated PET
March 2016	Established a new indirect subsidiary in India, Indorama Ventures Packaging (India) Private Limited.	India	Packaging
April 2016	Completed the acquisition of 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 and the company was renamed Indorama Ventures Química S.L.U.	Spain	Integrated PET & Specialty Chemicals
July 2016	Established a subsidiary company and a joint venture company in China. The new indirect subsidiary: Performance Fibers (Kaiping) No. 3 Company Limited The new joint venture company: ES FiberVisions Shanghai Co., Ltd.	China	Fibers
August 2016	<ul style="list-style-type: none"> <li>Changed the name of an 80% indirect subsidiary company in the US, Polyamide High Performance, Inc. to "PHP Fibers Inc."</li> <li>Merged two indirect subsidiaries in Germany. PHP Overseas Investments GmbH, a non-operating entity, merged with PHP Fibers GmbH, an operating Fibers business entity. The newly merged entity is known as "PHP Fibers GmbH."</li> </ul>	US	Fibers
September 2016	<ul style="list-style-type: none"> <li>Completed the formation of an equal joint venture in India with Dhunseri, effective September 12, 2016. The name of the joint venture company in India was also changed from Dhunseri Petglobal Limited to "IVL Dhunseri Petrochem Industries Limited."</li> <li>Established a new indirect subsidiary company in China: Performance Fibers (Kaiping) Trading Company Limited.</li> </ul>	Germany	Fibers
December 2016	Established 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.	India	Integrated PET
May 2017	<ul style="list-style-type: none"> <li>Acquired a 100% stake of Glanzstoff Group (Glanzstoff), a tire cord business in Luxembourg, Italy, the Czech Republic and China. The Glanzstoff acquisition provided a strategic fit to the automotive segment in the HVA portfolio with a capacity of 36,300 tpa.</li> <li>Acquired 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.</li> </ul>	China	Fibers
September 2017	Acquired 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	Service Company
October 2017	Acquired a 100% stake of DuraFiber Longlaville, France, a tire cord business with a capacity of 35,000 tpa.	Luxembourg / Italy / the Czech Republic / China	Fibers
November 2017	Acquired the PTA assets of Artlant PTA S.A. and the adjacent utility assets of Artelia Ambiente, S.A. in Portugal.	Germany	Fibers
		Portugal	Integrated PET

Year	Event	Location	New Segments
March 2018	<ul style="list-style-type: none"> <li>Acquired a 100% stake in M&amp;G Polimeros Brazil S.A. in Ipojuca, 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).</li> <li>Formed 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&amp;G USA Corp. and its affiliated debtors (M&amp;G) to acquire the integrated PTA-PET plant currently under construction in Corpus Christi, Texas. 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.</li> </ul>	<p>Brazil</p> <p>US</p>	<p>Fibers</p> <p>Integrated PET</p>
May 2018	Acquired 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 July 25, 2018.)	Israel / US / Russia / China / India	Fibers
June 2018	<ul style="list-style-type: none"> <li>Formed 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.</li> <li>Formed a 50:50 joint venture limited liability company in the US with Huvis Global Corporation called 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.</li> <li>Acquired 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, with a production site in the Czech Republic and a second in the Slovak Republic. (Completed all closing formalities and took charge of the operations effective October 30, 2018.)</li> </ul>	<p>Egypt</p> <p>US</p> <p>the Czech Republic / the Slovak Republic</p>	<p>Integrated PET</p> <p>Fibers</p> <p>Fibers</p>
July 2018	<ul style="list-style-type: none"> <li>Acquired 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 a market share of approximately 25%. (Completed all closing formalities of the transaction on November 13, 2018.)</li> <li>Acquired 100% of the share capital of Sorepla Technologie S.A. and its subsidiary, 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.</li> </ul>	<p>Egypt</p> <p>France</p>	<p>Packaging</p> <p>Integrated PET</p>
September 2018	Agreed to form a 50:50 joint venture limited liability company in the US with Loop Innovations, LLC called Indorama Loop Technologies, LLC. (ILT).	US	Fibers

Year	Event	Location	New Segments
October 2018	<ul style="list-style-type: none"> <li>Acquired 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 a dyeing facility in Austria and a 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.).</li> </ul>	Austria / the Czech Republic / Germany	Fibers
	<ul style="list-style-type: none"> <li>Established a new indirect subsidiary company and merged indirect subsidiaries in Mexico.</li> </ul>		
	Set up of a new indirect subsidiary: Glanzstoff Industries Mexico, S. de R.L. de C.V.	Mexico	Fibers
	Merged indirect subsidiaries: Indorama Ventures Mexico Assets, S. de R.L. de C.V. (IVMA)	Mexico	Service Business
November 2018	Acquired a 100% equity stake in M&G Fibras Brasil S.A. in Brazil. The site produces polyester staple fibers, with a capacity of 75,000 tpa.	Brazil	Fibers
December 2018	<ul style="list-style-type: none"> <li>Acquired a 100% equity stake in UTT Beteiligungsgesellschaft mbH (UTT), 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 a capacity of approximately 12,000 tpa.</li> </ul>	Germany / Mexico	Fibers
	<ul style="list-style-type: none"> <li>Acquired a 100% equity stake in the PET business of INVISTA Resins &amp; 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.</li> </ul>	Germany	Specialty Chemicals
	<ul style="list-style-type: none"> <li>Signed a definitive Asset Purchase Agreement with Custom Polymers PET, LLC, to acquire their PET recycling facility in Alabama. The facility consists of two production lines: rPET flakes and food-grade rPET pellets, with a combined capacity of 31,000 tpa.</li> </ul>	US	Integrated PET
	<ul style="list-style-type: none"> <li>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. (Completed the acquisition on December 28, 2018.)</li> </ul>	US	Integrated PET
	<ul style="list-style-type: none"> <li>Began commercial production at Indorama Ventures Xylenes &amp; PTA, LLC's PIA plant in Decatur, Alabama 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.</li> </ul>	US	Specialty Chemicals
January 2019	<ul style="list-style-type: none"> <li>The Board of IVL resolved to approve the purchase by its indirect subsidiary Indorama Netherlands B.V. ("INBV") through 83,000,000 newly issued shares in Indo Rama Synthetics (India) Limited ("IRSL"), equal to approximately 31.79% of IRSL's enlarged share capital, at a price of INR 36 per share, equaling the total investment amount of INR 2,988.00 or equivalent to approximately 1,442.31 million baht. IRSL is a listed company on the National Stock Exchange of India Limited (NSE) and the Bombay Stock Exchange Limited (BSE) and is the leading manufacturer of a wide range of polyester products in India. The share purchase formalities were completed on April 3, 2019.</li> </ul>	India	Fibers
	<ul style="list-style-type: none"> <li>Completed the acquisition of a PET Recycling facility in Alabama from Custom Polymers PET, LLC. The acquisition was completed on January 15, 2019.</li> </ul>	US	Integrated PET



Year	Event	Location	New Segments
February 2019	<ul style="list-style-type: none"> <li>Acquired a 100% equity stake in the Packaging business of Bevpak (Nigeria). Located in Ibadan, Bevpak is one of the largest manufacturers of PET preforms in West Africa, with a production capacity of 18,000 mts per annum. The acquisition was completed on October 2, 2019.</li> </ul>	Nigeria	Packaging
	<ul style="list-style-type: none"> <li>Completed the acquisition of a 100% stake in M&amp;G Fibras Brasil Ltda. located in Cabo de Santo Agostinho, from M&amp;G Fibras Holding S.A., M&amp;G Fibras Participações Ltda., and M&amp;G Fibras e Resinas Ltda. The acquisition was completed on February 22, 2019.</li> </ul>	Brazil	Fibers
March 2019	<ul style="list-style-type: none"> <li>Completed the acquisition of a 100% stake in UTT Beteiligungsgesellschaft mbH ("UTT"), Germany. The acquisition was completed on February 28, 2019.</li> </ul>	Germany / Mexico	Fibers
	<ul style="list-style-type: none"> <li>Completed the acquisition of a 100% stake in the PET business of INVISTA Resins &amp; Fibers GmbH, Germany ("IRFG"); and certain Intellectual Property Rights of INVISTA Textiles (UK) Limited with regards to its barrier technology. The acquisition was completed on March 4, 2019.</li> </ul>	Germany	Specialty Chemicals
July 2019	Acquired a 100% equity stake in Sinterama S.p.A. and its subsidiaries ("Sinterama"). The acquisition of Sinterama comprises five production sites in four countries: Italy, Brazil, China and Bulgaria, with a combined capacity of approximately 30,000 tpa. Sinterama is vertically integrated from chips to yarns and offers a vast range of colored polyester yarns for the automotive, furnishing, apparel and technical applications. The acquisition was completed on November 19, 2019.	Italy / Brazil / China / Bulgaria	Fibers
August 2019	The Board of IVL passed a resolution to approve the acquisition of certain Integrated Oxides and Derivatives businesses/assets from Huntsman Corporation, a listed entity on the New York Stock Exchange and/or its wholly owned subsidiary(ies) (whether directly or indirectly) located in Texas, US / New South Wales, Australia and Ankleshwar, India which manufacture the following key products: Ethylene Oxide (EO), Propylene Oxide (PO), Glycols, Ethanolamines (EOA), Surfactants, Linear Alkylbenzene (LAB) and Methyl Tertiary-butyl Ether (MTBE), including certain R&D centers, patents and technology.	US / Australia / India	Integrated Oxides & Derivatives
December 2019	Acquired a 100% equity stake in Green Fiber International Inc. ("GFI"), which operates a plastics recycling facility in Fontana, California. The facility primarily produces Recycled Polyethylene Terephthalate (rPET) Flakes with a combined capacity of 40,000 tpa. This acquisition is strategically in-line with IVL's long-term sustainability objectives and part of the company's stated plan to invest significantly in recycling over the next five years. This transaction was completed as of December 3, 2019.	US	Integrated PET

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, the 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 were:

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 a ratio of 10 IVL existing shares to 1 IVL-W1	To existing shareholders at a 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, IVL 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 was 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 were exercised by the warrant holders into ordinary shares, IVL would raise, with the exercise of all IVL-W2, up to THB 15.9 billion by September 2018.

In October 2014, IVL 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 strengthened IVL's capital structure, and improved its liquidity and flexibility.

In October 2015, IVL 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, and 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 date on 24 August 2017 was 430,708,227 warrants, representing 89.47% of the total warrants issued. The unexercised (IVL-W1) warrants expired and were delisted on August 25, 2017. The Company is using 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 date 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. IVL is using 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 IVL's outlook to "AA-" from "A+" reflecting the Company's successful strategy and future potential.

In November 2019, IVL issued and offered Subordinated Perpetual Debentures of Indorama Ventures Public Company Limited No. 1/2019 for THB 15 billion. The debentures carry a coupon of 5.0% 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 debentures were assigned a credit rating of "A" with a "Stable" outlook in accordance with the report published on September 26, 2019 by TRIS Rating Company Limited.

In September 2019, TRIS Rating affirmed the company's rating at "AA-" with a "stable" outlook. This rating reflects IVL's leading position in the polyester value chain. IVL has a competitive edge stemming from its vertical integration of production, and diversification of production locations and customers across Asia, North America, South America, Europe, and Africa.

# NATURE OF THE BUSINESS



## Revenue Structure

The details of the reportable segment of our sales revenue structure applicable up to 2018, according to our consolidated financial statements for the year ended December 31, 2017 to 2019, are as follows:

Details	Year Ended December 31,					
	2017		2018		2019	
	(Bt million)	%	(Bt million)	%	(Bt million)	%
Revenue breakdown by Business Segments						
PET	145,760	51	182,415	53	196,047	56
Fibers	81,065	28	99,207	29	107,059	30
Feedstock	115,161	40	147,296	42	132,911	38
Elimination	(55,654)	(19)	(81,747)	(24)	(83,325)	(24)
<b>Consolidated revenue from the sale of goods</b>	<b>286,332</b>	<b>100</b>	<b>347,171</b>	<b>100</b>	<b>352,692</b>	<b>100</b>

The details of the reportable segment of our sales revenue structure applicable from 2019 onwards according to our consolidated financial statements for the year ended December 31, 2019 are as follows:

Details	Year Ended December 31, 2019			
	External (Bt million)	Inter- segment (Bt million)	Total (Bt million)	%
Revenue breakdown by Five Segments				
Integrated PET	211,658	24,700	236,358	67
Fibers	97,550	340	97,890	28
Packaging	10,404	-	10,404	3
Integrated Oxides and Derivatives	6,165	2,935	9,099	3
Specialty Chemicals	26,898	2,906	29,804	8
Elimination	17	(30,881)	(30,863)	(9)
<b>Consolidated revenue from the sale of goods</b>	<b>352,692</b>	<b>-</b>	<b>352,692</b>	<b>100</b>

Source: The Company's consolidated financial statements.

## Business Overview

Indorama Ventures (SET: IVL) is a major global intermediate and downstream petrochemicals producer with 109 sites in 32 countries around the world (as of December 31, 2019) providing value-added and differentiated products and services to several diversified consumer goods industries which serve common consumer needs in hygiene, improved lifestyles and safety.

IVL has integrated businesses which are aligned to create a sustainable value proposition. Our customer orientation, global reach and scale allow us to benchmark ourselves globally to enhance operational excellence, while our industry leading ESG initiatives make us a sustainable global producer.

Additional factors that help us in providing a broader portfolio of products for our customers are innovation, high value-added products and recycling, which enhance earnings growth and the sustainability of the business. Ongoing investments in research and development provide customers with new products and services that improve our offerings and complete our positioning as a one-stop center for their 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 and the largest producer of PET.

We act as 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, and this demand grows at a higher rate than global GDP.

The industry norm is to have long-term volume contracts with customers, normally one to three years in certain geographies like the US and Europe. 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 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 an oversupply or tight supplies in the industry in the short-term.

## Portfolio Development

We continue to consolidate and gain leadership in our existing businesses while continuing to diversify our portfolio in adjacent business opportunities in a disciplined manner. 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, sustainable global chemical 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 ROCE through





its business cycles. These segments, described below, are also poised for healthy growth momentum and thereby support IVL's overall growth strategy.

## Integrated PET

This segment includes 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 also includes 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 an intermediate product – purified terephthalic acid (PTA). 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, which in turn, is used to make clothing and plastic bottles.

IVL entered the PTA business in 2008 with a strategy to develop raw material integration ensuring an uninterrupted supply of raw materials and better integration in the polyester value chain. This provides a cost competitive edge in the PET and Fiber businesses. Our 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, 2019, we were a globally integrated PET producer with a total PTA capacity of around five million tons per annum.

### PET Business Overview

Our PET business is part of our core polyester value chain business and comprised 43% of our production volumes in 2019. Beginning with one manufacturing plant, we have continued to expand and now have operations across five continents – North America, South America, Europe, Africa, and Asia, and our PET business includes the production and sale of PET resin. As of December 31, 2019, we were the largest PET resin producer in the world with an aggregate installed production capacity of around six million tons per annum (including our India joint ventures where IVL owns a 50% equity interest).

### Recycling Business Overview

In response to the needs of customers and tackling the global challenges of resource scarcity and waste, IVL began to explore the recycling business as part of our corporate sustainability program and to also meet growing demand from our customers. Our decision to execute the recycling project was based on the growth of PET used 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 our PET recycling facilities in Thailand, the United States, Mexico and France. These expansions have strengthened our business and reflect our desire to continue to build a more sustainable business while enhancing our ESG priorities.



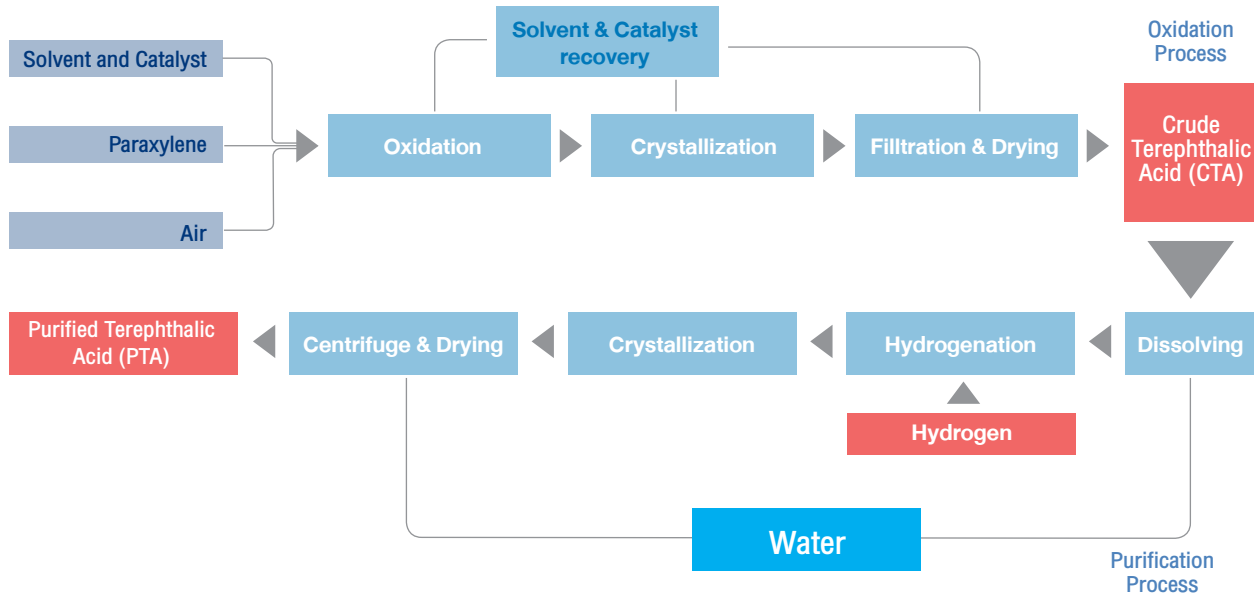
## Integrated PET Production Process

### 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.

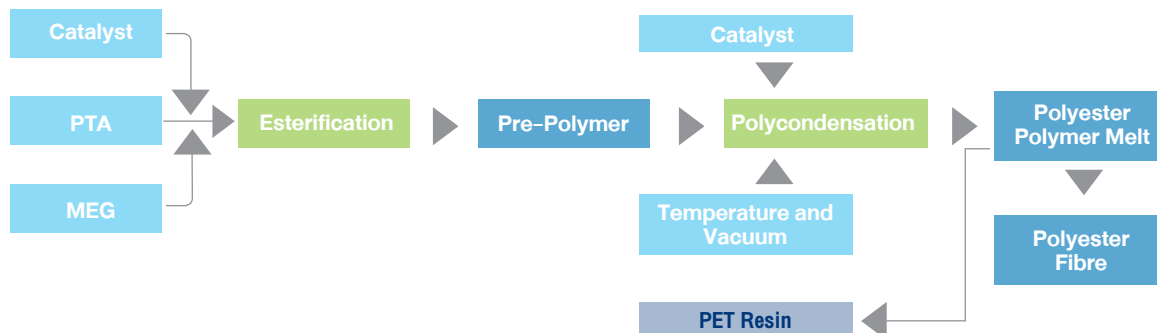
The chart below shows the PTA production process.



### 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 shows 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, maintain good relationships as well as provide first-rate customer service.

Most of our PX production is used for internal consumption to produce PTA at 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 2017, 2018, and 2019, 53%, 62%, and 70% respectively, of our PTA was sold to the group.

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 subcontract 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.

### Integrated PET Competition

IVL is the world's largest PET producer with a number one or number two position at over 90% of our manufacturing locations. We have a strong presence in the Americas and Europe, the Middle East, and Africa (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; while 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, 2019:

Production Facilities/Location	Nameplate Capacity <sup>(1)</sup> (‘000 tons per annum)
<b>PTA</b>	
Europe	1,735
Indonesia <sup>(2)</sup>	508
Americas	1,365
Thailand	1,373
<b>PET</b>	
China	440
Europe	1,384
Indonesia	203
Middle East and Africa	675
Americas	1,569
India	699
Thailand	436
<b>Recycling facilities</b>	<b>202</b>
<b>Total</b>	<b>10,590</b>

<sup>(1)</sup> 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 non-operating sites: Ottana Polimeri S.R.L., IRP Workington, and Adana Turpet.

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

## Integrated Oxides and Derivatives

IVL began in this segment by acquiring a MEG and PEO facility in the US state of Texas in 2012. We further enhanced our presence by commencing production at our ethylene cracker in Louisiana on January 31, 2020. 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.

In 2019, we invested in the integrated ethylene oxide (EO) and propylene oxide (PO) derivatives business of Huntsman Corporation which is fully integrated downstream in surfactants (used in personal and home care) and in propylene oxides (used in insulation and foam materials) where global demand is increasing at around over 4% pa.

With the acquisition of these leading downstream businesses, consisting of both EO and PO platforms, we are now well on our way to making this our core platform for continuous growth in selective upstream & downstream integration over the next five to 10 years while benefiting from cheap gas based feedstock in the US.

## Ethylene Oxide Business Overview

### Monoethylene Glycol (MEG)

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

MEG 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)

Purified ethylene oxide (PEO) comes from the direct oxidation of ethylene in the presence of a silver catalyst.

PEO 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. PEO 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.

EO is one of the most important raw materials used in large-scale chemical production. Most EO is used for the synthesis of ethylene glycols, including diethylene glycol and triethylene glycol which 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 EO include ethanolamines, which are used in the manufacture of soaps and detergents and for the purification of natural gas. Ethoxylates are reaction products of EO 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)

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.

## Propylene Oxide Business Overview

Propylene Oxide is a synthetic, highly-flammable, volatile, colorless liquid that is soluble in water and miscible with many organic solvents. Propylene oxide is used primarily as a chemical intermediate in the production of polyether polyols for use in making polyurethane plastics and propylene glycol. Other major products are polypropylene glycol, propylene glycol ethers, and propylene carbonate.

Tertiary butyl alcohol (TBA) is produced as a co-product of propylene oxide in dedicated plants. TBA is dehydrated into isobutylene to produce Methyl Tertiary-Butyl ether (MTBE). It can also be sold directly as an octane-enhancing component for gasoline.

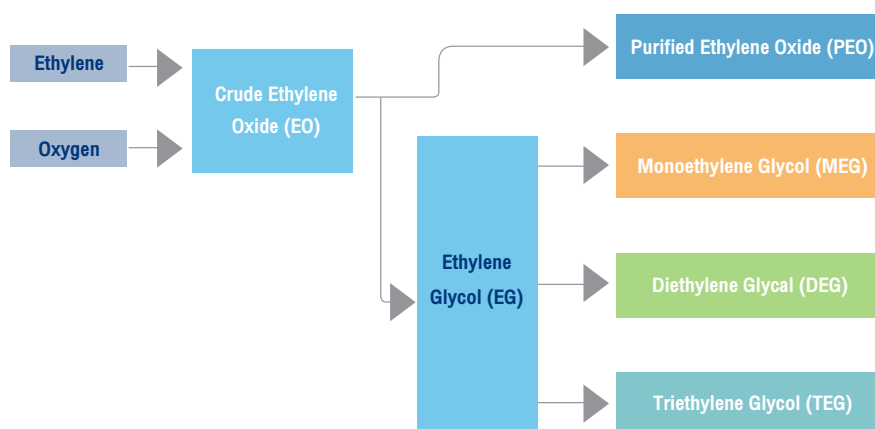
## US Olefin Cracker Business Overview

IVL acquired an old and mothballed ethylene cracker located in Lake Charles, Louisiana, through its subsidiary, Indorama Ventures Olefins LLC. The refurbishment and restart process is ongoing, and the plant started operations in January 2020. Post-completion, our integration has expanded in the US, as we are currently a buyer of ethylene, which will be the end product of our US cracker.



## Oxide and Glycol Production Process

The chart below shows 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 approximately 30% of the US merchant market share of PEO sales.

In addition to PEO, the plant manufactures monoethylene glycol (MEG), diethylene glycol (DEG) and triethylene glycol (TEG) products through a distillation process. The majority of the yield is MEG.

- IVL's acquisition of the Clear Lake, Texas plant accompanied a 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, and 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 2017, 2018, and 2019, 33%, 37%, and 33% respectively of our EO/EG was sold to the group and 67%, 63%, and 67% 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.

## Integrated Oxides and Derivatives Production Facilities

The following table sets out the key figures for our olefins production facilities as of December 31, 2019 (excluding the US gas cracker as it was completed in January 2020):

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



## Fibers Business

This segment includes all our offerings in the mobility (automotive and tires), personal hygiene and lifestyle domains. Each of these domains continue to grow at a rate of over 4% annually, offering the potential to become multi-billion dollar businesses individually. Growth in the fiber business comes as a result of trends towards light-weighting, use of sustainable materials, increasing attention being paid to personal hygiene and changes in the 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.

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 production 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.

Furthermore, we completed the acquisition of Polyester Staple Fiber in Brazil which will provide an opportunity to establish its global footprint in the Fibers business in South America's largest economy and the speciality fibers business of Sinterama in four countries: Italy, Brazil, China and Bulgaria. Sinterama is vertically integrated from chips to yarns and offers a vast range of colored polyester yarns for automotive, furnishing, apparel and technical applications.

### 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, followed by the United States 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 which 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 fiber and yarn 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, while there are a few companies in Korea, China, Turkey, and in western markets 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, 2019:

Production Facilities/Location	Nameplate Capacity <sup>(1)</sup> ('000 tons per annum)
China	122
Europe	465
Indonesia	406
Middle East and Africa	35
Americas	342
India	433
Thailand	293
<b>Total</b>	<b>2,096</b>

<sup>(1)</sup> 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.

## Specialty Chemicals

### Specialty Chemicals Business Overview

IVL entered this segment in 2011 with the acquisition of South Carolina-based Auriga Polymers, 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 naphthalene dicarboxylate (NDC) facility in Alabama, and a PIA facility in Cadiz, Spain.

In 2018, we grew this portfolio by expanding our PIA production in Spain and additionally converted a PTA line to PIA in Alabama, thereby becoming the world's second largest producer.

In 2019, we completed the acquisition of Invista's assets in Germany resulting in IVL possessing the intellectual property 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 our 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 PIA, we manufacture and mostly sell to third-party customers.

In 2019, we sold 71% of PIA sales to outside customers who manufacture PET resins 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 PIA demand is concentrated in domestic markets in Europe (where we are the only producer) and North America. Global PIA demand is close to 1.1 million tons with China being the largest consumer as PET is the main application for PIA. Apart from PET, the main applications are coatings and unsaturated polyester resins (UPRs). We are the second largest producer of PIA worldwide and our main competitors are Lotte, FCFC, Ineos and MGC. In 2019, IVL converted one of its PTA lines into IPA and expanded IPA's capacity.

## Specialty Chemical Production Facilities

The following table describes our specialty chemical production facilities as of December 31, 2019:

Production Facilities/Location	Nameplate Capacity <sup>(1)</sup> ('000 tons per annum)
Specialty PET – various sites	627
PIA – Spain and the US	440
<b>Total</b>	<b>1,067</b>

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

## Packaging

### Packaging Business Overview

IVL has been involved in this business for the past two decades, first through a joint venture with Sermasuk 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 15 production facilities in seven countries. An aggregate production quantity of 0.2 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 2019, we acquired Bevpak, a facility in Nigeria, 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, Coca Cola, and P&G. 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, 2019:

Production Facility/Location	Nameplate Capacity ('000 tons per annum)
Packaging – various sites	294





# 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.

## 2019 IVL Performance Summary

IVL registered volume growth of 18% in 2019, driven mainly by inorganic expansion. Industry-wide spreads declined to historical lows in 2019, leading to a 20% reduction in IVL's core EBITDA. Operating cash flow through this period increased by 33% to \$1.3B, as a result of lower prices and operational excellence. IVL has proposed a dividend of THB1.225/share for 2019.

IVL concurrently undertook several transformative initiatives that were announced on February 4, 2020, at its Capital Market Day, which are expected to generate benefits starting in 2020 and targeted to lead to \$350 million in run-rate cost savings by 2023. These initiatives and the strategic acquisition of the Huntsman Integrated Ethylene and Propylene Oxide (EO & PO) assets (code-named Spindletop); footprint expansion into a growing market in India; formation of a dedicated team to grow the PET recycling business; continued focus on working capital optimization coupled with an increased emphasis on leadership development are the key strategic priorities for the group.

## 2019 Summary Financials

**Table 1: Core Financials of Consolidated Business**

\$million (except where stated otherwise)	Full Year		
	2019	2018	2019 YoY
<b>Production Volume (KT)</b>	<b>12,340</b>	<b>10,419</b>	<b>18%</b>
Consolidated Revenue <sup>1,2</sup>	11,361	10,741	6%
<b>Core EBITDA<sup>2,3</sup></b>	<b>1,147</b>	<b>1,441</b>	<b>(20)%</b>
PET	563	588	(4)%
Fibers	246	240	2%
Feedstock	354	613	(42)%
<b>New Segments</b>			
Integrated PET	754	791	(5)%
Fibers	222	211	5%
Packaging	71	48	50%
Integrated Oxides and Derivatives	75	232	(68)%
Specialty Chemicals	40	158	(74)%
Core EBIT	598	1,000	(40)%
<b>Core Net Profit after Tax and NCI<sup>4</sup></b>	<b>387</b>	<b>789</b>	<b>(51)%</b>
Core Net Profit after Tax and NCI (THB m)	12,002	25,488	(53)%
<b>Core EPS after PERP Interest (THB)</b>	<b>1.96</b>	<b>4.43</b>	<b>(56)%</b>
<b>Core EBITDA/T (\$)</b>	<b>93</b>	<b>138</b>	<b>(33)%</b>
<b>Operating Cash Flow<sup>5</sup></b>	<b>1,316</b>	<b>989</b>	<b>33%</b>
<b>Net Debt to Equity (times)</b>	<b>0.99</b>	<b>0.87</b>	<b>14%</b>

\* 'Integrated Oxides and Derivatives' was previously called Olefins. The new nomenclature better reflects our sector following the consolidation of Huntsman assets.

<sup>1</sup> Consolidated financials are based upon elimination of intra-company or intra-business segment transactions.

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

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

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

<sup>5</sup> Operating Cash Flow is after changes in net working capital and cash tax, before maintenance capex.



## Business Segments Definitions

IVL now categorizes its businesses in five segments. This section of the document will discuss the performance of these five segments.

<b>Integrated PET</b>	<b>Full PET value chain</b> PX (Paraxylene), PTA (Purified terephthalic acid), PET (Polyethylene terephthalate), and Recycling
<b>Integrated Oxides and Derivatives</b>	<b>Includes olefin intermediates and Ethylene Oxide (EO):</b> MEG (Monoethylene glycol), DEG (Diethylene Glycol), TEG (Triethylene Glycol) and EO (Purified Ethylene oxide)
<b>Fibers</b>	<b>Polyester, Rayon, Nylon, Polypropylene, composites and worsted wool fibers, for three end-use segments:</b> Mobility (automotive parts e.g. airbags, tires, seatbelts), Lifestyle (apparel, active wear), and Hygiene (diapers, feminine care)
<b>Specialty Chemicals</b>	Specialty PET-related chemicals (for medical, premium bottles, films and sheets); PIA (Purified Isophthalic Acid, for PET production, unsaturated polyester resins and coatings); NDC (Naphthalene Dicarboxylate, for optical displays and industrial/mobility uses)
<b>Packaging</b>	<b>PET preforms and packaging</b> (e.g. bottles) for beverage and food end uses

As presented during the 2020 Capital Markets Day on 4 Feb 2020, we have established new segment groupings to better define our business. Integrated PET, Packaging and Specialty Chemicals are now grouped under Combined PET given the inter-related nature of their businesses.

**Table 2: Segment Results (New Grouping)**

\$million (except where stated otherwise)	Full year		
	2019	2018	2019 YoY
<b>Production (MMT)</b>	<b>12.3</b>	<b>10.4</b>	<b>18%</b>
Combined PET	10.3	8.6	20%
<i>Integrated PET</i>	9.4	7.8	20%
<i>Packaging</i>	0.2	0.2	31%
<i>Specialty Chemicals</i>	0.7	0.6	14%
Integrated Oxides and Derivatives	0.4	0.5	(20)%
Fibers	1.6	1.3	25%
<b>Core EBITDA</b>	<b>1,147</b>	<b>1,441</b>	<b>(20)%</b>
Combined PET	866	997	(13)%
<i>Integrated PET</i>	754	791	(5)%
<i>Packaging</i>	71	48	50%
<i>Specialty Chemicals</i>	40	158	(74)%
Integrated Oxides and Derivatives	75	232	(68)%
Fibers	222	211	5%
<b>ROCE (%)</b>	<b>8%</b>	<b>14%</b>	<b>(6)ppt.</b>
Combined PET	13%	16%	(3)ppt.
<i>Integrated PET</i>	15%	16%	(1)ppt.
<i>Packaging</i>	22%	12%	9ppt.
<i>Specialty Chemicals</i>	(1)%	19%	(21)ppt.
Integrated Oxides and Derivatives	5%	35%	(31)ppt.
Fibers	1%	5%	(4)ppt.

## FY2019 Performance Highlights

Table 3: Segment Results (New segments)

\$million (except where stated otherwise)	Full Year		
	2019	2018	2019 YoY
<b>Production Volume (KT)</b>	<b>12,340</b>	<b>10,419</b>	<b>18%</b>
Integrated PET	9,365	7,804	20%
Fibers	1,614	1,292	25%
Packaging	213	162	31%
Integrated Oxides and Derivatives	412	515	(20)%
Specialty Chemicals	736	646	14%
<b>Operating rate (%)</b>	<b>85%</b>	<b>88%</b>	<b>(3)%</b>
Integrated PET	88%	88%	0%
Fibers	83%	94%	(12)%
Packaging	76%	61%	16%
Integrated Oxides and Derivatives	75%	94%	(19)%
Specialty Chemicals	69%	85%	(16)%
<b>Consolidated Revenue<sup>1,2</sup></b>	<b>11,361</b>	<b>10,741</b>	<b>6%</b>
Integrated PET	7,620	6,996	9%
Fibers	3,153	2,747	15%
Packaging	335	249	34%
Integrated Oxides and Derivatives	293	452	(35)%
Specialty Chemicals	954	1,061	(10)%
<b>Core EBITDA<sup>3</sup></b>	<b>1,147</b>	<b>1,441</b>	<b>(20)%</b>
Integrated PET	754	791	(5)%
Fibers	222	211	5%
Packaging	71	48	50%
Integrated Oxides and Derivatives	75	232	(68)%
Specialty Chemicals	40	158	(74)%
<b>Core EBITDA Margin (%)</b>	<b>10%</b>	<b>13%</b>	<b>(3)ppt.</b>
Integrated PET	10%	11%	(1)ppt.
Fibers	7%	8%	(1)ppt.
Packaging	21%	19%	2ppt.
Integrated Oxides and Derivatives	25%	51%	(26)ppt.
Specialty Chemicals	4%	15%	(11)ppt.
<b>Core ROCE%</b>	<b>8%</b>	<b>14%</b>	<b>(6)ppt.</b>
Integrated PET	15%	16%	(1)ppt.
Fibers	1%	5%	(4)ppt.
Packaging	22%	12%	9ppt.
Integrated Oxides and Derivatives	5%	35%	(31)ppt.
Specialty Chemicals	(1)%	19%	(21)ppt.

<sup>1</sup> Consolidated financials are based upon elimination of intra-company or intra-business segment transactions.

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

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

## Segment Analysis

### Integrated PET

The overall volume increase was outweighed by a significant decline in EBITDA/T, reflecting lower integrated PET and PX spreads.

PET volumes declined by 3% in 4Q19 YoY. Organic volumes declined by ~10% due to a planned reduction in production to manage inventories and seasonality. Management will now focus on cost management initiatives, operational excellence and working capital optimization in 2020.

In addition, IVL remains committed to growing our recycling footprint and driving the circular economy for PET, working closely with our global customers. For example, P&G recently announced a long-term agreement with IVL to supply recycled PET for several major lines including Pantene, Head & Shoulders and Herbal Essences. IVL has allocated a budget of US\$ 1.5Billion by 2025 to grow the recycling business.

### Integrated Oxides and Derivatives

EO, which represents around 40% of total production volume has performed well. EO margins have remained relatively stable, which is reflected in its unchanged EBITDA contribution in 4Q19.

EG, which has a direct correlation with the absolute price of EG, represents the remainder of our production volume. The lower EBITDA contribution of EG reflects the decline in industry-wide MEG spreads, driven by increased capacity in Asia as well as lower MEG prices.

The poor 2019 performance was exacerbated by an unplanned shutdown, which contributed to a \$38M EBITDA decline. However, the affected operations are now back online and operating normally.

Management focus in 2020 will be to realize the synergy of the recently-acquired Huntsman assets, our Louisiana (IVOL) gas

cracker as well as our existing Texas MEG (IVOG) assets while minimizing any further unplanned shutdowns through operational excellence initiatives.

### Fibers

IVL has restructured the Fibers segment into three market-oriented verticals: Mobility, Hygiene and Lifestyle. Each vertical has a dedicated management team tasked to consolidate its asset footprint to capture combinatory synergies. This is progressing well to date in 2020.

		4Q18	4Q19	2018	2019
Lifestyle	Production (MT)	0.19	0.26	0.77	0.97
	Core EBITDA (\$M)	24	5	101	62
	<b>Core EBITDA/T</b>	<b>128</b>	<b>19</b>	<b>131</b>	<b>64</b>
Mobility	Production (MT)	0.05	0.05	0.22	0.26
	Core EBITDA (\$M)	9	12	52	70
	<b>Core EBITDA/T</b>	<b>205</b>	<b>215</b>	<b>235</b>	<b>271</b>
Hygiene	Production (MT)	0.10	0.09	0.30	0.38
	Core EBITDA (\$M)	31	26	58	90
	<b>Core EBITDA/T</b>	<b>310</b>	<b>291</b>	<b>195</b>	<b>234</b>

The Lifestyle business registered a lower EBITDA in 4Q19, as a sharp decline in margins offset an increase in volumes. The margin decline was driven by the unwinding of accumulated inventories in China during the quarter.

The Mobility business grew on a YoY basis, with stable volumes and a slight improvement in margins despite a global slowdown in the broader automotive sector.

The Hygiene business grew in 2019, reflecting the full year contribution from the Avgol acquisition.

As a part of the Fibers segment transformation, IVL has taken a conservative approach including a non-cash impairment and restructuring costs of US\$ 15M at three fibers location in Israel (Hygiene), Mexico and France (Mobility).



## Packaging

This segment has performed strongly both in the last quarter and the last twelve months supported by growth in both margins and volume, including the acquisition of Medco Plast in November 2018 and further expanded with the acquisition of BEVPAK in Africa in 4Q19.

We believe that this segment's performance is in-line with the growing demand for PET packaging, given its beneficial, functional and environmental properties compared to other beverage packaging materials.

## Specialty Chemicals

The specialty chemicals segment registered lower earnings on a YoY basis both in 4Q19 and 2019, driven mainly by a negative EBITDA contribution from PIA. This is in line with industry spreads, which were at an all-time low.

IVL has launched a turnaround plan for this business including a project to drive new demand for PIA, feedstock optimization and one line conversion to become switchable between PIA and PTA.

## Capital Expenditure Program

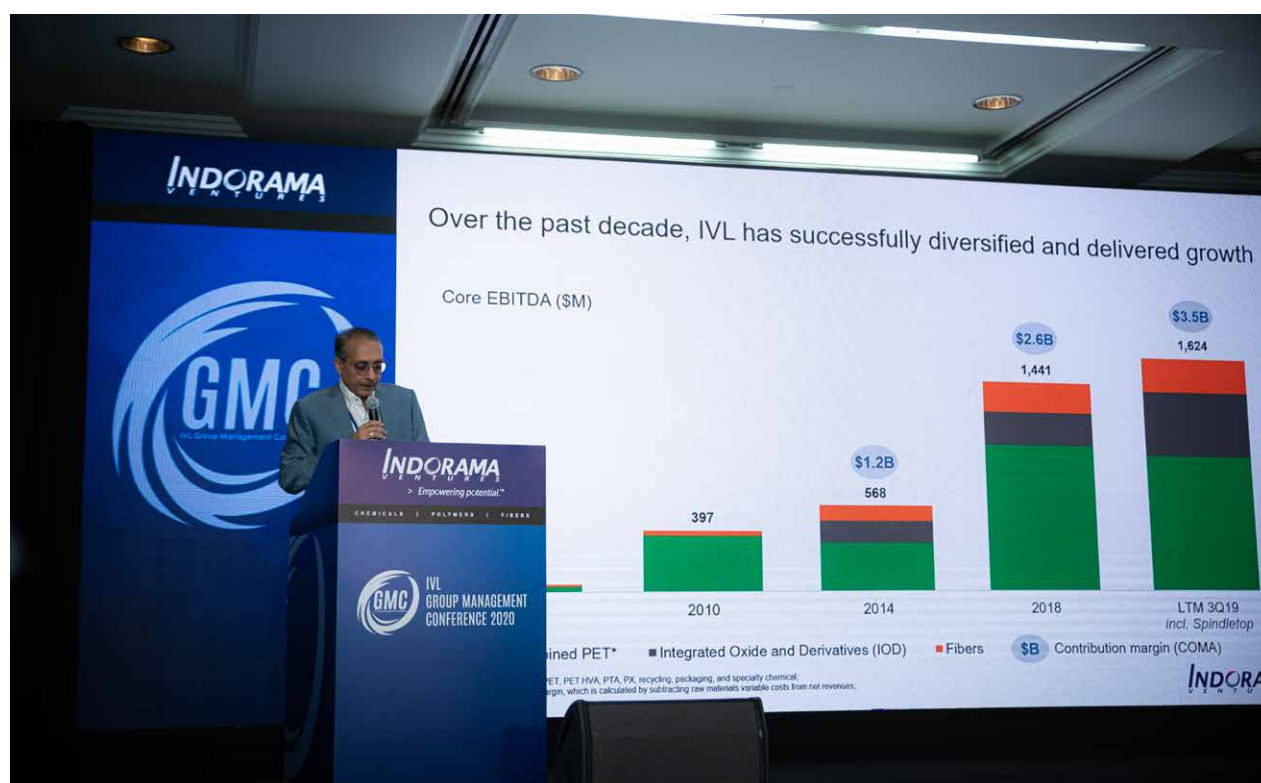
IVL expects its balance sheet and cash flow from operations to remain strong, and sufficient to meet its planned investments in future growth opportunities.

**Table 4: Major Projects Update & Recycling Growth Plan**

Project	Business	Expected Completion	Total Installed Capacity	Earnings in \$M	Capex in \$M
Olympus Cost Transformation Program	Corporate and all business segments	2020-2023	n/a	EBITDA ~350	~500
Corpus Christi PET/PTA	Integrated PET	2022-2023	PET: 367 kta PTA: 433 kta	Double digit ROCE	700-800 (till Dec'19: 381)
Recycling projects	PET recycling	2020-2023	~600kta	ROCE 12-14%	700-800

<sup>1</sup> Huntsman assets' acquisition completed on 3rd January 2020, total paid \$2 billion

<sup>2</sup> Gas Cracker (IVOL) commercial startup on 31st January 2020, total Capex ~\$1 billion



## IVL Strategic Priorities Going Forward

IVL remains focused on its financial objective for 2023 - to achieve double-digit ROCE in each of its core businesses; top decile total shareholder returns (TSR) position vs. peers and a strong cash flow through the cycle.

### On the journey to achieve this, IVL is committed to:

- **Cost transformation** via the Olympus program, leading to \$350M run-rate savings by 2023.
- **Asset full potential** with strong revenue and margin growth across PET, IOD and Fibers through commercial excellence.
- **Adjacency growth** to develop new growth engines for IVL.
- **Recycling leadership** as the #1 player in recycled PET and the orchestrator of the PET circular economy.
- **Leadership development** with a bench of leaders and talent management systems that is recognized as best-in-class.

### In 2020, the key milestones for IVL are:

- Spreads to register some recovery, given the historical lows below sustainable levels in 4Q19.
- Demand for recycled PET to accelerate while virgin PET and PTA demand remain resilient, driving organic volume growth.
- COVID-19 has had limited direct impact to-date on IVL's global production footprint as only ~4% of EBITDA from China; IVL continues to monitor further downside risks globally.

- Volumes lost in 2019 from unplanned shutdowns in 2019 to be recovered.
- Switchable PTA/PIA line in the US to generate EBITDA upside.
- Lake Charles gas cracker commenced commercial operations on 31 January 2020 .
- IOD business to benefit from Spindletop integration synergies and organic growth potential.
- Olympus cost program to start contributing to the bottom line .
- Operating rates and inventory days to be balanced to optimize both earnings and operating cash flows; IVL continues to optimize working capital through supply chain financing with a target reduction of three days in gross working capital.

## 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 2019 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 2019 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	FY2018	FY2019	Change (%)
<b>Old segment</b>			
<b>Revenue from the sale of goods</b>	<b>347,170.9</b>	<b>352,692.4</b>	<b>1.6%</b>
Add: Eliminations	81,747.5	83,324.4	
<b>Adjusted revenue from the sale of goods</b>	<b>428,918.4</b>	<b>436,016.8</b>	<b>1.7%</b>
PET	182,415.4	196,046.7	7.5%
Fibers	99,207.0	107,058.6	7.9%
*Feedstock	147,296.0	132,911.5	(9.8)%

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

THB in Millions	FY 2019		
	External	Inter-segment	Total
<b>New segment</b>			
<b>Revenue from the sale of goods</b>	<b>352,692.4</b>	<b>-</b>	<b>352,692.4</b>
Add: Eliminations	(17.3)	30,881.1	30,863.7
<b>Adjusted revenue from the sale of goods</b>	<b>352,675.1</b>	<b>30,881.1</b>	<b>383,556.2</b>
Integrated PET	211,658.4	24,700.1	236,358.4
Fibers	97,550.1	340.4	97,890.5
Packaging	10,403.5	-	10,403.5
Integrated Oxides and Derivatives	6,165.0	2,934.5	9,099.5
Specialty Chemicals	26,898.2	2,906.1	29,804.3

Sales revenue for the year ended 2019 was THB 352,692.4 million, an increase of 1.6% from 2018, while the volume grew 18% from 2018. This variance results primarily from the lower crude prices and margins in 2019.



## PET Revenue

PET revenue for the year ended 2019 was THB 196,046.7 million, an increase of THB 13,631.3 million, or 7.5% from 2018, mainly driven by increased volumes, which grew by 28%. The higher PET volume contributions were from full-year operation in 2019 of Brazil PET (acquired May 2018), Egyptian Indian Polyester (acquired June 2018), Medco Plast (acquired November 2018) and acquisitions of Invista Germany (acquired 1Q2019) including consolidation of India PET JV (consolidated 1Q2019).

## Fibers Revenue

Fibers revenue for the year ended 2019 was THB 107,058.6 million, an increase of THB 7,851.7 million, or 7.9% from 2018, driven by increased volumes which grew by 18%. The higher

Fibers volume contributions were from the full-year operation in 2019 of Avgol (acquired July 2018), Kordarna (acquired October 2018), and Schoeller (acquired November 2018) and acquisitions of M&G Fibras Brasil (acquired 1Q2019), UTT (acquired 1Q2019) and IRSL India (acquired 2Q2019).

## Feedstock Revenue

Feedstock revenue for the year ended 2019 was THB 132,911.5 million, a decrease of THB 14,384.5 million or 9.8% from 2018, in contrast with volume growth of 10%. The decrease in revenue is driven mainly by the negative impact from low industry spreads and lower prices. The higher Feedstocks volume resulted from the increase PTA volume from the full-year operation in 2019 of Polyprima Indonesia (consolidated October 2018).

## Cost of Sale of Goods

THB in millions	FY 2018	FY 2019	Change (%)
<b>Old segment</b>			
<b>Cost of sale of goods</b>	<b>281,119.7</b>	<b>295,054.6</b>	<b>5.0%</b>
As a percentage of total revenues	81.0%	83.7%	
Add: Eliminations	77,611.1	82,966.0	
<b>Adjusted cost of sale of goods</b>	<b>358,730.8</b>	<b>378,020.6</b>	<b>5.4%</b>
*PET	154,401.2	168,980.7	9.4%
As a percentage of total PET revenue	84.6%	86.2%	
Fibers	84,565.2	92,511.0	9.4%
As a percentage of total Fibers revenue	85.2%	86.4%	
Feedstock	119,764.4	116,528.9	(2.7)%
As a percentage of total Feedstock revenue	81.3%	87.7%	

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

THB in millions	FY 2019
<b>New segment</b>	
<b>Cost of sale of goods</b>	<b>295,054.6</b>
As a percentage of total revenues	83.7%
Add: Eliminations	30,701.0
<b>Adjusted cost of sale of goods</b>	<b>325,755.6</b>
Integrated PET	200,837.8
As a percentage of total Integrated PET revenue	85.0%
Fibers	84,812.5
As a percentage of total Fibers revenue	86.6%
Packaging	7,489.1
As a percentage of total Packaging revenue	72.0%
Integrated Oxides and Derivatives	5,976.8
As a percentage of total Integrated Oxides and Derivatives revenue	65.7%
Specialty Chemicals	26,639.4
As a percentage of total Specialty Chemicals revenue	89.4%

Our cost of sales for the year ended 2019 was THB 295,054.6 million, an increase of THB 13,934.9 million, or 5.0% from 2018 which is in-line with the increase in sales revenue.

## PET Cost of Sale of Goods

For the year ended 2019, PET cost of sale of goods was THB 168,980.7 million, an increase of THB 14,579.5 million, or 9.4% from 2018, in-line with an increase in sales revenue.

## Fibers Cost of Sale of Goods

For the year ended 2019, Fibers cost of sale of goods was THB 92,511.0 million, an increase of THB 7,945.8 million, or 9.4% from 2018, in-line with an increase in sales revenue.

## Feedstock Cost of Sale of Goods

For the year ended 2019, Feedstock cost of sale of goods was THB 116,528.9 million, a decrease of THB 3,235.6 million, or 2.7% from 2018. This resulted from the decrease in raw materials price offset with an increase in volumes.

## Gross Profit

THB in millions	FY 2018	FY 2019	Change (%)
<b>Old segment</b>			
<b>Gross Profit</b>	<b>66,051.2</b>	<b>57,637.8</b>	<b>(12.7)%</b>
As a percentage of total revenues	19.0%	16.3%	
Add: Eliminations	4,136.3	358.4	
<b>Adjusted gross profit</b>	<b>70,187.5</b>	<b>57,996.2</b>	<b>(17.4)%</b>
<b>PET</b>	<b>28,014.2</b>	<b>27,066.0</b>	<b>(3.4)%</b>
As a percentage of total PET revenue	15.4%	13.8%	
<b>Fibers</b>	<b>14,641.8</b>	<b>14,547.6</b>	<b>(0.6)%</b>
As a percentage of total Fibers revenue	14.8%	13.6%	
<b>Feedstock</b>	<b>27,531.6</b>	<b>16,382.6</b>	<b>(40.5)%</b>
As a percentage of total Feedstock revenue	18.7%	12.3%	

THB in millions	FY 2019
<b>New segment</b>	
<b>Gross Profit</b>	<b>57,637.8</b>
As a percentage of total revenues	16.3%
Add: Eliminations	162.8
<b>Adjusted gross profit</b>	<b>57,800.6</b>
<b>Integrated PET</b>	<b>35,520.7</b>
As a percentage of total Integrated PET revenue	15.0%
<b>Fibers</b>	<b>13,078.0</b>
As a percentage of total Fibers revenue	13.4%
<b>Packaging</b>	<b>2,914.4</b>
As a percentage of total Packaging revenue	28.0%
<b>Integrated Oxides and Derivatives</b>	<b>3,122.6</b>
As a percentage of total Integrated Oxides and Derivatives revenue	34.3%
<b>Specialty Chemicals</b>	<b>3,164.9</b>
As a percentage of total Specialty Chemicals revenue	10.6%

Gross profit for the year ended 2019 was THB 57,637.8 million, a decrease of THB 8,413.4 million or 12.7% from 2018. The gross profit margin of 16.3% in 2019 decreased from the prior year mainly due to lower industry spreads.

## PET Gross Profit

For the year ended 2019, PET gross profit was THB 27,066.0 million, a decrease of THB 948.2 million from 2018. PET gross profit margin in 2019 was 13.8%, a decrease YoY predominantly due to a lower industry spreads.

## Fibers Gross Profit

For the year ended 2019, Fibers gross profit was THB 14,547.6 million, a decrease of THB 94.2 million from 2018. Gross profit margin in 2019 was 13.6%, decreasing from the prior year primarily due to lower industry margins especially in Lifestyle fibers (mainly polyester fibers).

## Feedstock Gross Profit

For the year ended 2019, Feedstock gross profit was THB 16,382.6 million, a decrease of THB 11,148.9 million from 2018. Gross profit margin in 2019 was 12.3%, decreasing from the prior year due to a lower industry spreads and unplanned shutdown which were compensated, to some extent, by higher volumes.

## Spread or Raw Material Margins\*

Amount in US\$ per MT	FY 2018	FY 2019
<b>Industry spread</b>		
Asia PTA	149	137
Asia PET	179	126
Asia PET Integrated	307	243
<b>Industry spread</b>		
West PTA	247	238
West PET	302	234
West PET Integrated	514	439

\*Selling price less raw material consumption

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 2018	FY 2019	Change (%)
<b>Old segment</b>			
<b>EBITDA<sup>(1)</sup></b>	<b>47,128.5</b>	<b>28,913.5</b>	<b>(38.6)%</b>
Add: Inventory loss/(gain) <sup>(2)</sup>	(539.4)	6,689.1	
<b>CORE EBITDA</b>	<b>46,589.1</b>	<b>35,602.6</b>	<b>(23.6)%</b>
As a percentage of total revenues	13.4%	10.1%	
Add: Eliminations and others <sup>(3)</sup>	(30.5)	492.1	
<b>Adjusted CORE EBITDA</b>	<b>46,558.6</b>	<b>36,094.7</b>	<b>(22.5)%</b>
<b>PET</b>	<b>18,993.4</b>	<b>17,481.8</b>	<b>(8.0)%</b>
As a percentage of total PET revenue	10.4%	8.9%	
<b>Fibers</b>	<b>7,753.4</b>	<b>7,631.7</b>	<b>(1.6)%</b>
As a percentage of total Fibers revenue	7.8%	7.1%	
<b>Feedstock</b>	<b>19,811.8</b>	<b>10,981.2</b>	<b>(44.6)%</b>
As a percentage of total Feedstock revenue	13.5%	8.3%	

<sup>(1)</sup> 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.

<sup>(2)</sup> 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.

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

THB in millions	FY 2019
<b>New segment</b>	
<b>EBITDA<sup>(1)</sup></b>	<b>28,913.5</b>
Add: Inventory loss/(gain) <sup>(2)</sup>	6,689.1
<b>CORE EBITDA</b>	<b>35,602.6</b>
As a percentage of total revenues	10.1%
Add: Eliminations and others <sup>(3)</sup>	492.1
<b>Adjusted CORE EBITDA</b>	<b>36,094.7</b>
<b>Integrated PET</b>	<b>23,408.9</b>
As a percentage of total Integrated PET revenue	9.9%
<b>Fibers</b>	<b>6,891.1</b>
As a percentage of total Fibers revenue	7.0%
<b>Packaging</b>	<b>2,219.3</b>
As a percentage of total Packaging revenue	21.3%

THB in millions	FY 2019
<b>Integrated Oxides and Derivatives</b>	<b>2,320.2</b>
As a percentage of total Integrated Oxides and Derivatives revenue	25.5%
<b>Specialty Chemicals</b>	<b>1,255.2</b>
As a percentage of total Specialty Chemicals revenue	4.2%

<sup>(1)</sup> 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.

<sup>(2)</sup> 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.

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

Core EBITDA for the year ended 2019 was THB 35,602.6 million, a decrease of THB 10,986.5 million or 23.6%, mainly from the Feedstock segment. Core EBITDA is defined as EBITDA less Inventory gain/ (loss).

### PET Core EBITDA

PET Core EBITDA for the year ended 2019 was THB 17,481.8 million, a decrease of THB 1,511.6 million, or 8.0% from 2018, driven by a lower industry margins.

### Fibers Core EBITDA

Fibers Core EBITDA for the year ended 2019 was THB 7,631.7 million, a slight decrease of THB 121.7 million, or 1.6% from 2018, driven by a lower industry margins especially in Lifestyle fibers.

### Feedstock Core EBITDA

Feedstock Core EBITDA for 2019 was THB 10,981.2 million, a decrease of THB 8,830.6 million, or 44.6% from 2018. This was driven mainly by the impact of PIA industry spreads, which were at an all-time low and an unplanned shutdown in our EOEG site in the USA.

### Other Revenues

THB in millions	FY 2018	FY 2019	Change (%)
Interest Income	247.2	183.2	(25.9)%
Net foreign exchange gain/(loss)	586.2	(296.1)	(150.5)%
Gain on a bargain purchase	1,928.5	805.5	(58.2)%
Other income	1,952.6	2,183.7	11.8%
<b>Total</b>	<b>4,714.5</b>	<b>2,876.2</b>	<b>(39.0)%</b>

### Interest Income

Interest Income for the year ended 2019 was THB 183.2 million, a decrease of THB 64.0 million, or 25.9% from 2018. This was mainly due to a decrease in current investments during the year.

### Net foreign exchange gain/(loss)

There was a net foreign exchange loss for 2019 of THB 296.1 million, a decrease from a gain of THB 586.2 million in 2018. A significant decrease of THB 882.4 million, or 150.5% as a result of mismatch of currency for loan exposure in Holding companies. 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 2019, 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 2019, IVL had gains on bargain purchases of THB 805.5 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
<b>Companies acquired during the years ended December 31, 2018</b>					
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
				<b>1,928.5</b>	<b>5,674.5</b>

Baht in millions	Net identified assets acquired and liabilities assumed				
	Interest acquired (%)	Recognized values	Total Consideration	Gain on a bargain purchase	Goodwill
<b>Companies acquired during the years ended December 31, 2019</b>					
M&G Fibras Brasil Ltda., Brazil	100%	984.8	870.3	114.4	
UTT Beteiligungsgesellschaft mbH, Germany	100%	2,833.1	2,325.9	507.1	
INVISTA Resins & Fibers GmbH, Germany	100%	1,323.2	1,139.2	183.9	
IVL Dhunseri Petrochem Industries Private Limited, India	50%	2,721.3	3,309.3		588.0
Custom Polymers PET, LLC, USA	100%	874.4	954.7		80.3
Indo Rama Synthetics (India) Limited, India	39%	1,578.9	1,672.2		93.3
Bevpak (Nigeria) Limited, Nigeria	100%	(110.8)	22.0		132.8
Sinterama S.p.A. and its subsidiaries, Italy, Brazil, China and Bulgaria	100%	1,775.2	1,797.7		22.5
Green Fiber International Inc., USA	100%	521.9	746.1		224.2
				<b>805.5</b>	<b>1,141.1</b>

Again 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 2019 was THB 2,183.7 million, an increase of THB 231.1 million, or 11.8%, from 2018. This was mainly due to an increase of government grants, gain on disposal of assets and other non-operating income. Please refer to Note 26 - Other Income in the Audited Financial Statements for further details.

## Expenses

THB in millions	FY 2018	FY 2019	Change (%)
Distribution costs	18,449.4	21,216.2	15.0%
Administrative expenses	10,143.7	12,789.1	26.1%
Management benefit expenses	190.8	307.1	60.9%
<b>Total</b>	<b>28,783.9</b>	<b>34,312.4</b>	<b>19.2%</b>

Total expenses for the year ended December 31, 2019 was THB 34,312.4 million, an increase of THB 5,528.5 million, or 19.2%, from 2018 as a result of higher spending on selling and administrative expenses in-line with our volume growth. Please refer to Note 28 and 29 - Distribution Costs and Administrative Expenses of the Audited Financial Statements for further details on this item.

Management benefit expenses was THB 307.1 million, or an increase of 60.9% from last year, due to an increase in wages and salaries and an increase in the number of sites outside Asia.



## Doubtful Debt Expenses

IVL had doubtful debt expenses in the amount of THB 91.6 million in 2019 and THB 23.9 million in 2018, a significant increase of THB 67.6 million, or 282.5%, from 2018 due to an increase of allowance for doubtful accounts in 2019 as we adopted more conservative approach. Please refer to Note 7 - 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 15 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 2019, IVL spent THB 412.1 million (2018: THB 401.6 million) on R&D.

## Net Profit

THB in millions	FY 2018	FY 2019	Change (%)
Net profit	26,337.6	4,363.7	(83.4)%
As a percentage of total revenues	7.6%	1.2%	
Profit attributable to:			
Owners of the Company	26,465.4	5,252.1	(80.2)%
Non-controlling interests	(127.8)	(888.4)	595.4%

Net Profit for the year ended December 31, 2019 was THB 4,363.7 million, a decrease of THB 21,974.0 million, or 83.4%, from 2018 due to a significant decline in industry margins across the business. 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, 2019 and 2018, IVL had total assets of THB 380,567.9 million and THB 379,194.8 million, respectively. Total

## Finance Costs

Finance costs for the year ended 2019 was THB 5,615.1 million, an increase of THB 1,387.7 million from 2018, 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 5.3 million and THB 585.9 million for the year ended 2019 and 2018, respectively. A significant decrease in the share of profit from joint ventures was due to a change in accounting treatment of investment in India JV as in 2019 IVL started to consolidate JV in India with the change in management control in IVL's favor. Please refer to Note 11 - Investment in Joint Ventures in the Audited Financial Statements for further details.

## Income Tax Expense

Tax expense for 2019 was THB 1,534.0 million, a decrease of THB 2,278.4 million from 2018. This was in-line with a decrease in earnings in 2019.

assets remained relatively stable which increased only 0.4% compare to prior period with the increase in assets but offset by higher depreciation and lower working capital due to lower prices. The major assets are as follows:

## Trade Accounts Receivable

As of December 31, 2019 and 2018, IVL reported trade accounts receivable of THB 34,304.9 million, and THB 37,636.6 million respectively, representing 9.0% and 9.9% of total assets. We continued to improve and control our receivables 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, 2018	December 31, 2019
<b>Related parties</b>		
Within credit terms	855.6	824.0
Overdue:		
Less than 3 months	138.6	18.5
3-6 months	0.9	8.0
6-12 months	0.2	0.2
Over 12 months	150.0	1.7
<b>Net</b>	<b>1,145.3</b>	<b>852.3</b>
<b>Other parties</b>		
Within credit terms	31,121.4	29,291.5
Overdue:		
Less than 3 months	4,687.3	3,573.3
3-6 months	253.8	253.4
6-12 months	51.9	100.5
Over 12 months	618.3	515.2
	<b>36,732.7</b>	<b>33,733.9</b>
Less: allowance for doubtful accounts	(241.5)	(281.4)
<b>Net</b>	<b>36,491.2</b>	<b>33,452.6</b>
<b>Total</b>	<b>37,636.5</b>	<b>34,304.9</b>

## Inventories

As of December 31, 2019 and 2018, IVL reported inventories of THB 62,164.9 million and THB 70,085.3 million, respectively, representing 16.3% and 18.5% of total assets. The decrease in inventories is the result of a planned reduction in production to manage inventories as well as lower prices.

## Investment in joint ventures

As of December 31, 2019 and 2018, IVL reported investment in jointly-controlled entities of THB 2,492.2 million and THB 5,294.0 million, respectively, representing 0.7% and 1.4% of total assets. The significant decrease is mainly the result of our investment in an Indian 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, 2019 and 2018, IVL reported property, plant and equipment of THB 212,422.9 million and THB 205,182.4 million, respectively, representing 55.8% and 54.1% 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 5.2% in its PPE in 2019 from 2018 to THB 60,617.3 million. In 2019, IVL completed the acquisition of Invista Germany and the combination of joint venture in India. We also acquired PET recycling assets in USA and Bepak Packaging in Nigeria which is one of the largest manufacturers of PET preforms in West Africa.

The Fibers segment saw an increase of 10.6% in its PPE in 2019 from 2018 to THB 61,522.2 million. In 2019, IVL completed the

acquisition of M&G Fibras Brasil, HVA-focused UTT and IRSL India. The Company also acquired the specialty fibers business of Sinterama which offers a vast range of colored polyester yarns for the automotive, furnishing and apparel industries as well as for technical applications.

The Feedstock segment saw a decrease of 2.5% in its PPE in 2019 from 2018 to THB 89,334.0 million. There was no major asset acquisition in this segment. The decline in PPE was mainly as a result of depreciation during the year.

## Other Intangible Assets

As of December 31, 2019 and 2018, IVL reported intangible assets of THB 24,165.1 million and THB 25,139.3 million, respectively, representing 6.3% and 6.6% of total assets. Intangible assets decreased 3.9% from last year which was mainly as a result of amortization during the year and was considered insignificant. Please refer to Note 16 - 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 31, 2019, these amounts are not material.

## Total Liabilities

As of December 31, 2019 and 2018, IVL reported total liabilities of THB 242,400.6 million and THB 227,339.5 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, 2019 and 2018, IVL had trade accounts payable of THB 57,172.9 million and THB 54,564.8 million, respectively. This was in-line with the growth in volumes from business expansion and acquisitions. The payment days increased from 58.4 days for the year ended December 31, 2018, to 65.0 days for the year ended December 31, 2019, as a result of management actions on working capital optimization.

### Interest-bearing liabilities

As of December 31, 2019 and 2018, IVL reported interest-bearing liabilities of THB 146,951.3 million and THB 136,764.4 million, respectively, representing 38.6% and 36.0% of total liabilities and shareholders' equity.

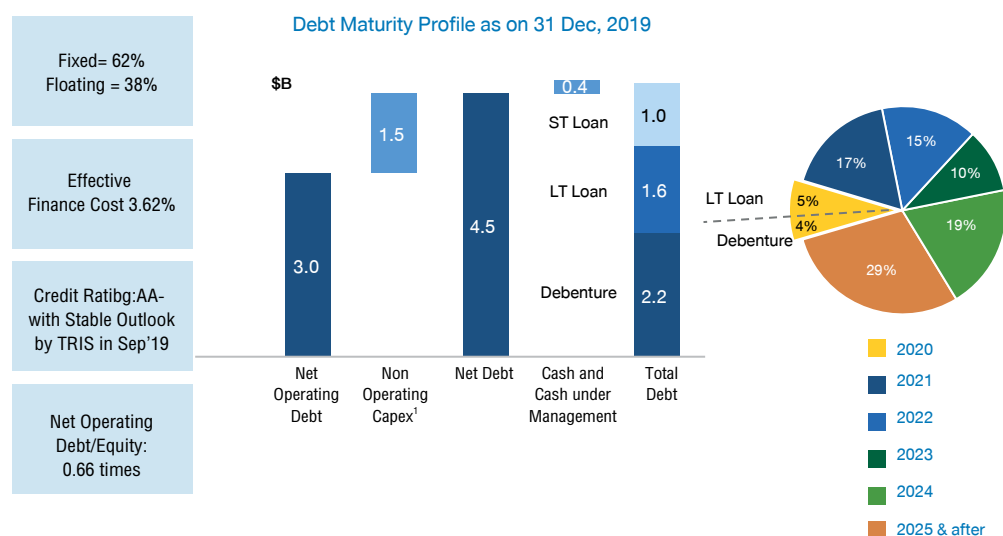
Our net operating debt-to-equity slightly increased from 0.60 times at the end of 2018 to 0.66 times at the end of 2019, after spending on capex and investments of THB 34,559.4 million in 2019. IVL's net operating debt slightly decreased from THB 91,832.2 million at the end of December 31, 2018 to THB 91,647.8 million at the end of December 31, 2019.

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

THB in billions	31-Dec-18	31-Dec-19
<b>Total Debt</b>	<b>137</b>	<b>147</b>
Bank overdraft and short-term loans	31	30
Long-term debt (Current portion)	9	6
Debentures (Current portion)	3	4
Long-term debt (Non-current portion)	35	43
Debentures (Non-current portion)	59	63
<b>Cash &amp; Cash under management</b>	<b>5</b>	<b>11</b>
Cash and cash equivalents	6	10
Current investments and loans given	(0)	0
<b>Net Debt</b>	<b>131</b>	<b>136</b>
Non-operating Debt (Project Debt)	40	45
<b>Net Operating Debt<sup>1</sup></b>	<b>92</b>	<b>92</b>
Net debt to equity (times)	0.87	0.99
Net operating debt to equity (times)	0.60	0.66
Debts with fixed interest %	49%	62%
Credit Rating by TRIS	AA-	AA-

<sup>1</sup> 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:



<sup>1</sup> Includes various projects underway that are not completed and have not yet started contributing to the earnings

## Shareholders' Equity

As of December 31, 2019 and 2018, IVL reported shareholders' equity of THB 138,167.3 million and THB 151,855.4 million, respectively. The decrease in shareholders' equity was mainly due to the increase in translation loss of overseas investments caused by Thai Baht appreciation in 2019 over 2018. Please refer to "Statement of Changes of Equity" in the Audited Financial Statements for more details.

## Cash Flow

IVL generated THB 40,845.0 million in cash flow from operating activities in 2019 compared to THB 31,980.6 million in 2018 due to lower prices and operational excellence.

Cash flow used in investing activities of THB 25,298.2 million in 2019 was primarily paid towards the acquisitions of M&G Fibras Brasil, Invista Germany, PET recycling in USA, Bevpak Nigeria, UTT, IRSL India and Sinterama including combination of joint venture in India 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 used in financing activities of THB 10,796.1 million in 2019 was a result of short and long-term loans repayment and interest and dividend payments in 2019.

## Liquidity

Strong cash flow from operations and a longer average loan maturity led to a high liquidity position for the Company. As at December 2019, IVL had liquidity of THB 62,430.6 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. IVL maintained the current ratio stood at 1.1 times at the end 2019 and 1.1 times at the end 2018 also. This ratio above one 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 ROE of 3.8% in 2019 compared to 20.2% in 2018, a significant decrease driven mainly by the impact of Industry spreads and lower prices leading in inventory losses. IVL core ROE of 9.0% in 2019 compared to 21.1% in 2018 which decreased in-line with decline in core net profit due to lower industry spreads.

Note: For the Core ROE percent calculation, we use the formula: 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 2019 and 2018, our ROA ratio was 3.0% and 10.4%, respectively. IVL core ROA of 4.9% in 2019 compared to 9.9% in 2018, which decreased in-line with decline in core net profit.

## 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, 2019 and 2018, our net interest bearing debt-to-equity stood at 0.99 times and 0.87 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, 2019 and 2018, our DSCR was at 2.1 times and 3.5 times, respectively. The slightly decrease came 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.



# 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 (SRMC), 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 SRMC reviews a sensitivity analysis

of the business plan, including Greenfield and M&A projects, to ensure sustainability, especially with regards to the environmental and social impacts to business operations.

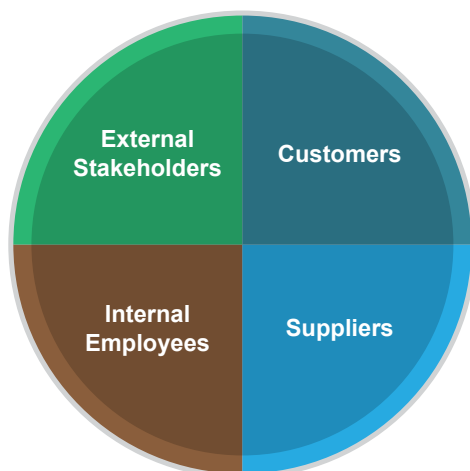
## Emerging Business Risks

**The evolving sophistication of emerging cyber threats could have an adverse impact on our business financially and reputational**

We rely extensively on information technology systems ("IT Systems"), including some that 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 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, we may suffer interruptions in our ability to manage or conduct business. Such reasons include, but are not limited to, the poor performance, or 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. Also, if the aforementioned disaster recovery and business continuity plans do not effectively resolve such issues on a timely basis, we may suffer interruptions.

#### **Risk Mitigation Actions:**

- Our systems are protected with advanced firewalls, antivirus, antimalware, up-to-date system patches and advance threat protection to strengthen our IT system security.
- Adopting emerging and modern AI-based protection technologies such as EDR (End point detection and response)
- Network segmentation is planned to keep users, servers, applications on different network segment and pass inter-segment traffic through firewall.
- 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 to 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 our business position vulnerable 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 evolve; new technologies and solutions may become available and/or regulations 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.
- IVL has committed to increase rPET capacity from 160,000 tons per annum at end of 2019 to more than 750,000 tons per annum by 2025. At the same time, we have partnered with Ioniqa and Loop Industries to develop the next generation technology for recycling.

### **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.

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

IVL invests in research and development, fostering innovation and encourages our people to be proactive and develop the 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.

Please visit Sustainability and Corporate Social Responsibility section in this Annual Report 2019 and our Sustainability Report 2019 for more information.

### **The failure to address anti-plastic campaigns may adversely impact the industry's growth potential.**

Consumers are viewing plastic pollution as the issue second only to climate change. There is a significant rise in the anti-plastic campaigns demanding to stop producing single-use plastic. Consumer products companies are emerging as new targets for global activism, with green groups blaming them for fouling the ocean with plastic and activists urging governments to regulate them. Governments are being pressured to take meaningful steps towards reducing single-use plastic waste and help preserve the environment. Brand owners are also reacting, as they make bold

commitments targeted at managing waste from packaging. A failure to address this challenge presents risks to the industry's growth potential and license to operate.

#### **Risk Mitigation Actions:**

IVL has established key strategic priorities to steer the business through the plastic waste challenge and beyond.

- We are increasing our investments in recycling plants. We have committed USD 1.5 billion to build the recycling infrastructure needed globally to close the loop, encouraging the end-use of recycled PET and delivering a circular economy for beverage packaging.
- We are working with several industry partners to achieve a circular economy for sustainable plastics. We intend to play a leading role by bringing customers of recycled products into the value chain and developing ways to include recyclability in all of our products.
- We encourage doing more with less through sustainable consumption and production in addition to educating consumers on the need to recycle and adopt a lifestyle focused on sustainability. Our global recycling education programs promote recycling and waste separation among children, communities, and consumers, and aims to increase their awareness and involvement in protecting the environment for a better future.
- We have acquired proprietary knowledge of mechanical recycling, which we are scaling up. We have also developed partnerships with innovative players to develop and test next-generation chemical recycling technologies. For example, we collaborated with Ioniqa to create the first-ever PET bottle made from marine plastic waste.

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

Water crises caused by a significant decline in the available quality and quantity of fresh water has emerged in many areas globally, which are interconnected environment-related risks accompanied by extreme weather events and climate change. Those risks lie in a higher-impact and the higher-likelihood than previously seen. 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 lead to challenges and uncertainty as physical, financial, regulatory and reputational risks. More severe climate change also leads to drought and floods that might impact the company in some regions of the world. 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 monitor regulatory and potential changes and evaluate water risks and opportunities by conducting scenario analyses.
- We communicate and 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 stakeholders and change in regulation based upon current and future condition. Given the tool enables us to foresee the changes to water risk forecasting in 2020, 2030 and 2040, these results are analyzed and discussed during meetings of risk assessment committees, where the plants are located in high-risk water stress or locating under significant risks to water usage, to identify necessary mitigation measures or any initiatives on a quarterly basis.
- We evaluate the possibilities and options to reduce water consumption, increase recycled and reused wastewater as well as conduct water harvesting, to achieve our goal of zero liquid discharge at as many sites as possible and establish targets at the entity and group level.
- IVL complies with all applicable environmental laws, international standards and regulations in the countries where we operate, and is proactive in demonstrating leadership and responsibility in-line with our values.
- Stringent due diligence 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.

Please see the Sustainability and Corporate Social Responsibility section in this Annual Report and our Sustainability Report 2019 for more information.

## Business Risks

### Increasing business and international operations naturally exposes us to 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 mitigations:

- Long-term and short-term sensitivity analyses of the Company's business plans, and correlation of various risks to the business.

### 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 31, 2019, IVL has 113 operating sites in 32 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 a senior executive at the corporate level to monitor both climate change risks and opportunities closely, who will report to all concerned, including the Sustainability and Risk management Committee (SRMC) that in turn, reports 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 been assessed by the Dow Jones Sustainability Indices, CDP's Climate Change and Supply Chain, FTSE and other external sustainability assessments in 2019. 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 of our customers

#### **We operate in highly competitive industries and the actions of our competitors could impact on 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, Polyester 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 lead to downward pressure on profit margins.

#### **Risk Mitigation Actions:**

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



**Crude oil and commodity price volatility affect 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. A 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. The company has created a 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 adversely impacted should we infringe on the intellectual property rights of others**

- We operate in many 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 our financial condition.

**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 costs 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 recover increases fully 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 raw material 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.

#### **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.
- Adopting cloud servers to quickly rebuild servers
- 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. We examine the following:
- 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 64.76% 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 risks 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

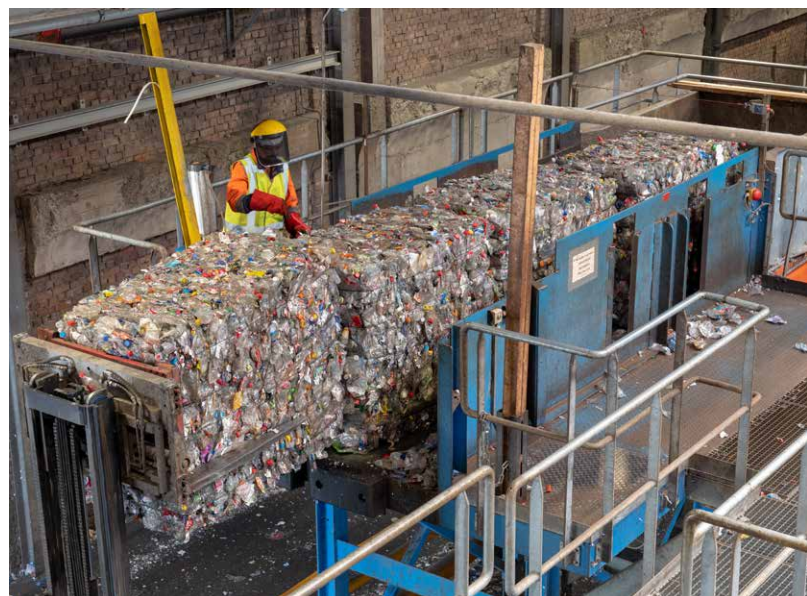
- Acquired businesses may not achieve the required level of revenue, profit, cash flow or other financial benchmarks.
- Acquisitions may involve risks associated with potential assumption of unanticipated liabilities and contingencies; difficulties in integrating acquired businesses and achieving planned 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 not to 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 to shareholders, our ability to pay in the future depends on a decision of the Board of Directors and/or the approval of shareholders at a general meeting. It also depends on the results of our operations, cash flows or financial conditions; contractual restrictions and restrictions imposed by applicable laws and other factors that the Board of Directors deems relevant.

#### **Risk Mitigation Actions:**

- IVL received dividend income of 10.11 billion THB in the year 2019 from its direct and indirect subsidiaries while it paid dividends of 7.86 billion THB to its shareholders. The dividend received is 1.29 times the dividend paid. At the end of the year 2018, the retained earnings have increased to 16.63 billion THB from 14.72 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 cash flow plan into consideration for payment of dividends.

#### **Risk that the Company cannot comply with debt covenants**

IVL and its subsidiaries have total outstanding debts of THB 146.95 billion at the end of 2019. The total outstanding debt includes bank overdrafts, short term loans, long term loans, debentures/bonds



and financial leases. The net debt-equity ratio at the end of 2019 is around 0.99 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 cash flow from operations. The total shareholders' equity at the end of 2019 is 138.17 billion THB (including perpetual debentures of 14.22 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 2019, the domestic credit rating of IVL was re-affirmed at AA- by TRIS. IVL would like to maintain a business profile and financial profile which maintains or enhances its credit rating profile.

#### **Risk Mitigation Actions:**

Financial policy is to maintain a net debt-equity ratio of around 1.00 while 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, cash flows and covenants on a monthly/quarterly basis.

## **Compliance & Legal Risks**

### **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 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 relevant 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 as 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 AC. Internal assurance reviews are performed to ensure the existence of an effective system of internal controls that provides reasonable assurance that the Company can achieve its 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.

The Audit Committee in Meeting No. 1/2020 held, evaluated its opinion on the internal control systems of the Company and its subsidiaries for 2019 and found the internal control systems to be adequate. The internal control system 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 framework, are 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 in 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 with IVL's Policies Handbook which contains all of the policies that facilitate improving the internal control environment. IVL has detailed its 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 at Indorama Ventures PCL and its subsidiaries and affiliates. All employees have been given the Code of Conduct for the Company, signed off on the code and agree to abide by its contents, including new employees as part of their orientation program. In addition, all employees agree to follow any revision Made to the code of Conduct. 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 to not divulge any such information with the aim of benefiting 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 in 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, greenfield and M&A projects.

## Control Activities

IVL's operating units have policies and procedures with regard to the general management, procurement, sales and marketing, and financial activities for all of 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 of the units. In addition, 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 procedures 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 the 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. IVL's 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





and/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 as and when needed basis. The Company has a Disaster Recovery Plan for IT processes and to bring the IT system back online 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 is prepared by the Company Secretary, covering all aspects of discussions held during the Board meeting, and are reviewed by all directors and signed-off by the Chairman of the Meeting. The Company Secretary and the AC Secretary fulfill any requirements as needed and provide any information requested by the Directors.

IVL has a Whistleblower Policy which provides channels for employees to lodge any anonymous complaints. The Company's website provides various communications channels for external parties to file their report, for example, by contacting the Company Secretary, Investor Relations Department, HR Department, etc. The Legal and 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](mailto:independentdirectors@indorama.net) or [ethics@indorama.net](mailto: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's 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 noted and recommendations made are communicated to the parties responsible for implementation through the internal audit report. Any significant audit findings are presented to the AC on a half-yearly basis. From time to time, the AC reviews the management letter from the external auditors. The AC also periodically reviews the status updates on the implementation of outstanding recommendations. The IAD has rolled-out the Control Self-Assessment Questionnaires (CSAs) for five business processes for IVL and its subsidiaries and affiliates. The IAD will roll-out the CSAs for four more business processes in due course, and reviews the CSAs when completed by the business units and reports on their compliance to the AC. The CSA approach further facilitates the "Risk Awareness Culture" among employees working across all IVL subsidiaries.

## Head of Internal Audit and Head of Corporate 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 Corporate Compliance

The Company has appointed the Company Secretary, Mr. Souvik Roy Chowdhury, as the Head of Corporate Compliance, in order to review and evaluate the various statutory and corporate compliances for all business units and to ensure that they are in accordance with the Company's applicable rules, regulations and 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 31<sup>st</sup> December 2019:-

Connected Party & Relationship	Type of Transaction	(Amount in MB)		
		2017	2018	2019
PT. Indo-Rama Synthetics Tbk., Indonesia (PTIRS)	Sale of raw materials/ products/ services/ utilities	1,699.70	1,778.54	1,547.92
<ul style="list-style-type: none"> <li>The majority shareholding in PTIRS is ultimately controlled by a Trust in which Mr. Sri Prakash Lohia<sup>1</sup> and his immediate family members are the discretionary beneficiaries.</li> <li>Mr. Sri Prakash Lohia<sup>1</sup> is the President Commissioner and Mr. Amit Lohia<sup>1</sup> is a Vice President Commissioner of PTIRS.</li> </ul>	Purchase of raw materials/ products/ services/ utilities	1,628.35	2,133.94	2,552.35
PT. Indorama Petrochemicals, Indonesia (PTIP)*	Sale of raw materials/ products/ rendering of services	4.67	522.13	0
*From January 2019, PTIP has become an indirect wholly-owned subsidiary of IVL and thus no longer a connected party.	Purchase of raw materials/ products/ services	7,320.57	9,234.25	0
Indorama Eleme Petrochemicals Ltd., Nigeria (IEPL)	Purchase of utilities/ services	88.67	64.05	54.78
<ul style="list-style-type: none"> <li>The majority shareholding in IEPL is ultimately controlled by a Trust in which Mr. Sri Prakash Lohia<sup>1</sup> and his immediate family members are the discretionary beneficiaries.</li> <li>Mr. Sri Prakash Lohia<sup>1</sup> is the Chairman and Mr. Amit Lohia<sup>1</sup> is a Director of IEPL</li> </ul>				
Pacific Resources Ltd., Thailand	Service expense (Office Lease)	7.70	8.20	8.40
Mr. Anuj Lohia, a son of Mr. Alope Lohia <sup>2</sup> , is a major shareholder of Pacific Resources Ltd.				
Cryoviva (Thailand) Ltd., Thailand	Service income	1.13	0.93	0.93
Mr. Alope Lohia <sup>2</sup> is an indirect shareholder of Cryoviva (Thailand) Ltd.				

Connected Party & Relationship	Type of Transaction	(Amount in MB)		
		2017	2018	2019
PT. Irama Unggul, Indonesia (IU)	Service expense (Office Lease)	1.23	1.06	1.02
<ul style="list-style-type: none"> <li>The majority shareholding in IU is ultimately controlled by a Trust in which Mr. Sri Prakash Lohia<sup>1</sup> and his immediate family members are the discretionary beneficiaries.</li> <li>Mr. Sri Prakash Lohia<sup>1</sup> is the President Commissioner of IU</li> </ul>				
Lohia Global Holdings Limited, Hong Kong-China	Service expense (Royalty Fee for Indorama trade name)	184.47	165.51	175.44
Lohia Global Holdings Limited is owned by Ms. Shruti Lohia, a daughter of Mr. Sri Prakash Lohia <sup>1</sup> .				
Vega Aviation Limited, British Virgin Islands	Service expense (Aircraft Lease)	94.84	80.81	77.61
Vega Aviation Limited is a company which is 100% owned by Canopus International Limited, Mauritius. Canopus International Limited is a company in which Mr. Alope Lohia <sup>2</sup> and his immediate family have voting rights of up to 76% and an equity interest of up to 50% while the remaining voting rights of 24% and 50% of the equity interest is ultimately controlled by a Trust in which Mr. Sri Prakash Lohia <sup>1</sup> and his immediate family members are the discretionary beneficiaries.				
Thai Plaspac Public Company Limited Thailand (TPAC)	Sale of products	0.00	4.19	8.43
<ul style="list-style-type: none"> <li>Mr. Anuj Lohia, a son of Mr. Alope Lohia<sup>2</sup>, is a major shareholder in TPAC.</li> <li>Mr. Kevin Kumar Sharma, a son-in-law of Mr. Alope Lohia<sup>2</sup>, is the CEO of TPAC.</li> </ul>				
Yayasan Pendidikan Indorama, Indonesia (YP)	Service Expense (Job work)	17.42	14.91	9.29
The sole trustee of YP is Mr. Sri Prakash Lohia <sup>1</sup> and Mr. Amit Lohia <sup>1</sup> is Chairman of the Advisory Board of YP.				
PT. Tigadya Minergy, Indonesia	Purchase of coal	0.00	102.80	235.24
The majority shareholding of PT. Tigadya Minergy is ultimately controlled by Mr. Sri Prakash Lohia <sup>1</sup> .				
Indorama Industries Limited, India (IIL)	Sale of raw materials/ products/ services/ utilities	0	0	48.52
The majority shareholding in IIL is ultimately controlled by a Trust in which Mr. Sri Prakash Lohia <sup>1</sup> and his immediate family members are the discretionary beneficiaries.	Purchase of raw materials/ products/ services/ utilities	0	0	39.51



Connected Party & Relationship	Type of Transaction	(Amount in MB)		
		2017	2018	2019
IVL Foundation	Donation for various social, charitable, environmental protection, sports, healthcare and other related activities.	0	0	20
Mrs. Suchitra Lohia <sup>3</sup> and Mrs. Aradhana Lohia, a daughter of Mr. Alope Lohia <sup>2</sup> and Mrs. Suchitra Lohia <sup>3</sup> , are the Chairman and Vice Chairman of the IVL Foundation.				

Remark 1 Mr. Sri Prakash Lohia is the Chairman and a Non-Executive Director and Mr. Amit Lohia is a Non-Executive Director of Indorama Ventures Public Company Limited ("IVL");

2 Mr. Alope Lohia is an Executive Director and GCEO of IVL;

3 Mrs. Suchitra Lohia is an Executive Director of IVL.

## 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 2019



The Board of Directors and the management of Indorama Ventures is firmly committed to implementing and practicing good corporate governance across all its global operations in pursuit of its long term sustainable business success. The Company 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 ensure that all employees of IVL are aware of the Governance principles and practices that IVL promotes.

In pursuit of its commitment and for a better understanding and more effective implementation, all of corporate governance related policies and codes of conducts were reviewed, combined and restructured into one document, the Corporate Governance Manual ("the Manual"). The Manual, approved by the Board in

August 2019, provides all directors, employees and stakeholders of the Company a clearer focus of how the Company's values are being implemented and how corporate governance is being realized in the Company.

## Corporate Governance Principle

In the Manual, Corporate Governance Policy is renamed to Corporate Governance Principles 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 CG Principles provide the basic foundation for sound, long-term oriented governance, and balancing the interests of the Company's many stakeholders.

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 roles 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 the SEC's recommendations have been implemented.

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 implements the recommendations as stated in the Corporate Governance Report of Thai Listed entities (CGR) issued by the IOD, ASEAN Corporate Governance Scorecard and Transparency International.

#### **The Highlight Practice of Corporate Governance in 2019**

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 Manual, as mentioned above, was introduced to all IVL entities globally in September 2019 for more clarity, relevance and transparency and set out how we prioritize our responsibilities as a leading chemical company. To ensure proper dissemination and understanding the CGPAC committee has undertaken various training sessions and will be conducting training and reviews going forward. Details further explained below under IVL Corporate Governance Policy Awareness Campaign 2019.
2. The Whistleblower Policy was made General Data Protection Regulation (GDPR) compliant to further ensure protection of the personal information being received.
3. 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. He was re-appointed for another term.
4. The Company had formalised the appointment a Lead Independent Director (the "LID") in February 2018. The roles and responsibilities of the LID were revised during the year to align with good governance practice.
5. The Sustainability and Risk Management Committee appointed an additional Executive Director and one Senior Management in August 2019 thereby taking the total number of members to 9.
6. 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. Accordingly in November 2019, the Nomination, Compensation and Corporate Governance Committee (the "NCCG Committee") decided at its meeting, in the interest of gender diversity, to appoint a female candidate, who will commence in May 2020 following the annual general meeting of shareholders.

7. Charters and other governance policies were reviewed and amendments made as required. This is discussed in a later part of the report.
8. All Whistleblower complaints received during the year have been suitably addressed to by the Whistleblower Committee. More details provided in the Whistleblower Policy section below.
9. The Company has opted not to use "Cumulative Voting" for the election of Company directors.

#### **For the continued practice of good Corporate Governance in 2019, the Company received the following assessment and awards:**

1. **A score of 100 percent for the 2019 Annual General Meeting** of Shareholders, judged by the Thai Investors Association. This was the eighth 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 seventh 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 **Dow Jones Sustainability World and Emerging Markets Indices 2019 (DJSI)** - Chemicals Industry at **SECOND rank** among the top global chemical companies.
5. The Company participated in the **CDP's Climate Change Assessment** for third consecutive year and achieved "B" Rating in 2019.
6. The Company has been listed in a constituent of the **FTSE4Good Index Series** and received the **Best ESG Score at the 100 Percentile** of the group.
7. 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.



8. The Company received the **Thailand Sustainability Investment (THSI)** award from the Stock Exchange of Thailand for the fifth consecutive year.
9. The Company has been listed in the **Leading SET Index 2019 Bloomberg ESG Disclosure Scores**.
10. The Company received BB rating for the **MSCI ESG Rating** in 2019.
11. The Company received the **Sustainability Disclosure Award 2019** from Thaipat, which reflects IVL's good practice of disclosing social and environmental policy as well as outstanding performance on Environmental, Social and Governance (ESG), supporting long-term sustainable development.

#### **IVL Corporate Governance Awareness Campaign 2019**

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 through training in the true spirit that they were created. CGPAC is a continuous program of communicating, training, conducting seminars and monitoring implementation.

In 2019, with the introduction of the Manual which was rolled out in September 2019, the CGPAC Team communicated the objective and training guidelines across all units for clear understanding by:

- Getting the Manual translated into 20 regional languages through the local units. They all are available on the Company's website under the Corporate Governance section. They can be accessed by all employees.
- Developing and distributing the Manual training package to all units including those newly acquired in 2019. The translated versions of the training videos included in the package are created upon request for better understanding of the training content.
- Conducting training sessions and meetings for local teams who are responsible for communicating the Manual locally to ensure the consistency of the training delivered. On-site trainings were conducted at all units in Thailand and three teleconference meetings were held for the units around the world.
- Developing a training plan which outlines the proposed training until 2022.

All site heads are responsible for the implementation of the new manual and will report results of the implementation to the CGPAC committee who in turn reports the status to the Nomination, Compensation and Corporate Governance Committee and Board.

Site/HR heads ensure that all employees are informed about the CG Manual as soon as they join the Company. The new employees are required to acknowledge that they have read and understood

the Manual. This initiative has ensured that all new employees are aware of the program.

The CGPAC Implementation Report for 2019 based on the old version of corporate policies and code of conduct, revealed that 80% of all employees have attended corporate governance training in the past three years with 68% of the site having 100% training coverage of their employees.

Corporate Governance Manual and related Policies are reviewed annually. The CGPAC Committee will submit their recommendations to the Board for changes to policies each year as required.

#### **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.1/2019 held on April 24, 2019.

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 9, 2019. 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 2020.



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 (2018) and the three reviewed quarterly financial statements of 2019 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 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 visits by the Shareholders' to its plants. The trips were organized on June 19, 2019 and November 27, 2019 to visit the IVL's factories in Lopburi and Rayong, Thailand respectively. 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. 1/2019 was held on April 24, 2019 and the Notice was issued out on March 25, 2019.

All information sent to the shareholders was posted on the Company's website both in English and Thai on March 13, 2019 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 13, 2019 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 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 shareholders in the registration process. The registration continued even after the meeting had 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.

#### [Appointment of New Directors and Re-Appointment of Retiring Directors](#)

In 2019, two additional directors were appointed to the Board in order to strengthen oversight in view of the rapid expansion and growth. After due consideration of the business requirements and the current Board of Director profile mix, the NCCG Committee and the Board of Director recommended Mr. Tevin Vongvanich to be appointed as an independent director and Mr. Yashovardhan Lohia to be appointed as an executive director.

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 two new Directors and 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.

The NCCG Committee selects candidates with the highest personal and professional integrity, with demonstrated and exceptional ability and judgment and who shall be most effective, in conjunction with the other candidates and serving directors, in correctively serving the long-term interest of the shareholders.



In addition, the Committee considers the appropriate mix of skills, education, experiences, independence, knowledge, gender i.e. a broad diversity to match with the Company's requirements.

No Director of the Board has been proposed by major shareholders.

The appointment and 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 2019 and the annual bonus for all IVL Directors payable for 2018 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 NCCG 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 2019. No retainer fee is paid to the Executive Directors on the Board of IVL.

Details of remuneration in 2019 paid to the Independent Directors and Non-Executive Directors and the bonus for 2018 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 2019 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 2018 and 2019 and separately Company audit fee proposed in 2019, together with the opinion of the Board based on the recommendation of the Audit Committee.

#### **d) Payment of Dividend Interim Dividends**

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 2018 performance at Baht 1.40 per share. Out of the said final dividend, an interim dividend of Baht 0.70 per share was paid on September 4, 2018 and Baht 0.35 per share was paid on December 18, 2018 by the Company respectively; and the Company paid the remaining dividend of Baht 0.35 per share on May 23, 2019.

#### **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 2018, the AGM was held on April 24, 2019. The meeting started with 3,138 shareholders in person or proxy and representing 84.73% of the total shares sold. At the close of the meeting there were 3,627 shareholders in person or proxy and representing 84.81%. The meeting started at 2.00 pm and ended at 6.00 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) 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's stakeholder policies are now part of the new Manual. Some of the policies which previously addressed groups of Stakeholders'

separately were reviewed and brought together to avoid redundant provisions and elaborate on the treatment of each group of key stakeholders more precisely.

IVL policies relating to its Directors, employees and Stakeholders' in the new Manual are:

- Use of Internal information
- Anti-Corruption Policy
- Environment Policy
- Intellectual Property Policy
- Human Rights Policy
- Health and Safety Policy
- HIV-AIDS
- Diversity Policy
- Treatment of Stakeholders:
  - Shareholders
  - Customers
  - Suppliers
  - Creditors
  - Competitors
  - Government
  - Media
- Whistleblower Policy
- Supplier Code of Conduct

All the above policies though included in the Manual are separately disclosed on the website for reference. The CGPAC team uniformly structured the policies during the year.

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 Manual and related policies will be reviewed periodically and changes will be implemented as required.

The Company publishes a sustainability report every year. This is available on the Company's website in the sustainability 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 2019 is 86.58% an increase of 0.57% over 2018.

#### **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.

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.

*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.

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.

#### **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.

#### **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.

#### **Government:**

IVL honors its relationships with governments and regulatory authorities in all of the jurisdictions where it operates and will comply with their instructions, statutory requirements and applicable laws concerning all aspects of its businesses.

#### **Media:**

IVL provides accurate and relevant information to the media as it plays a vital role in communicating information about the Company to the general public.

Whereas the Corporate Communication Department acts as a liaison with the media to provide information, only the authorized spokespersons may be interviewed or speak on behalf of the Company.

#### **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

IVL encourages our employees to get involved with local environmental projects, especially those align with the Company's CSR strategy. It also provides relevant training for our employees so that they will have a keener understanding of the environment issues relating to the Company's business and be able to help reduce environmental impacts of the Company.

The Company cooperates with various waste management initiatives conducted by the private and public sector and undertakes education program for communities to promote the correct method of waste management.

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.

#### **Code of Conduct:**

The Company through the Code of Conduct strives to achieve observance of ethical practices, honesty, and accountability, as well as a responsibility to all stakeholders and external agencies. The new CG Manual effective from September 2019 now has one unified code for directors and employees. Prior to this there was a separate code of conduct for directors and employees. All governance policies of the Company are now reflected through the code of conduct in order to eliminate overlaps and duplications that were existing and to better ensure that the values of the Company are realized on a day to day basis. The training of the code is embedded in the training of the new Manual.

Prior to the new Manual, all directors and employees were made aware of their respective codes.

#### **Anti-Corruption and Bribery:**

The new Manual 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 included in the new Manual 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 policy in the new Manual has been uploaded on the company's intranet and disseminated to overseas units to ensure that our policy is well communicated, and the same standard practice made available worldwide. Details on training provided in IVL Corporate Governance Awareness Campaign 2019.

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.

#### **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](mailto:ethics@indorama.net), or by telephone or conventional mail directed to the Whistleblower Committee at the Head Office in Bangkok. During the year, the CGPAC team launched another Whistleblower reporting channel by way of an independent website, [whistleblower.indoramaventures.com](http://whistleblower.indoramaventures.com). 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. 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 2019, nineteen contacts were made to the Whistleblower Committee. Ten have been resolved while nine are still under an investigation. The results of the investigations and the actions taken were reported to the NCCG Committee and the Board of Directors.

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](mailto: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 **Appointment of New Directors and 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 "Executive Director, Group CEO and Management Remuneration" section under Responsibility of the Board.

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 25, 2019
- Diversity Policy- February 25, 2019\*
- Anti-Corruption Policy- February 25, 2019\*
- Whistleblower Policy- February 25, 2019\*

They were uploaded on the Company website.

*\* All the policies are part of the new Manual.*

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 2019 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. 134 or email to [ir@indorama.net](mailto: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, 2019 to December 31, 2019 is as follows:

No.	Name	Ordinary Shares (Shares)				
		As at 31 Dec. 2018	Changes in 2019	As at 31 Dec. 2019		
		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	1,000,000	1,000,010	0.018
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
3	Mrs. Suchitra Lohia	-	Acquisition/Disposition	-	-	-
	Spouse and Minor Children	10	Acquisition/Disposition	1,000,000	1,000,010	0.018
4	Mr. Amit Lohia	-	Acquisition/Disposition	-	-	-
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
5	Mr. Yashovardhan Lohia	-	Acquisition/Disposition	-	-	-
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
6	Mr. Dilip Kumar Agarwal	196,631	Acquisition/Disposition	96,821	293,452	0.005
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
7	Mr. Udey Paul Singh Gill	51,322	Acquisition/Disposition	38,337	89,659	0.002
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
8	Mr. Sanjay Ahuja	41,023	Acquisition/Disposition	22,262	63,285	0.001
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
9	Mr. Rathian Srimongkol	265,000	Acquisition/Disposition	450,000	715,000	0.013
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
10	Mr. Maris Samaram	-	Acquisition/Disposition	-	-	-
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
11	Mr. William Ellwood Heinecke	2,994,932	Acquisition/Disposition	1,940,000	4,934,932	0.088
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
12	Dr. Siri Ganjarende	-	Acquisition/Disposition	-	-	-
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
13	Mr. Kanit Si	300,000	Acquisition/Disposition	-	300,000	0.005
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
14	Mr. Chakramon Phasukavanich	-	Acquisition/Disposition	-	-	-
	Spouse and Minor Children	102,354	Acquisition/Disposition	-	102,354	0.002
15	Mr. Russell Leighton Kekuewa	539,000	Acquisition/Disposition	211,000	750,000	0.013
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
16	Mr. Tevin Vongvanich	-	Acquisition/Disposition	-	-	-
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
17	Mr. Roberto Bettini	-	Acquisition/Disposition	22,801	22,801	0.000
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
18	Dr. Deepak Parikh	-	Acquisition/Disposition	5,098	5,098	0.000
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
19	Mr. Manoj Kumar Sharma	15,735	Acquisition/Disposition	9,327	25,062	0.000
	Spouse and Minor Children	-	Acquisition/Disposition	-	-	-
20	Mr. Souvik Roy Chowdhury	18,704	Acquisition/Disposition	8,075	26,779	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. 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 Secretary 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 2019 has been approx. 87.15% (over 2/3<sup>rd</sup>). For the Annual Budget approval 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 Corporate 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 at the Strategic Business Plan meet in January gets 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 February 2019 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 16 Directors on the IVL Board comprising of six Executive Directors, two Non-Executive Directors and eight 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, geographic spread, 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. The role and responsibility of the Company Secretary is 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
- Sustainability and Risk Management Committee (SRMC)

The Charters are all uploaded on the Company website under the Corporate Governance section. During the year the format of the Charters were standardized.

### 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".

None of the Directors of IVL have breached the above Directorship criteria in 2019.

### 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 Board of Directors has therefore not limited the term of an independent director to not more than nine consecutive years.

However, 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 and accordingly approved to fix the retirement age of Independent Directors at 72 in November 2018. 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 2019. The results were summarized and discussed at the Board meeting held in February 2020. The Board and sub-committee members were evaluated as having given very good performance rating in 2019.

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 nine meetings during 2019. 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 22, 2019 to review and discuss the Company's performance and other matters. A similar meeting of the Independent Directors will be held on January 22, 2020. 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 requested.

During the year, there were four extraordinary meetings which were called at short notices other than the five regular meetings to consider important agenda items. Non-Executive Directors based out of Thailand, due to their other prior commitments could not attend such additional short notice meetings.

The following are the details of attendance of the Board of Directors' meeting in 2019.

Name	Attendance/ Regular Meetings**	Attendance/ Extraordinary Meetings
Mr. Sri Prakash Lohia	3/5	0/4
Mr. Alope Lohia	5/5	4/4
Mrs. Suchitra Lohia	5/5	4/4
Mr. Amit Lohia	4/5	0/4
Mr. Yashovardhan Lohia*	3/3	3/3
Mr. Dilip Kumar Agarwal	5/5	3/4
Mr. Udey Paul Singh Gill	4/5	4/4
Mr. Sanjay Ahuja	5/5	3/4
Mr. Rathian Srimongkol	5/5	3/4
Mr. William Ellwood Heinecke	4/5	3/4
Mr. Maris Samaram	5/5	4/4
Dr. Siri Ganjarndeek	5/5	4/4
Mr. Kanit Si	5/5	4/4
Mr. Russell Leighton Kekuwa	5/5	4/4
Mr. Chakramon Phasukavanich	5/5	4/4
Mr. Tevin Vongvanich*	3/3	2/3

\* Mr. Yashovardhan Lohia and Mr. Tevin Vongvanich were appointed as IVDL Directors on April 24, 2019.

\*\* The average attendance of regular meetings of 11 out of the total 16 Directors for the year 2019 was 100% and the average for all Directors was 87.15%.

## 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.

### 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
10	Mr. Tevin Vongvanich*	50,000 per month	400,000
Total			6,100,000

\* Mr. Tevin Vongvanich's remuneration has been paid effective from May 2019.

### 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. Russell Leighton Kekuwa*	35,000 per month	380,000
2	Mr. William Ellwood Heinecke*	25,000 per month	340,000
3	Dr. Siri Ganjarerndee	25,000 per month	300,000
4	Mr. Kanit Si	25,000 per month	300,000
5	Mr. Chakramon Phasukavanich	25,000 per month	300,000
Total			1,620,000

\* Mr. Russell Kekuwa took over the chairmanship from Mr. William Heinecke effective May 1, 2019.

## 9. Remuneration of Board of Directors and Sub-Committees

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 2019, the total annual remuneration approved at the Annual General Meeting of Shareholders No. 1/2019 held on April 24, 2019 was an amount of not exceeding Baht 30,000,000.

The actual remuneration paid in 2019 is Baht 29,020,000 against the approved amount of Baht 30,000,000. The details of the remuneration paid are hereunder:

*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	175,000
3	Mr. Russell Leighton Kekuewa	25,000 per month	300,000
4	Mr. Kanit Si	25,000 per month	300,000
5	Mr. Tevin Vongvanich*	25,000 per month	125,000
	Total		1,200,000

\* Mr. Tevin Vongvanich was appointed in place of Mr. Maris Samaram effective in August 2019.

*Bonus to Directors for the Performance of 2018*

No.	Directors	Actual Paid (Baht)
1	Mr. Sri Prakash Lohia	1,800,000
2	Mr. Alope Lohia	1,800,000
3	Mrs. Suchitra Lohia	1,200,000
4	Mr. Amit Lohia	600,000
5	Mr. Dilip Kumar Agarwal	1,200,000
6	Mr. Udey Paul Singh Gill	1,200,000
7	Mr. Sanjay Ahuja	1,200,000
8	Mr. Rathian Srimongkol	1,800,000
9	Mr. Maris Samaram	1,200,000
10	Mr. William Ellwood Heinecke	1,200,000
11	Dr. Siri Ganjarende	1,200,000
12	Mr. Kanit Si	1,200,000
13	Mr. Russell Leighton Kekuewa	1,200,000
14	Mr. Chakramon Phasukavanich	1,200,000
	Total	18,000,000

Remark: The Executive Directors on the IVL Board and Sub-Committees are not paid any retainer fee.

## 10. Remuneration of Executives

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 actual remuneration paid to the IVL Executives\* in 2019 was approx. Baht 270.69 million.

\*As per definition of SEC (details in Management Structure- Executive section).

a. Details of remuneration\* paid to the Group CEO and the two CEO's are as follows:

(Million Baht)

No.	Name / Positions	2017			2018			2019		
		Salary	Bonus and perquisites	Total	Salary	Bonus and perquisites	Total	Salary	Bonus and perquisites	Total
1	Mr. Alope Lohia, Group CEO	25.20	22.08	47.28	29.05	28.35	57.40	39.58	31.20	70.78
2	Mr. Dilip Kumar Agarwal, CEO of PET and Feedstock business	18.87	12.48	31.35	28.09	20.62	48.71	46.37	22.24	68.61
3	Mr. Udey Paul Singh Gill, CEO of Fibers business	14.59	6.07	20.66	15.50	12.35	27.85	16.01	9.04	25.05

*Remark: \* Compensation indicated above is on accrual basis.*

b. Details of remuneration\*\* to the other Indorama Management Council (IMC) members consisting of Mrs. Suchitra Lohia, Mr. Sanjay Ahuja, Dr. Deepak Parikh and Roberto Bettini are as follows:

(Million Baht)

2017			2018			2019		
Salary	Bonus and perquisites	Total	Salary	Bonus and perquisites	Total	Salary	Bonus and perquisites	Total
23.95	15.45	39.40	28.12	20.99	49.11	61.06	47.79	108.85

*Remark: \*\* Compensation indicated above is on accrual basis and compensation for an individual who has joined in the middle of the year has been annualized.*

The remuneration above is 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 2019 was held from January 29-31, 2019 in Bangkok.

## 13. Professional Development of Directors and Management

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 to the 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.

The SET requires the person taking the highest responsibility in finance and accounting (Chief Financial Officer: CFO) and the person supervising accounting (Chief Accountant) to undertake certain training to meet the qualifications specified by SEC. IVL's CFO and Head of Accounting completed the following training in 2020:

Program	CFO Mr. Sanjay Ahuja	Head of Accounting Mr. Manoj Kumar Sharma
Refresh Course as prescribed by SET*	/	/

\* Details of Refresh training courses:

Mr. Sanjay Ahuja took 6 hours of E-learning CFO's Refresh Course (English Version) - Training for continuing accounting knowledge (CFO's Refresh course).

Mr. Manoj Kumar Sharma took 12 hours of E-learning CFO's Orientation Course (English Version) - Accounting and Financial Preparation (CFO's Orientation Course).

The Board also encourages senior Management of the Company to attend training course about corporate governance in order to enhance good governance within the Company. In 2019, the following managements attended the below training programs at Institute of Directors, Thailand:

1. Mr. Ashok Jain attended Directors Certification Program Class No. 274/2019
2. Mr. Robinder Singh attended Directors Certification Program Class No. 274/2019
3. Mr. Ashok Kumar Arora attended Directors Certification Program Class No. 284/2019
4. Mr. Shrikant Saboo attended Directors Certification Program Class No. 284/2019
5. Mr. Saurabh Mishra attended Directors Certification Program Class No. 284/2019

The details of all courses attended are in the Directors profiles.

## 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, 2019 was appointed for another two years until September 18, 2021 by the Board at its meeting No. 7/2019 dated August 9, 2019. The Audit Committee held eight meetings during the year with the attendance of members as follows:

Name	Attendance
Mr. Rathian Srimongkol *	8/8
Mr. Maris Samaram *	7/8
Dr. Siri Ganjarerndee *	8/8

\* 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 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 2019, 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

Mr. Russell Leighton Kekuewa succeeded Mr. William Ellwood Heinecke as the Chairman of the NCCG Committee in May 2019. Mr. Heinecke remains the member of the NCCG Committee. All members on the Committee are independent directors. The term of the Committee expires in May 2020.

Mr. Aloke Lohia, Group CEO, is an advisor to the NCCG Committee.

The Nomination, Compensation and Corporate Governance Committee held three meetings during 2019 with the attendance of members as follows:

Name	Attendance
Mr. Russell Leighton Kekuewa	3/3
Mr. William Ellwood Heinecke	2/3
Dr. Siri Ganjarerndee	2/3
Mr. Kanit Si	3/3
Mr. Chakramon Phasukavanich	3/3

The role and responsibility of the NCCG Committee is specified in the NCCG Committee Charter, which is available on the Company's website under "Our Company" - Corporate Governance Section.

A report from the NCCG Committee is separately disclosed in the Annual Report.

#### Sustainability and Risk Management Committee

The SRMC Committee is chaired by Mr. Aloke Lohia, the Group CEO and Vice Chairman of the Board. Other members of the Committee are Mr. Rathian Srimongkol, Mr. Maris Samaram, who resigned in August 2019, Mr. Dilip Kumar Agarwal, Mr. Udey Paul Singh Gill, Mr. Russell Leighton Kekuewa and Mr. Kanit Sri.

The Board at its meeting No. 7/2019 held on August 9, 2019 approved the reappointment of the SRMC Committee and the appointment of Mr. Tevin Vongvanich as the successor of Mr. Maris Samaram, and the appointment of Mr. Yashovardhan Lohia, the executive director and Dr. Deepak Parikh, the Chief Strategy Officer as additional two members of the Committee. The current term of the SRMC Committee expires in August 2021.



The SRMC Committee held two meetings during the year with the attendance of members as follows:

Name	Attendance
Mr. Aloke Lohia	2/2
Mr. Rathian Srimongkol	2/2
Mr. Maris Samaram*	0/1
Mr. Dilip Kumar Agarwal	2/2
Mr. Udey Paul Singh Gill	1/2
Mr. Russell Leighton Kekuewa	2/2
Mr. Kanit Si	2/2
Mr. Tevin Vongvanich*	1/1
Mr. Yashovardhan Lohia**	1/1
Dr. Deepak Parikh**	1/1

\* Mr. Tevin Vongvanich was appointed in place of Mr. Maris Samaram effective in August 2019.

\*\* Mr. Yashovardhan Lohia and Dr. Deepak Parikh was appointed as the member of the SRMC in August 2019.

The role and responsibility of the SRMC Committee is specified in the SRMC Charter, which is available on the Company's website 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 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.

### Qualification of Director and Independent Directors

The Company follows the guidelines of the SET and the SEC and industry best practices to set the qualifications of its Executive, Non-Executive and Independent Directors. The qualifications of such Directors are specified in the Board of Directors Charter and Qualification of Independent Directors, uploaded on the website.

### 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. Mr. Rathian Srimongkol, Independent Director, Chairman of Audit Committee and Member of Sustainability and Risk Management Committee is the Lead Independent Director.

Details of the Role and responsibility of the Lead Independent Director is available on the Company website under "Role and Responsibilities" in the Leadership section.

### 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 468 Board's and Shareholders' meetings in 2019 which are summarized below:

Region	No. of Companies	No of Meetings
Asia	44	151
Europe	65	169
Americas	59	106
Africa and Middle East	9	46
Australia	1	1

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.

Effective monitoring of the minutes at the various units is done by way of a "Meeting Control Statement" by the Corporate Secretarial Team.

## 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 in the Manual 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.

Details of the IVL's policy on the use of the internal information can be found in the website of the Company under Corporate Governance section both under the CG Manual and Policies section.

## Audit Fee

The total audit fee and non-audit fee paid during 2019 for IVL and all its subsidiaries, jointly controlled entities and associates globally were as following:

Particulars	Unit: Million Baht	
	2018	2019
1) The total audit fees for IVL and all its subsidiaries, jointly-controlled entities and associates globally	171	184
a) Payment to KPMG Phoomchai Audit Ltd and other members firms of KPMG Phoomchai Audit Ltd.	151	159
b) Other Audit firms	20	25
2) The total non-audit fees paid to member firms of KPMG International other than KPMG Phoomchai Audit Ltd	91	161

*Remark: The increase in Audit and Non-Audit fee is mainly due to additional acquisitions and increase in scope during the year 2019.*

**Our Company's policies, integrity, ethics and disclosures always seek to emulate the best practices in Corporate Governance.**



The Strategy Priorities of the HR Functions are listed in the CHRO letter to stakeholders.

*The following report highlights key interventions and 2019 achievements.*

## HIGHLIGHTS 2019



**90.50% Retention Rate**



**79 Nationalities**



**21.80% Female**



**730,018 Total Training Hours**



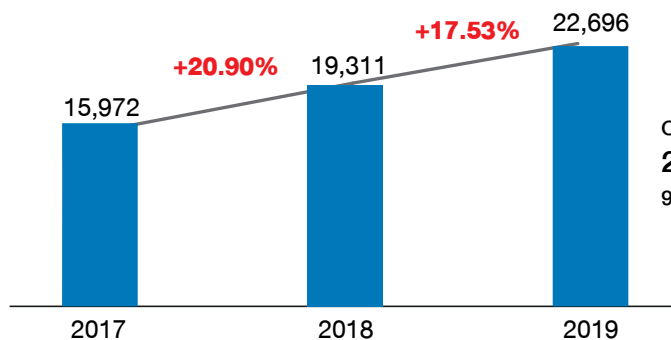
**33.14 Average Training Hours**



### **People Development Program**

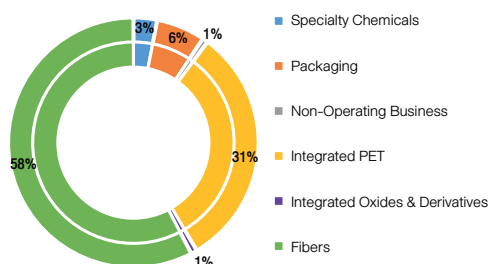
- 33 managements from PET & Feedstock business participate in V-Lead development program to develop cross functional expertise
- 45 senior executives participated in the IBC development platform to shape IVL's strategic thought process and future businesses.
- 200 leaders globally attend the communication workshop on the Launch of IVL Leadership Skills Profile

## 1. Our Global Workforce is Making a Difference



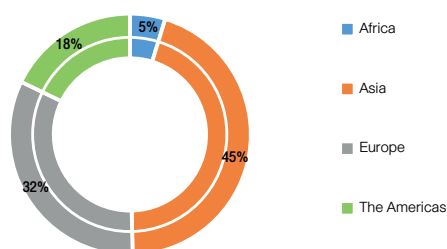
Our headcount grew by 17.53% to **22,696**. Acquisitions contributed 95.68% of our employee growth.

Permanent employees by segment



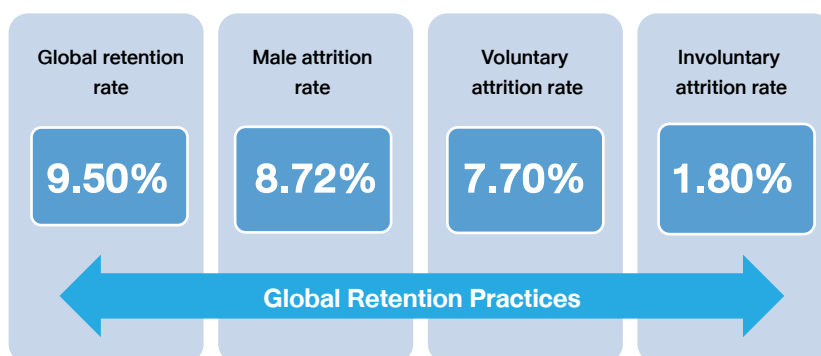
24.87% of the permanent headcount increase was in Fibers, followed by 13.54% in Integrated PET and 12.50% in Integrated Oxides & Derivatives.

Permanent employees by continent



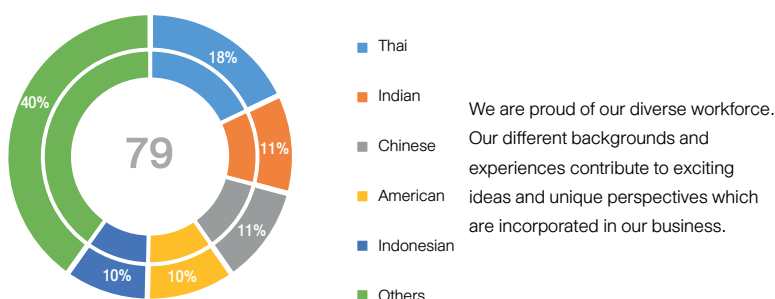
20.72% of the permanent headcount increase was in Europe, followed by 19.49% in the Americas and 17.35% in Asia.

We create retention programs through useful information gathered from various analytical resources such as the Global Employee Engagement Survey, geographic data, exit interviews, focus group discussions, and inputs from our senior leadership team. These efforts allow IVL to create ways to attract and retain the right talent for our organization. This year, we unveiled the global retention platform as a key initiative to adopt the best practices prevailing across all business units. We are confident that our global team will appreciate the efforts underway to retain qualified staff at IVL.



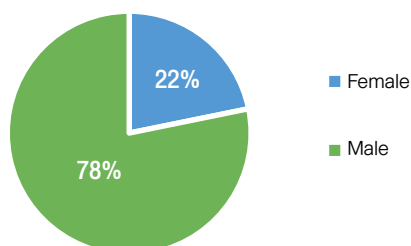
## 2. Diversity is our Strength

Nationalities

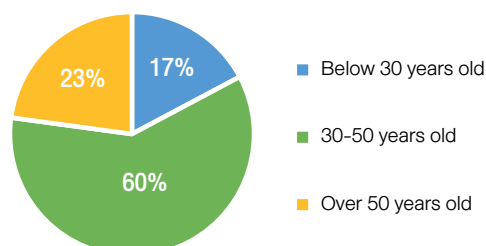


IVL values diversity, and this is reflected in the membership of our top management group. The Indorama Management Council (IMC) includes representatives from the US, Italy, and India who bring a wide range of knowledge, skills and professional experiences. We also promote diversity and inclusion at all levels of the organization, including those with disabilities, by providing equal opportunities in sourcing and selection, learning and development, career development, and promotions.

**Gender Diversity**

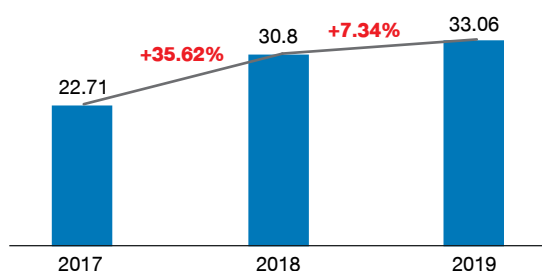


**Age Diversity**



### 3. People Development opportunities

**Number Of Training Hours Per Employee**



**Training hours by focus area**

Focus Area	Training Hours
EHS and Quality	465,806
Functional	104,595
Leadership and Behavior 5	50,166
Technical	48,305
Induction and Orientation	42,448
Language Skills	16,886
<b>Total</b>	<b>728,206</b>

We have a deep belief that our IVL best days are yet to come. It is reflecting in our individual development practices. Learning is in our DNA. We provide an opportunity for our people to learn something new, to build up essential skills for today and tomorrow, and to unleash the best within us. The experiential learnings are available in the different approaches for different purposes and needs. The approaches come in the form of Coaching, Mentoring, Job rotation & Stretch assignment, Specific development initiatives, and in-class Leadership development program. Some of the strategic development programs are highlighted in the following table.

On-Going Development	<ol style="list-style-type: none"> <li>1. V-Lead Fibers Business <ul style="list-style-type: none"> <li>• 27 managements participate in the 9-month blended-learning approach designed to develop cross functional expertise</li> </ul> </li> <li>2. Shadow Development <ul style="list-style-type: none"> <li>• 18 high potential middle managements participate in the unique co-developed program between IVL and the famous Business School in Thailand, Sasin meant to prepare the local talents</li> </ul> </li> </ol>
New Initiatives 2019	<ol style="list-style-type: none"> <li>1. V-Lead PET &amp; Feedstock Business <ul style="list-style-type: none"> <li>• With the successful launch of the V-Lead program for Fiber business, the company also start the same development initiative for 33 managements in PET and Feedstock segment this year with focus on specific analysis and strategy development of the segment</li> </ul> </li> <li>2. IBC Platform <ul style="list-style-type: none"> <li>• The Indorama Business Council (IBC) is introduced forum where group 45 Senior Executives are given the possibility to discuss and shape the company future direction, throughout a highly interactive set-up</li> </ul> </li> <li>3. Learning choices through IVL Intranet <ul style="list-style-type: none"> <li>• The company promote learning opportunity with a leading MOOC platform (Massive Open Online Course), edX on company intranet which is available for our people to learn new skills and advance their careers</li> </ul> </li> </ol>

New Initiatives 2019	<p>4. IVL Leadership Curriculum</p> <ul style="list-style-type: none"> <li>• The company launches “Leadership Curriculum” project which aims to develop existing and next-generation leaders globally starting from the senior executives to the 1st time junior managers</li> <li>• This year, we develop the common IVL Leadership skills profile and communicate to target group of 200 Global Leaders</li> <li>• The Leadership training curriculum will be implemented in the year 2020 onwards as a long-term development journey</li> </ul>
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## 4. Succession planning

In consultation with the NCCG committee, the Board and IMC reviews both the adequacy of the succession planning process and the individual development plan for the Group CEO and the Executive Board positions. The Company also invests in the development of every Leader across the organization-wide to ensure readiness and success of the future Leader by launching IVL Leadership Curriculum as shown in above section.

## 5. Compensation and Rewards

IVL's compensation system follows country-specific requirements, while our incentive program is linked by three components - the company, business unit, and individual. We also assess our compensation packages against industry standards either matching or exceeding them.

**Employee Joint Investment Program (EJIP):** Underway since 2017, this program allows participating employees to accumulate IVL shares on a monthly basis for a fixed period of time. The EJIP aligns the interests of employees with those of the Company's performance through share ownership.

**Award for Excellence:** The Award for Excellence inspires our employees to challenge boundaries to produce outstanding results and is based on stellar performance across 12 criteria, largely in the domains of finance, operations and sustainability. The best business units are identified by benchmarking their performance across the different criteria. These units are awarded at the Global Management Conference while cash incentives are also provided to employees of these units to recognize their excellent teamwork.

GCEO remuneration to average employee remuneration Ratio:

The ratio is as follows

	Remuneration 2019
GCEO ( in 000 THB )	70,770.00
Average Employee Remuneration (in 000 THB)	1,209.37
Ratio	58.52

## 6. Human Rights

IVL respects the human rights of all of its workers and the local communities where we operate. In 2017, we formalized our commitment to the UN Guiding Principles on Business and Human Rights. We started a yearly global survey in 2015 on human rights, continue to work on action plans to mitigate perceived risks, and also engage with our suppliers on their commitment to address human rights issues. Our respective units have taken the initiative in getting SA8000 certification or its equivalent to ensure that there are no human rights violations across the organization.

## 7. Health and Safety

‘Committed to Zero,’ which targets having zero lost time injuries, is our top priority. Our senior leadership team believes in having a safe working environment across IVL and being a role model in showcasing how workplace safety is our top concern. We are working hard to achieve our goal of zero accidents in the workplace, as well as eliminating injuries and occupational illnesses across the organization. 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 risks to our workforce.

## 8. Material Labor Disputes

Since our inception, IVL has never had any material labor disputes.

# SUSTAINABILITY AND CORPORATE SOCIAL RESPONSIBILITY

Sustainability remains a core commitment for Indorama Ventures in terms of our approach and values. We have a comprehensive strategy through structures and processes which are implemented by employees at all levels. Our long-term focus incorporates sustainability throughout 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. Visit [Our Sustainability](#) to learn more about our commitments, strategy and governing structure.

## Sustainability Strategy

Our sustainability strategy supports our vision of becoming a world-class chemical company making great products for society and is in-line with our business strategy and direction, demonstrating our commitment to the three most important areas for the company: Environment, Social and Governance.

Our goal is ensuring economic success and sustainability for all of our stakeholders. We measure our success not only by financial gains but through our achievements in preserving the environment, thereby benefiting society. IVL undertook several initiatives in 2019 that increase our focus on our long-term sustainability through recycling, lowering our carbon footprint, increasing use of renewable energy, and developing our human capital.

### Environment - Responsible Operations

*Our operations and products are focused on being environmentally-friendly, contributing to the circular economy, reducing resource consumption and emissions to fight climate change.*

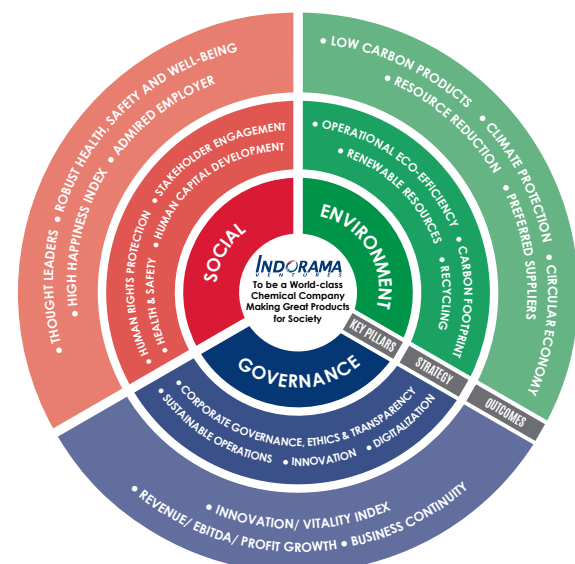
### Social - Empowerment Culture

*Our respect for human rights, engagement, investments in capacity building, and creating shared value for our stakeholders demonstrates our commitment to achieving long-term success.*

### Governance - Business Potential

*Our business is based on our integrity and ethical principles, driving customer experiences through our innovative products and moving forward in meeting societal needs for sustainable growth and leadership.*

## Sustainability Strategic Areas and Expected Outcomes





## Key Sustainability 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 2019, the materiality assessment process was extended to include more external stakeholders, such as customers, suppliers, bankers, investors and the media. Their feedback was incorporated and helped define 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 [2019 Sustainability Report](#).

Throughout last year, we continued to develop exciting and innovative products, sustainable solutions for our customers, together with growing the business and increasing our productivity. Key advancements include:

- An increased focus on zero hazardous waste to landfill from our operations globally by initiating a process to evaluate and then minimize overall waste and hazardous waste, and undergoing external auditing and certification.
- Benchmarking internal ESG performance on a quarterly basis in addition to EHS which has become part of our quarterly MD&A.

- A thorough review and establishment of key 2025 sustainability targets focusing on operational eco-efficiencies in accordance with mega-trends and organic business growth.
- Adopting recommendations by the TCFD, IEA450, and World Economic Forum to develop initiatives on our climate change strategy and governance.
- Conducting a water sensitivity analysis using the AQUEDUCT Water Risk tool developed by the WRI to identify water stress locations.
- Increasing renewable energy consumption and completing 100% renewable electricity consumption at four of IVL's operating sites.
- Continuing to promote waste management, and the efficient use of renewable resources through increased reuse and recycling to support the circular economy.
- Adopting internal carbon pricing to encourage greater environmental awareness and consideration of mitigation measures in future business plans.
- Streamlining our sustainable product classification and methodology to improve its application with our product portfolio throughout the value chain.
- Continuing to reduce our environmental footprint by improving the environmental performance of our operations including targets for energy and water use, greenhouse gas (GHG) emissions and waste reduction.
- Leveraging environmental awareness and protection, and an understanding of the risks from climate change, 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 Systems 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, such as ISO 9001.
- Implementing a process safety approach and reporting system at all of IVL's operating sites.
- Ensuring the best ESG practices through human rights assessments in every context throughout the value chain including all vulnerable groups.
- Continually improving customer satisfaction through broader and more open communications channels that result in improved customer feedback.

Learn more about our sustainability initiatives, performance and metrics in our [2019 Sustainability Report](#).

## Recycling PET - Trusted and Safe

At Indorama Ventures, we believe that recycled PET (rPET) is a new engine for growth. We understand that there is considerable pressure on plastics and that many people around the world want a sustainable environment for future generations. Amid the challenges, there are also tremendous opportunities with PET, which is a 100% circular, recyclable plastic with a lower carbon footprint than other packaging materials such as glass and aluminum.



### Our 2025 commitment and future strategy

The PET produced by IVL is 100% recyclable. As part of our recycling efforts, we made a global commitment to incorporate 750,000 tons of post-consumer PET materials as feedstock into our polyester production, with an investment of USD 1.5 billion by 2025. This commitment is just the start of our journey, generating value from collected PET and promoting zero plastic waste in the environment.

## Our recycling strategy

Our recycling strategy is focused on strengthening our capability to increase recycling rates globally, contributing to a circular economy, and ensuring a fully closed loop. We will build on our leadership position as the largest virgin PET producer and remain a leader in rPET. As a leading recycler in Europe, North America and Asia, we have a competitive advantage in rPET through our global footprint, 30 years of recycling expertise, and strong partnerships across the circular value chain.

We are actively working with the European Union to reduce plastic waste as part of their Single-Use Plastic Directive and will remain at the forefront of recycling plastic waste and adopting business models that reinforce circular processing.

### 50 Billion Bottles Recycled

In the last decade, we recycled around 50 billion bottles and plan to recycle much more. In 2019 alone, we recycled over nine billion, or over 200,000 tons of post-consumer PET bottles.

We count the numbers of bottles recycled on a real-time basis. Visit our [recycling website](#) to see the numbers of bottles recycled to date, and learn more about our recycling business, products, and the different initiatives underway.

We strongly support the global efforts underway to achieve the [UN Sustainable Development Goals \(SDGs\)](#). Our recycling efforts are particularly focused on addressing the following SDGs:



## PET, a valuable resource

While PET has several economic, environmental, and social advantages, and is 100% recyclable, the mismanagement of PET after its use – leading to accumulation in landfills and oceans – is causing concerns globally.

While mismanagement of plastic resources has become a major emerging risk and ecological concern for the industry, it also presents significant opportunities, especially after China and several other countries took the bold step of banning imports of

plastic waste in a move to protect their environments. The ban acted as a catalyst for companies around the world to change consumer behavior and gave rise to more effective recycling. Exporters are likely to be forced to expand their domestic recycling infrastructure as well as cut the levels of waste being produced. Furthermore, the lifecycle benefit of PET is well-established, and improved waste collection rates will mean an increase in recycling rates worldwide. PET, therefore, remains the standard in further promoting circular processing business models.

## Recycling for circularity and closing the loop

We are increasing our investments in recycling plants globally to close the loop, encouraging the end-use of recycled PET and delivering a circular economy for beverage packaging. IVL's global reach also provides the opportunity to demonstrate our leadership in innovations, bringing to market our own game-changing products, specialized solutions and High Value-Added (HVA) products. With a strong foundation in the PET market, we can tap into vast opportunities worldwide delivering the highest value to both existing and new customers, and creating long-term value for our stakeholders.

In 2011, our rPET resin production was roughly 3,576 tons, but by 2019, it had grown exponentially to about 206,996 tons. During this period, we recycled around 50 billion bottles. This works out to 1.1 million tons of plastic waste not going to landfill, which would cover a span of 514 football fields, a 1.65 million ton carbon footprint reduction, and a savings of more than three million barrels of crude oil.

## rPET demand driven by brand owners

Many brands have set clear targets to increase rPET consumption in their beverage packaging. They likewise recognize the value of PET, not just from an economic point of view, but from a broader sustainability perspective. Therefore, PET, with the right collection

and recycling infrastructure, will continue to be the market leader in beverage packaging. Progress in increasing rPET content has already been made to-date in commercial beverage products, demonstrating that brands have invested in making their rPET targets a reality. This presents a huge opportunity for us as many of these brands are major IVL customers.

## Task Force on Climate-Related Financial Disclosures (TCFD)

IVL has considered, as suggested by the TCFD, identifying physical risks and transition risks in order to develop appropriate mitigation measures. We developed an internal carbon pricing tool to evaluate the financial impacts across our business from current and scheduled carbon markets. In addition, a variety of tools has been used to monitor and mitigate the risks, such as:

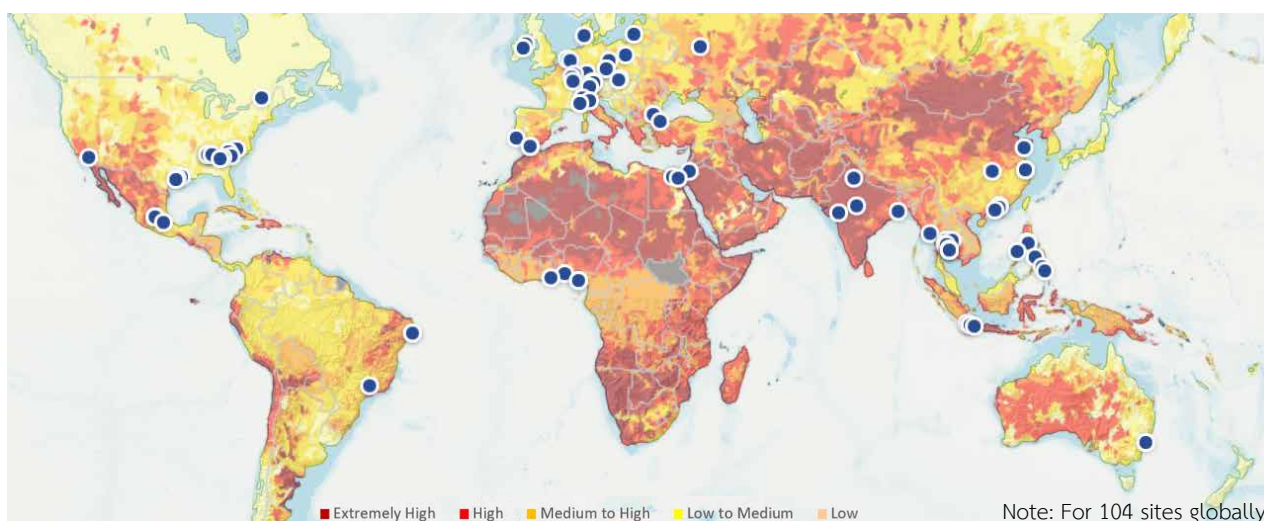
- The WRI Aqueduct Water Risk Atlas to examine current and projected climate-related issues such as flooding, drought, water vulnerability, etc.
- The Climate Resilience Evaluation & Awareness Tool (CREAT) and Climate Information Portal (CLIPC), to assess the risk of sea level rise.

We also conducted a high-level study based on the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (AR5) on changes in regional weather phenomenon and changes in annual mean temperatures up to 2035.

## Water Risk Analysis

IVL applied the WRI Aqueduct Water Risk Atlas, one of the most internationally accepted water risk tools, which allows us to examine current and future projected climate-related water risks such as flooding, drought, and water vulnerability. We conducted water sensitivity analysis using this aqueduct tool to identify levels of water stress in areas where our plants are located. This analysis took into account the degree of water withdrawal and water availability in the areas concerned.

2019 water sensitivity analysis using the WRI AQUEDUCT Water Risk tool



### Summary:

13% of operations in **Extremely High** Water Stress Areas  
15% of operations in **High** Water Stress Areas

26% of operations in **Medium to High** Water Stress Areas  
14% of operations in **Low to Medium** Water Stress Areas  
32% of operations in **Low** Water Stress Areas

The results were analyzed and the necessary mitigation measures were undertaken, including the construction of water treatment plants, achieving zero liquid discharge and increased rainwater harvesting.

## Awards and Recognitions

Indorama Ventures assures **independent external sustainability assessments and evaluations** of our sustainability performance through participation in various worldwide recognitions such as the Dow Jones Sustainability Indices (DJSI), CDP, FTSE4Good, MSCI, Sustainalytics 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 SAM's Sustainability Yearbook 2020 with the Silver Class distinction and was listed in the Dow Jones Sustainability World and Emerging Markets Indices (DJSI).**

We were **ranked second** among the top global chemical companies.

*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 the CDP's Climate Change Assessment in 2019 and B- (B Minus) in the CDP's Supply Chain Assessment in 2018.**

*The 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 **remains a constituent of the FTSE4Good Index Series** following the **December 2019 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 2019, 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.*



We achieved the leading **Bloomberg ESG disclosure score** among companies on the Stock Exchange of Thailand (SET50).

*Bloomberg evaluates companies on an annual basis, collecting publicly disclosed ESG information provided by companies as well as through direct company contact.*





Indorama Ventures was **graded BB for the ESG rating in 2019.**

*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.*



**Indorama Ventures achieved #3 percentile rank**

The company is at medium risk of experiencing material financial impacts from ESG factors, due to its medium exposure and strong management of material ESG issues. Furthermore, the company has not experienced any significant controversies.

*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 received the 2019 **Thailand Sustainability Investment (THSI) Award** for the fifth consecutive year.

Further information is available at our [External Ratings](#).

## Corporate Social Responsibility

IVL prioritizes Corporate Social Responsibility (CSR) because it allows us to demonstrate the integrity of our business and the actions we take to have a positive impact - improving the lives of citizens, protecting the environment, and supporting the development of local communities. It not only reflects our values, it's good for business and boosts the morale of our employees who can leverage the corporate resources at their disposal and do good while creating a culture of engagement.

To achieve a benefit for society, our CSR programs focus on health, education and the environment, which we believe are the three fundamental themes that can improve our way of life while making the world a better and cleaner place.

IVL and our subsidiaries are helping to make our world more sustainable. Our CSR themes fully support the UN Sustainable Development Goals (SDGs), and this year, we added an additional two SDGs:







### SDG 3: Good health and well-being

We provide health awareness programs in communities, donate and raise funds to support local health organizations so they remain vibrant and self-sustaining including mobile medical clinics to reach communities most in need. To achieve a broader positive impact, we support foundations such as the United Way, American Cancer Society, Irish Cancer Society, Morgan County Mental Health Association and Habitat For Humanity. We also encourage healthy lifestyles, community health awareness through sponsorships and support for a variety of sports activities.

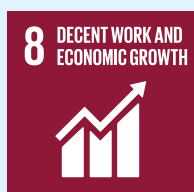


### SDG 4: Quality Education

We provide scholarships, internships, training, and technical vocation programs focused on science, technology, engineering and mathematics (STEM) to ensure that future people have the knowledge, technical and vocational skills for employment. We also support women's education programs and career fairs to improve accessibility and advance future career opportunities through educational equity, collaboration with schools and universities so that women are empowered with the appropriate academic tools.

#### Recycling Education:

We promote our recycling materials through to schools, libraries, and the government sector free of charge to educate children on the need to reduce, reuse and recycle. This year, we expanded to other stakeholders such as customers, private companies, university students, and hotels, while also increasing our participation at events and forums to share our recycling expertise and knowledge. The IVL recycling education program is a long-term project that promotes a more sustainable society, encourages waste reduction and the efficient use of resources in support of a circular economy.



### SDG 8: Decent Work and Economic Growth

We create job opportunities and encourage entrepreneurship with an eye on sustainable economic growth. However, further progress is needed to increase opportunities particularly for students in disadvantaged communities. We provide training for students so they learn about and experience the IVL work environment, and some are eventually taken on as employees. Other initiatives focus on training at the grassroots level contributing to sustainable communities such as organic farming, weaving plastic baskets, Thai dessert classes and making natural soaps and dishwashing liquid.



### SDG 12: Responsible Consumption and Production

While Thailand is facing a serious plastic waste problem, the government has taken important steps to tackle this pressing global issue, banning three types of plastic at the end of 2019. We are doing our part by promoting the efficient use of our shared resources, and encouraging students, businesses, consumers and communities to reduce, reuse and recycle waste.



### SDG 17: Partnership for the goals

We pledged to strengthen global partnerships to ensure that we meet the SDGs through improved collaboration and by scaling-up the positive impacts of waste separation and recycling to achieve a great impact and increased value.

Our international partnerships: In Mexico, we are a member of ECOCE, a non-profit civil environmental association that promotes the proper handling of packaging and packaging waste, where we are also part of the PET Recycling Committee supporting environmental initiatives and campaigns.

Our local partnership: In Thailand, we signed MOUs with Bangchak Corporation, Coca-Cola in Thailand, and the start-up GEPP Sa-ard, to reduce the use of landfills and incineration by recycling PET bottles at our plants, and we are proud to be part of the Public Private Partnership (PPP) for Sustainable Plastic and Waste Management, a respected national collaborative platform working together to build a circular plastic economy.

Further details on our CSR and activities are provided in the [2019 Sustainability Report](#).

# AUDIT COMMITTEE REPORT TO THE SHAREHOLDERS FOR THE YEAR 2019

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 Ganjarendee Member

During the year 2019, the Committee held 8 meetings, with the attendance of the Audit Committee Members as under:

Sr: No.	Name of Audit Committee Member	Meetings Attendance
1	Mr. Rathian Srimongkol	8/8
2	Mr. Maris Samaram	7/8
3	Dr. Siri Ganjarendee	8/8

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 2019 the Committee held 8 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 are aligned with the IFRS Bound Volume 2018, with the exception of the Standards relating to IFRS Standards for financial instruments. 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. The Audit Committee reviewed the Evaluation Form of Sufficiency of Internal Controls Systems for the year 2019 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 2019. 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 2019 and being satisfied, recommended to the Board for their re-appointment for the year 2020 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 2019 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 2019 REPORT

Indorama Ventures strongly recognizes the importance of sustainability, including the need for a risk management component. This can be a catalyst contributing to our systematic and sustained growth in the next economic revolution while helping us to anticipate and manage current and future economic, environmental, social risks and opportunities related to our business activities. Working with our customers and suppliers to develop and deliver more sustainable high-performing products, working across our value chains to grow together through innovative practices, as well as contributing to responsible consumption through our global commitment to recycling, capacity of worldwide investments, and education programs enables us to build a sustainable and circular economy.

The Board of Directors is committed to achieving its strategic business objectives, increasing the company's success and long-term shareholder value; protecting the planet from the impacts of climate change; focusing on the health, safety and

well-being of our employees and other stakeholders by operating sustainably; and continuously elevating 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

The Committee is accountable to the Board for its performance, and is responsible for the Group's sustainability activities and business continuity in addition to 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, assesses risk mitigation plans, and 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 includes four independent and four executive directors and a Chief Strategy Officer:

Name		Position
1	Mr. Alope Lohia	• Chairman of the Sustainability and Risk Management Committee
		• Vice-Chairman of the Board
		• Executive Director
		• Group Chief Executive Officer
2	Mr. Rathian Srimongkol	• Member of the Sustainability and Risk Management Committee
		• Independent Director
		• Lead Independent Director
		• Vice-Chairman of the Board
3	Mr. Russell Leighton Kekuwa	• Chairman of the Audit Committee
		• Member of the Sustainability and Risk Management Committee
		• Independent Director
		• Chairman of the Nomination, Compensation and Corporate Governance Committee
4	Mr. Kanit Si	• Member of the Sustainability and Risk Management Committee
		• Independent Director
		• Member of the Nomination, Compensation and Corporate Governance Committee
5	Mr. Tevin Vongvanich	• Member of the Sustainability and Risk Management Committee
		• Independent Director

Name	Position
6 Mr. Yashovardhan Lohia	<ul style="list-style-type: none"> <li>• Member of the Sustainability and Risk Management Committee</li> <li>• Executive Director</li> <li>• Chief Recycling Officer</li> </ul>
7 Mr. Dilip Kumar Agarwal	<ul style="list-style-type: none"> <li>• Member of the Sustainability and Risk Management Committee</li> <li>• Executive Director</li> <li>• Chief Executive Officer of the Feedstock and PET Business</li> </ul>
8 Mr. Udey Paul Singh Gill	<ul style="list-style-type: none"> <li>• Member of the Sustainability and Risk Management Committee</li> <li>• Executive Director</li> <li>• Chief Executive Officer of the Fibers Business</li> </ul>
9 Dr. Deepak Parikh	<ul style="list-style-type: none"> <li>• Member of the Sustainability and Risk Management Committee</li> <li>• Chief Strategy Officer</li> </ul>

During the year, Mr. Maris Samaram completed his term as a member of the Committee and did not opt for reappointment. The Board, at its meeting on May 8, 2019, appointed Mr. Tevin Vongvanich, Mr. Yashovardhan Lohia and Dr. Deepak Parikh as new members of the Committee.

Mr. Tevin Vongvanich has a background in chemical engineering, and brings a wealth of expertise from his combined work and management experience, having served as a member of several board level committees with leading oil and gas firms, and national petrochemical companies in Thailand.

Mr. Yashovardhan Lohia has a background in Engineering Business Management and serves as a director with a packaging company listed on the Stock Exchange of Thailand.

Dr. Deepak Parikh has a background in engineering and previously worked in polymer science with renowned global chemical companies. Moreover, he has represented and articulated sustainability messages for several leading chemicals and polymers companies.

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 22 February 2019 and the second on 7 August 2019. All Committee members attended both meetings, with the exception of Mr. Maris Samaram, who was absent from the first meeting and Mr. Uday Gill, who was absent from the second meeting.

Embedding ESG criteria in our corporate DNA has been a top priority for the Committee. In 2019, IVL carried out several environmentally and socially beneficial activities with a focus on our climate strategy, environmental protection, safeguarding human rights, employee health, safety and well-being, and stakeholder engagement.

### Key Committee activities in 2019

1. Overseeing the deployment of, and continuously driving IVL's sustainability strategy, 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 ESG (environmental, social, governance), scenario analysis, stress testing, global challenges, industry trends at existing plants, expansions and new acquisitions, cybersecurity, solutions for plastic waste and recycling, and disruptive innovations and technologies.
  - Operational risks and opportunities including cybersecurity, business continuity management (BCM), natural catastrophes, demand and supply, plastic pollution, customer/supplier concentration and changes in expectations, climate change, environmental protection, carbon pricing, renewable energy, water scarcity and conservation.
  - Financial risks and opportunities including debt compliance management, liquidity, fluctuations in currency, interest rates, and 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, and conducting semi-annual stress tests, presenting to the Board for its consideration.
5. Reviewing and advising on our corporate governance, taxation governance, business compliance, risks and transparency.
6. Reviewing and advising on environmental protection, initiatives on carbon footprint reductions and target setting plans in accordance with sustainability mega-trends and organic business growth.
7. Reviewing and advising health and safety performance, process safety, safety measurement and internal communications, and reporting systems.
8. Advising and overseeing work across the value chain including supplier evaluations, customer-centric product innovations and process solutions, customer satisfaction survey results and future action plans.
9. Ensuring human rights protections at all of our operations and throughout the value chain, in addition to evaluating the human rights assessment results.
10. Reviewing our human resource performance, global employee engagement, and advising on our commitment including actions on diversity and inclusion.
11. Reviewing and advising on SAM'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 was effective during the year.

### Leadership of the Committee

The Committee is focused on sustainability through an effective and systematic approach on ESG aspects and indicators, together with clear objectives which include protecting the environment, empowering people and society, and generating increased sustainable value for our stakeholders.

Throughout 2019, we delivered real organic growth and achieved important milestones, notably our inclusion in the Dow Jones Sustainability World Index for the first time and inclusion in the Dow Jones Emerging Markets Indices for the third consecutive year. We were also rated by FTSE4Good and Bloomberg as the company with the Best ESG score among the world's leading companies in the chemicals sector. All of these recognitions confirm that we are maintaining our trajectory through our commitment and leadership in sustainability. While we have more work to do, I am confident that IVL will continue in moving our business, planet and people towards a sustainable future.

On behalf of the Sustainability and Risk Management Committee,



Aloke Lohia  
Chairman

# NOMINATION COMPENSATION AND CORPORATE GOVERNANCE COMMITTEE (NCCG) REPORT FOR THE YEAR 2019

The NCCG Committee is a committee of the Board of Directors which supports the Board in matters of nominating and compensating Directors of the Board and the company's Group Chief Executive Officer. Furthermore, the Committee supports the Board in overseeing corporate governance, which is key to its ESG profile and contributes to the company's long-term success.

The NCCG Committee consists of five Independent Directors, who possess appropriate qualifications to serve in the Committee:

Mr. Russell Leighton Kekuwa	Chairman
Mr. William Ellwood Heinecke	Member
Mr. Chakramon Phasukavanich	Member
Mr. Kanit Si	Member
Dr. Siri Ganjarerndee	Member

Mr. Russell Leighton Kekuwa succeeded Mr. William Ellwood Heinecke as the Chairman of the NCCG Committee in May 2019. Mr. Heinecke remains the member of the NCCG Committee. The other members are Dr. Siri Ganjarerndee, Mr. Kanit Si, and Mr. Chakramon Phasukavanish. All members of the Committee are independent directors. Mr. Alope Lohia, Group CEO & Vice Chairmen of the Board serves as an advisor to the Committee.

During the year 2019, the NCCG Committee held three meetings and performed its duties in accordance with the NCCG Charter and according to applicable laws and regulations. Notable measures taken by the NCCG Committee during the year were as follows:

## 1. Appointment of Additional Directors:

The Committee nominated two additional directors to the Board to enhance the Board's ability to address complex issues evolving from the global business environment. The NCCG Committee identified and recommended that the following two candidates be appointed to the Board:

- Mr. Tevin Vongvanich as an Independent Director
- Mr. Yashovardhan Lohia as an Executive Director

The ratio between Independent Directors and Executive/Non-Executive Directors remains at 50:50.

## 2. Re-Appointment of Directors to the Board Due to Term Expiration:

There were five Directors retiring in 2019 and eligible for re-appointment. After considering their performance and contribution to the Board and respective committees, the NCCG Committee deemed it appropriate to recommend the re-appointment of the five retiring Directors.

Those Directors who were re-appointed:

- Mr. Sri Prakash Lohia – Chairman of the Board and Non-Executive Director
- Mr. Alope Lohia – Vice Chairman of the Board, Executive Director, Chairman of the Sustainability and Risk Management Committee and Group Chief Executive Officer
- Mrs. Suchitra Lohia – Executive Director and Chairperson of the IVL Foundation
- Mr. Amit Lohia – Non-Executive Director
- Mr. Sanjay Ahuja – Executive Director and Chief Financial Officer

## 3. Re-Appointment of the Audit Committee Members:

As the term of the Audit Committee members was due to expire in 2019; the NCCG Committee after considering their performance and contribution deemed it appropriate to recommend to the Board the re-appointment of the current members of the Audit Committee for another term.

Those Directors who were re-appointed:

- Mr. Rathian Srimongkol – Independent Director
- Mr. Maris Samaram – Independent Director
- Dr. Siri Ganjarerndee – Independent Director

#### **4. Approval of the New Corporate Governance Manual:**

The NCCG Committee reviewed and approved the new Corporate Governance Manual. It consolidates the Corporate Governance Principles, Code of Conduct for Employees and Code of Conduct for Directors. The Manual was rolled out company-wide in September 2019.

#### **5. Corporate Governance Recommendations**

The NCCG Committee reviewed and acknowledged the recommendations from the Dow Jones Sustainability Indices (DJSI) and the Thai Institute of Directors (IOD) on matters of corporate governance. Appropriate measures were taken in response to these recommendations

#### **6. Revision of the Board of Directors Charter and Corporate Policies:**

The NCCG Committee reviewed and recommended changes to the Board of Directors Charter and corporate policies in response to recommendations from DJSI and Thai Private Sector Collective Action against Corruption (CAC). Further alignment was made to ensure compliance with the EU General Data Protection Regulation (GDPR).

#### **7. Review of the Senior Executive Succession Plan and Leadership Development**

The NCCG Committee reviewed and deliberated on the succession plans. Furthermore, the Chief Human Resources Officer shared the plans and process for leadership development.

#### **8. Evaluation of Remuneration of the Board Members:**

The NCCG Committee evaluated board member compensation and found it to be in line with that of industry peers.

#### **9. Evaluation of 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.



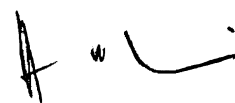
Mr. Russell Leighton Kekuewa  
Chairman, NCCG Committee

# 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, 2019 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, 2019.

# 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 2019, 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 2019 and their financial performance and cash flows for the year then ended in accordance with Thai Financial Reporting Standards (TFRSs).

### *Basis for Opinion*

I conducted my audit in accordance with Thai Standards on Auditing (TSAs). My responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Consolidated and Separate Financial Statements* section of my report. I am independent of the Group and the Company in accordance with the 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.



<b>Acquisitions of businesses</b>	
Refer to Note 4 to the consolidated financial statements.	
<b>The key audit matter</b>	<b>How the matter was addressed in the audit</b>
<p>In 2019, the Group completed the acquisitions of businesses resulting in the recording of gains on bargain purchases of Baht 806 million in the consolidated statement of income for the year ended 31 December 2019 and goodwill of Baht 1,141 million in the consolidated statement of financial position as at 31 December 2019.</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 applied to significant business combinations in 2019 included the following:</p> <ul style="list-style-type: none"> <li>• Read the sale and purchase agreement and analysis memorandum of business combination prepared by the Group to understand key terms and conditions;</li> <li>• Evaluated the assessment by the Group of the identification of all the assets acquired and liabilities assumed and consideration transferred;</li> <li>• Evaluated the assumptions and methodologies underpinning the valuations;</li> <li>• 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.</li> <li>• Assessed the adequacy of the Group's disclosure in accordance with Thai Financial Reporting Standards.</li> </ul>

<b>Impairment assessment of cash-generating unit</b>	
Refer to Note 14 to the consolidated financial statements.	
<b>The key audit matter</b>	<b>How the matter was addressed in the audit</b>
<p>The Group performed impairment assessment for the CGUs in which there were indications of impairment at reporting date by applying the value-in-use (DCF) method to determine the recoverable amount of those CGUs.</p> <p>Due to the judgment and complexities involved in determining the future cash flows attributable to CGUs, I considered the measurement of the recoverable amount as the key audit matter.</p>	<p>My audit procedures performed for impairment assessment at CGUs with impairment indication at reporting date included the following:</p> <ul style="list-style-type: none"> <li>• Assessed if the Group's identification of the CGUs were appropriate.</li> <li>• 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.</li> <li>• Analysed historical information to support the precision in the Group's forecasting process.</li> <li>• Tested the principles and mathematical accuracy of the DCF and performed sensitivity analysis around the key assumptions.</li> <li>• Evaluated the financial parameters applied to the discount rate.</li> </ul>

<b>Impairment assessment of cash-generating unit</b>	
Refer to Note 14 to the consolidated financial statements.	
<b>The key audit matter</b>	<b>How the matter was addressed in the audit</b>
	<ul style="list-style-type: none"> <li>Assessed the adequacy of the Group's disclosure in accordance with Thai Financial Reporting Standards.</li> </ul>

<b>Impairment assessment of goodwill</b>	
Refer to Note 15 to the consolidated financial statements.	
<b>The key audit matter</b>	<b>How the matter was addressed in the audit</b>
<p>As at 31 December 2019, the Group had goodwill of Baht 15,250 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 to which goodwill belongs. 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 to which goodwill belongs, I considered the measurement of the recoverable amount as a key audit matter.</p>	<p>My audit procedures performed for impairment assessment of goodwill included the following:</p> <ul style="list-style-type: none"> <li>Assessed if the Group's identification of the CGU to which goodwill belongs were appropriate.</li> <li>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.</li> <li>Analysed historical information to support the precision in the Group's forecasting process.</li> <li>Tested the principles and mathematical accuracy of the DCF and performed sensitivity analysis around the key assumptions.</li> <li>Evaluated the financial parameters applied to the discount rate.</li> <li>Assessed the adequacy of the Group's disclosure in accordance with Thai Financial Reporting Standards.</li> </ul>

### *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 2019 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.



(Sumate Jangsamsee)  
Certified Public Accountant  
Registration No. 9362

KPMG Phoomchai Audit Ltd.  
Bangkok  
26 February 2020

# STATEMENT OF FINANCIAL POSITION

Indorama Ventures Public Company Limited and its Subsidiaries

		Consolidated financial statements		Separate financial statements	
		31 December		31 December	
Assets	Note	2019	2018	2019	2018
(in thousand Baht)					
<b>Current assets</b>					
Cash and cash equivalents	6	10,446,711	5,578,445	4,055	16,809
Current investments		7,728	134,274	-	-
Trade accounts receivable	5, 7	34,304,897	37,636,557	-	-
Other receivables	5	1,285,989	1,324,554	366,932	83,117
Short-term loans to related parties and interest receivable from related parties	5	174,308	170,933	17,282,207	57,486,542
Inventories	8	62,164,914	70,085,328	-	-
Other current assets	9	10,372,417	9,354,142	48,232	53,132
<b>Total current assets</b>		<b>118,756,964</b>	<b>124,284,233</b>	<b>17,701,426</b>	<b>57,639,600</b>
<b>Non-current assets</b>					
Investments in subsidiaries and other equity security	10	-	-	66,579,369	66,581,665
Investments in joint ventures	11	2,492,161	5,293,989	-	-
Other long-term investments		27,375	15,173	-	-
Long-term loans to related parties	5	28,269	42,590	71,511,640	31,588,856
Property, plant and equipment	14	212,422,922	205,182,418	-	-
Goodwill	15	15,249,931	15,210,011	-	-
Other intangible assets	16	24,165,052	25,139,303	-	-
Deferred tax assets	33	2,321,911	2,713,919	-	-
Other non-current assets	5, 17	5,103,322	1,313,195	329,332	221,228
<b>Total non-current assets</b>		<b>261,810,943</b>	<b>254,910,598</b>	<b>138,420,341</b>	<b>98,391,749</b>
<b>Total assets</b>		<b>380,567,907</b>	<b>379,194,831</b>	<b>156,121,767</b>	<b>156,031,349</b>

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	2019	2018	2019	2018
(in thousand Baht)					
<b>Current liabilities</b>					
Bank overdrafts and short-term loans from financial institutions	18	30,379,499	31,271,959	4,961,000	2,833,000
Trade accounts payable	5, 19	57,172,868	54,564,814	-	-
Current portion of long-term loans from financial institutions	18	6,033,458	8,626,722	-	1,620,602
Current portion of debentures	18	4,107,833	3,013,147	3,388,148	2,299,803
Current portion of finance lease liabilities	18	130,023	110,196	-	-
Current tax payable		1,049,458	2,974,096	-	-
Other current liabilities	5, 20	14,117,432	13,139,144	366,157	505,621
<b>Total current liabilities</b>		<b>112,990,571</b>	<b>113,700,078</b>	<b>8,715,305</b>	<b>7,259,026</b>
<b>Non-current liabilities</b>					
Long-term loans from financial institutions	18	42,551,173	34,640,015	3,020,659	3,249,009
Debentures	18	63,060,040	58,604,295	45,428,407	48,803,461
Finance lease liabilities	18	689,232	498,087	-	-
Deferred tax liabilities	33	17,010,040	15,788,452	131,893	132,519
Non-current provisions for employee benefits	21	4,696,194	2,327,237	-	-
Other non-current liabilities		1,403,367	1,781,312	72,294	-
<b>Total non-current liabilities</b>		<b>129,410,046</b>	<b>113,639,398</b>	<b>48,653,253</b>	<b>52,184,989</b>
<b>Total liabilities</b>		<b>242,400,617</b>	<b>227,339,476</b>	<b>57,368,558</b>	<b>59,444,015</b>

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	2019	2018	2019	2018
(in thousand Baht)					
Equity					
Share capital:	22				
Authorised share capital		5,666,010	5,666,010	5,666,010	5,666,010
Issued and paid-up share capital		5,614,552	5,614,552	5,614,552	5,614,552
Share premium:					
Share premium on ordinary shares	22	60,331,434	60,331,434	60,331,434	60,331,434
Gain (loss) on cash flow hedges	23	731,533	(157,182)	702,064	603,956
Exchange differences on translating foreign operations	23	(16,674,451)	(6,638,206)	-	-
Excess of cost over book value of acquired subsidiaries	5, 23	(3,778,116)	(2,973,740)	-	-
Differences arising from common control transactions	23	(1,235,562)	(1,235,562)	-	-
Retained earnings					
Appropriated					
Legal reserve	23	4,146,586	3,207,126	566,601	566,601
Unappropriated		66,349,979	71,815,294	16,632,989	14,596,719
Equity attributable to owners of the parent		115,485,955	129,963,716	83,847,640	81,713,262
Subordinated perpetual debentures	24	14,905,569	14,874,072	14,905,569	14,874,072
Subordinated perpetual debentures acquired by subsidiary	24	(679,600)	-	-	-
Equity attributable to equity holders of the Company		129,711,924	144,837,788	98,753,209	96,587,334
Non-controlling interests	13	8,455,366	7,017,567	-	-
Total equity		138,167,290	151,855,355	98,753,209	96,587,334
Total liabilities and equity		380,567,907	379,194,831	156,121,767	156,031,349

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	2019	2018	2019	2018
		(in thousand Baht)			
<b>Revenue</b>					
Revenue from sale of goods	5	352,692,448	347,170,900	-	-
Interest income	5	183,159	247,160	3,310,098	3,705,525
Dividend income	5, 10	-	-	10,109,191	10,791,886
Net foreign exchange gain		-	586,223	-	83,287
Gains on bargain purchases	4	805,506	1,928,487	-	-
Other income	5, 26	2,183,670	1,952,602	362,209	299,989
<b>Total revenue</b>		<b>355,864,783</b>	<b>351,885,372</b>	<b>13,781,498</b>	<b>14,880,687</b>
<b>Expenses</b>					
Cost of sales of goods	5, 27	309,344,511	289,231,987	-	-
Distribution costs	5, 28	21,216,171	18,449,398	-	-
Administrative expenses	5, 29	12,697,550	10,119,737	412,872	761,374
Doubtful debts expenses		91,566	23,939	-	-
Management benefit expenses	30	307,088	190,819	30,520	30,420
Loss on impairment and written-off of property, plant and equipment	14	404,244	77,963	-	-
Net foreign exchange loss		296,132	-	4,001	-
Finance costs	32	5,615,129	4,227,384	2,286,686	2,272,638
<b>Total expenses</b>		<b>349,972,391</b>	<b>322,321,227</b>	<b>2,734,079</b>	<b>3,064,432</b>
Share of net profit of joint ventures	11	5,320	585,877	-	-
<b>Profit before tax expense (benefit)</b>		<b>5,897,712</b>	<b>30,150,022</b>	<b>11,047,419</b>	<b>11,816,255</b>
Tax expense (benefit)	33	1,534,028	3,812,383	(25,152)	22,903
<b>Profit for the year</b>		<b>4,363,684</b>	<b>26,337,639</b>	<b>11,072,571</b>	<b>11,793,352</b>
<b>Profit attributable to:</b>					
Owners of the parent		5,252,109	26,465,403	11,072,571	11,793,352
Non-controlling interests	13	(888,425)	(127,764)	-	-
<b>Profit for the year</b>		<b>4,363,684</b>	<b>26,337,639</b>	<b>11,072,571</b>	<b>11,793,352</b>
<b>Earnings per share</b>					
Basic earnings per share (in Baht)	34	0.76	4.61	1.80	1.95

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	
		2019	2018	2019	2018
		(in thousand Baht)			
Profit for the year		4,363,684	26,337,639	11,072,571	11,793,352
Other comprehensive income					
Items that will be reclassified subsequently to profit or loss					
Exchange differences on translating foreign operations		(11,623,555)	(4,450,780)	-	-
Net gain on hedge of net investment in foreign operations		206,827	137,046	206,827	137,046
Net gain (loss) on cash flow hedges		853,052	(502,087)	(84,192)	11,898
Income tax relating to items that will be reclassified		(19,254)	(6,312)	(24,527)	(29,789)
Total items that will be reclassified subsequently to profit or loss		(10,582,930)	(4,822,133)	98,108	119,155
Items that will not be reclassified to profit or loss					
Gain (loss) on remeasurements of defined benefit plans	21	(894,668)	16,898	-	-
Income tax relating to items that will not be reclassified		132,530	(10,079)	-	-
Total items that will not be reclassified to profit or loss		(762,138)	6,819	-	-
Other comprehensive income (expense) for the year, net of tax		(11,345,068)	(4,815,314)	98,108	119,155
Total comprehensive income (expense) for the year		(6,981,384)	21,522,325	11,170,679	11,912,507
Total comprehensive income (expense) attributable to:					
Owners of the parent		(4,637,084)	22,010,525	11,170,679	11,912,507
Non-controlling interests	13	(2,344,300)	(488,200)	-	-
Total comprehensive income (expense) for the year		(6,981,384)	21,522,325	11,170,679	11,912,507

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	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	Translation foreign operations	Gain (loss) on cash flow hedges	Excess of cost over book value of acquired subsidiaries	Difference arising from common control transactions						
														(in thousand baht)
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 of the parent														
22	369,141	15,483,280	-	-	-	-	-	-	15,852,421	-	15,852,421	-	15,852,421	
35	-	-	-	(8,925,328)	-	-	-	-	(8,925,328)	-	(8,925,328)	(67,340)	(8,992,668)	
	369,141	15,483,280	-	(8,925,328)	-	-	-	-	6,927,093	-	6,927,093	(67,340)	6,859,753	
Total contribution by and distribution to owners of the parent														
Changes in ownership interests in subsidiaries														
Acquisition of non-controlling interests without a change in control														
4	-	-	-	-	-	-	(111,481)	-	(111,481)	-	(111,481)	(100,310)	(211,791)	
Acquisition of non-controlling interests through business combination														
	-	-	-	-	-	-	(111,481)	-	(111,481)	-	(111,481)	5,748,376	5,536,585	
Total changes in ownership interests in subsidiaries														
Total transactions with owners, recorded directly in equity														
	369,141	15,483,280	-	(8,925,328)	-	-	(111,481)	-	6,815,612	-	6,815,612	5,580,726	12,396,338	
Comprehensive income (expense) for the year														
	-	-	-	26,465,403	-	-	-	-	26,465,403	-	26,465,403	(127,764)	26,337,639	
	-	-	-	6,010	(3,998,562)	(462,326)	-	-	(4,454,878)	-	(4,454,878)	(360,436)	(4,815,314)	
	-	-	-	26,471,413	(3,998,562)	(462,326)	-	-	22,010,525	-	22,010,525	(488,200)	21,522,325	
Total comprehensive income (expense) for the year														
24	-	-	-	(1,050,000)	-	-	-	-	(1,050,000)	-	(1,050,000)	-	(1,050,000)	
23	-	-	250,323	(250,323)	-	-	-	-	-	-	-	-	-	
Balance at 31 December 2018														
	5,614,552	60,331,434	3,207,126	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	Other components of equity												Total equity	
		Retained earnings				Excess of cost over book value of acquired subsidiaries				Difference arising from common control transactions					
		Issued and paid-up share capital	Share premium on ordinary shares	Legal reserve	Unappropriated	Translation foreign operations	Gain (loss) on cash flow hedges	Excess of cost over book value of acquired subsidiaries	Difference arising from common control transactions	Equity attributable to owners of the parent	Subordinated perpetual debentures	Subordinated perpetual debentures of the Company acquired by subsidiary	Equity attributable to equity holders of the Company		Non-controlling interests
<i>(in thousand Baht)</i>															
Year ended 31 December 2019															
Balance at 1 January 2019															
Transactions with owners, recorded directly in equity															
<i>Distribution to owners of the parent</i>															
Dividends	35	-	-	-	(7,860,373)	-	-	-	-	(7,860,373)	-	-	(7,860,373)	(199,679)	(8,060,052)
<i>Total distribution to owners of the parent</i>		-	-	-	(7,860,373)	-	-	-	-	(7,860,373)	-	-	(7,860,373)	(199,679)	(8,060,052)
<i>Changes in ownership interests in subsidiaries</i>															
Acquisition of non-controlling interests without a change in control															
	4	-	-	-	-	-	-	(804,376)	-	(804,376)	-	-	(804,376)	(1,144,269)	(1,948,645)
Acquisition of non-controlling interests through business combination															
	4	-	-	-	-	-	-	(804,376)	-	(804,376)	-	-	(804,376)	5,126,047	3,177,402
<i>Total changes in ownership interests in subsidiaries</i>		-	-	-	-	-	-	(804,376)	-	(804,376)	-	-	(804,376)	3,981,778	3,177,402
Total transactions with owners, recorded directly in equity															
		-	-	-	(7,860,373)	-	-	(804,376)	-	(8,664,749)	-	-	(8,664,749)	3,782,099	(4,882,650)
Comprehensive income (expense) for the year															
Profit		-	-	-	5,252,109	-	-	-	-	5,252,109	-	-	(888,425)	4,363,684	
Other comprehensive income (expense)		-	-	-	(741,663)	(10,036,245)	888,715	-	-	(9,889,193)	-	-	(1,455,875)	(1,1345,068)	
<i>Total comprehensive income (expense) for the year</i>		-	-	-	4,510,446	(10,036,245)	888,715	-	-	(4,637,084)	-	-	(2,344,300)	(6,981,384)	
Repayment of subordinated perpetual debentures	24	-	-	-	(125,928)	-	-	-	-	(125,928)	(14,874,072)	-	(15,000,000)	-	(15,000,000)
Issuance of subordinated perpetual debentures	24	-	-	-	-	-	-	-	-	-	14,905,569	-	14,905,569	-	14,905,569
Subordinated perpetual debentures of the Company acquired by subsidiary	24	-	-	-	-	-	-	-	-	-	-	(679,600)	(679,600)	-	(679,600)
Coupon payment on subordinated perpetual debentures	24	-	-	-	(1,050,000)	-	-	-	-	(1,050,000)	-	-	(1,050,000)	-	(1,050,000)
Transfer to legal reserve	23	-	-	-	939,460	-	-	-	-	-	-	-	-	-	-
Balance at 31 December 2019															
		5,614,552	60,331,434	4,146,586	66,349,979	(16,674,451)	731,533	(3,778,116)	(1,235,562)	115,485,955	14,905,569	(679,600)	129,711,924	8,455,366	138,167,200

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
Note									
(in thousand Baht)									
Year ended 31 December 2018									
Balance at 1 January 2018		5,245,411	44,848,154	566,601	12,778,695	484,801	63,923,662	14,874,072	78,797,734
Transactions with owners, recorded directly in equity									
Contribution by and distribution to owners									
22	Issue of ordinary shares due to warrant exercised	369,141	15,483,280	-	-	-	15,852,421	-	15,852,421
35	Dividends	-	-	-	(8,925,328)	-	(8,925,328)	-	(8,925,328)
Total contribution by and distribution to owners		369,141	15,483,280	-	(8,925,328)	-	6,927,093	-	6,927,093
Comprehensive income for the year									
	Profit	-	-	-	11,793,352	-	11,793,352	-	11,793,352
	Other comprehensive income	-	-	-	-	119,155	119,155	-	119,155
Total comprehensive income for the year		-	-	-	11,793,352	119,155	11,912,507	-	11,912,507
24	Coupon payment on subordinated perpetual debentures	-	-	-	(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 CHANGES IN EQUITY

Indorama Ventures Public Company Limited and its Subsidiaries

Separate financial statements								
		Retained earnings		Other component of equity				
		Issued and paid-up share capital	Share premium on ordinary shares	Legal reserve	Unappropriated	Gain on cash flow hedges	Equity attributable to owners of the parent	Subordinated perpetual debentures
	Note							Total equity
(in thousand Baht)								
Year ended 31 December 2019								
Balance at 1 January 2019		5,614,552	60,331,434	566,601	14,596,719	603,956	81,713,262	14,874,072
								96,587,334
Transactions with owners, recorded directly in equity								
Distribution to owners								
Dividends	35	-	-	-	(7,860,373)	-	(7,860,373)	-
Total distribution to owners		-	-	-	(7,860,373)	-	(7,860,373)	(7,860,373)
Comprehensive income for the year								
Profit		-	-	-	11,072,571	-	11,072,571	11,072,571
Other comprehensive income		-	-	-	-	98,108	98,108	98,108
Total comprehensive income for the year		-	-	-	11,072,571	98,108	11,170,679	11,170,679
Repayment of subordinated perpetual debentures								
Issuance of subordinated perpetual debentures	24	-	-	-	(125,928)	-	(125,928)	(14,874,072)
Coupon payment on subordinated perpetual debentures	24	-	-	-	-	-	-	14,905,569
		-	-	-	(1,050,000)	-	(1,050,000)	-
Balance at 31 December 2019		5,614,552	60,331,434	566,601	16,632,989	702,064	83,847,640	14,905,569
								98,753,209

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		Separate	
		financial statements		financial statements	
		Year ended 31 December		Year ended 31 December	
		2019	2018	2019	2018
(in thousand Baht)					
<b>Cash flows from operating activities</b>					
Profit for the year		4,363,684	26,337,639	11,072,571	11,793,352
<i>Adjustments to reconcile profit to cash receipts (payments)</i>					
Tax expense (benefit)	33	1,534,028	3,812,383	(25,152)	22,903
Finance costs	32	5,615,129	4,227,384	2,286,686	2,272,638
Depreciation	14	14,343,815	12,161,215	-	-
Amortisation of intangible assets and other assets		2,696,639	2,112,068	-	-
Provision for impairment on property, plant and equipment	14	374,938	49,818	-	-
Provision for impairment on investment in subsidiary	10	-	-	-	121,630
Employee benefits expense relating to defined benefit plans	21	510,536	396,996	-	-
Unrealised foreign exchange loss		237,653	39,741	45,313	80,952
Share of net profit of joint ventures	11	(5,320)	(585,877)	-	-
Provision for bad and doubtful debts expense, net		91,566	23,939	-	-
Provision for loss on inventories devaluation	8	396,559	345,864	-	-
Gains on bargain purchases	4	(805,506)	(1,928,487)	-	-
Loss on disposal of subsidiary		-	-	1,165	-
Gain on previously held interest in a jointly-controlled entity		-	(1,444)	-	-
Gain on disposal of property, plant and equipment, net		(181,050)	(6,481)	-	-
Loss on written-off of property, plant and equipment, net		29,306	28,145	-	-
Interest income		(183,159)	(247,160)	(3,310,098)	(3,705,525)
Dividend income	10	-	-	(10,109,191)	(10,791,886)
		29,018,818	46,765,743	(38,706)	(205,936)
<i>Changes in operating assets and liabilities</i>					
Trade accounts receivable		9,825,447	(596,316)	-	-
Inventories		14,857,360	(18,054,864)	-	-
Other current assets		613,376	(817,951)	(194,241)	507,147
Other non-current assets		(3,162,533)	1,269,376	(3,358)	(1,337)
Trade accounts payable		(6,477,067)	8,149,807	-	-
Repayment of employee benefit relating to defined benefit plans		(378,783)	(215,932)	-	-
Other current liabilities		447,483	(1,354,339)	(130,977)	139,027
Other non-current liabilities		(650,990)	20,550	-	-
Net cash generated from operating		44,093,111	35,166,074	(367,282)	438,901
Taxes received (paid)		(3,248,137)	(3,185,509)	16,175	-
<b>Net cash from (used in) operating activities</b>		<b>40,844,974</b>	<b>31,980,565</b>	<b>(351,107)</b>	<b>438,901</b>

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		Separate	
		financial statements		financial statements	
		Year ended 31 December		Year ended 31 December	
		2019	2018	2019	2018
(in thousand Baht)					
<b>Cash flows from investing activities</b>					
Net cash outflow on acquisitions of businesses	4	(7,018,634)	(26,191,210)	-	-
Net cash outflow on investment in joint operation	12	-	(11,535,333)	-	-
Net cash outflow on additional investment in subsidiaries and joint ventures	10, 11	(2,220,942)	(2,289,002)	-	(1,136,665)
Proceeds from disposal of subsidiary		-	-	1,130	-
Proceeds from sale of other investments		116,286	2,284	-	-
Proceeds from sale of property, plant and equipment		441,117	78,405	-	-
Acquisition of property, plant and equipment		(16,673,872)	(16,353,040)	-	-
Proceeds from sale of intangible assets		6,434	196	-	-
Acquisition of intangible assets		(126,070)	(190,206)	-	-
Dividend received	10	-	-	10,109,191	10,791,886
Interest received		177,439	250,587	489	18,947
<b>Net cash from (used in) investing activities</b>		<b>(25,298,242)</b>	<b>(56,227,319)</b>	<b>10,110,810</b>	<b>9,674,168</b>
<b>Cash flows from financing activities</b>					
Proceeds from issue of ordinary shares due to warrants exercised	22	-	15,852,421	-	15,852,421
Proceeds from short and long-term loans		23,691,842	28,434,902	2,128,000	6,108,860
Repayment of short and long-term loans		(22,373,547)	(20,310,330)	(1,630,740)	(10,182,632)
Proceeds from debenture, net of debenture issuance costs		9,038,972	17,471,691	-	17,471,691
Repayment of debentures		(4,018,546)	(3,551,441)	(2,300,000)	(2,730,000)
Payment by a lessee for reduction of the outstanding liability relating to a finance lease		(197,545)	(63,637)	-	-
Loans to subsidiaries, net		-	-	648,341	(30,693,551)
Loans to joint ventures, net		(51,375)	(9,335)	-	-
Dividends paid to owners of the Company	35	(7,860,219)	(8,925,213)	(7,860,219)	(8,925,213)
Dividends paid to non-controlling interests		(199,679)	(67,340)	-	-
Interest received		-	-	2,674,665	3,105,172
Interest paid		(6,641,893)	(5,141,609)	(2,288,073)	(2,230,632)
Deferred financing cost paid		(360,072)	(73,376)	-	(16,610)
Repayment of subordinated perpetual debentures	24	(15,000,000)	-	(15,000,000)	-
Issuance of subordinated perpetual debentures, net of issuance cost of Baht 94 million	24	14,905,569	-	14,905,569	-
Subordinated perpetual debentures of the Company acquired by subsidiary	24	(679,600)	-	-	-
Coupon payment on subordinated perpetual debentures	24	(1,050,000)	(1,050,000)	(1,050,000)	(1,050,000)
<b>Net cash from (used in) financing activities</b>		<b>(10,796,093)</b>	<b>22,566,733</b>	<b>(9,772,457)</b>	<b>(13,290,494)</b>
Net increase (decrease) in cash and cash equivalents, before effect of exchange rates					
		4,750,639	(1,680,021)	(12,754)	(3,177,425)
Effect of exchange rate changes on cash and cash equivalents		117,627	381,417	-	-
<b>Net increase (decrease) in cash and cash equivalents</b>		<b>4,868,266</b>	<b>(1,298,604)</b>	<b>(12,754)</b>	<b>(3,177,425)</b>
Cash and cash equivalents at 1 January		5,578,445	6,877,049	16,809	3,194,234
<b>Cash and cash equivalents at 31 December</b>	6	<b>10,446,711</b>	<b>5,578,445</b>	<b>4,055</b>	<b>16,809</b>

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 2019

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# NOTES TO THE FINANCIAL STATEMENTS

Indorama Ventures Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

The accompanying notes are an integral part of these 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 2020.

## 1 General information

Indorama Ventures Public Company Limited, the “Company”, is incorporated in Thailand and was listed on the Stock Exchange of Thailand in February 2010. The Company’s registered office at 75/102, Ocean Tower II, 37<sup>th</sup> Floor, Sukhumvit 19, Asoke Road, Klongtoeynew, Wattana, Bangkok, Thailand.

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”), Naphthalene dicarboxylate (“NDC”), polyester fibers, and wool products. Details of the Company’s subsidiaries, joint ventures and joint operations as at 31 December 2019 and 2018 are given in notes 5, 10, 11 and 12.

## 2 Basis of preparation of the financial statements

### (a) Statement of compliance

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

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

The Group/Company has assessed the impact of initial adoption of TFRS 15 using the cumulative effect method, taking into account the effect of initially applying this standard only to contracts that were not completed before 1 January 2019. The impact on retained earnings as at 1 January 2019 was not material. Therefore, the Group/Company has not adjusted the retained earnings as at 1 January 2019 and not restated the information presented for 2018, as previously reported under TAS 18 and related interpretations. The disclosure requirements of TFRS 15 have not generally been applied to comparative information.

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

(b) *Functional and presentation currency*

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

(c) *Use of judgements and estimates*

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

(i) Judgements

Information about judgements made in applying accounting policies that have the most significant effects on the amounts recognised in the financial statements is included in the following notes:

11, 12	Equity-accounted investees: whether the Group has joint control over an investee;
18, 37	Lease classification; and
24	The classification of subordinate perpetual debentures into equity.

(ii) Assumptions and estimation uncertainties

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

4	Acquisitions of businesses: fair value of the assets acquired and liabilities assumed, measured on a provisional basis;
7	Measurement of allowance for doubtful debts of trade accounts receivable;
14, 15 and 16	Impairment test of property, plant and equipment, goodwill and other intangible assets: key assumptions underlying recoverable amounts;
21	Measurement of net defined benefit obligations: key actuarial assumptions; and
33	Recognition of deferred tax assets: availability of future taxable profit against which deductible temporary differences and tax losses carried forward can be utilised.

### 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.

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

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

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

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

#### *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:

- 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 translation foreign operations 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 translation foreign operations 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 translation foreign operations 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 government 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.

#### *Hedge of interest rates*

Interest differentials under swap arrangements are accrued and recorded as adjustments to the interest expense relating to the hedged loans. For interest rate forward contracts, the amounts received or paid on cash settlements, representing the gain or loss, are deferred and recognised over the life of the underlying monetary asset or liability as an adjustment to interest income or expense. For purchased interest rate options, the premiums paid are included in the statement of financial position under other assets or other liabilities. The premiums are amortised to interest income or expense over the life of the agreements.

### **(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 and contract assets***

A receivable is recognised when the Group/Company has an unconditional right to receive consideration. If revenue has been recognised before the Group/Company has an unconditional right to receive consideration, the amount is presented as a contract asset.

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

Contract assets are measured at the amount of consideration that the Group/Company is entitled to, less impairment losses.

### **(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 item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount of property, plant and equipment, and are recognised in profit or loss.

### *Leased assets*

Leases in terms of which the Group substantially assumes all the risk and rewards of ownership are classified as finance leases. Property, plant and equipment acquired by way of finance leases is capitalised at the lower of its fair value and the present value of the minimum lease payments at the inception of the lease, less accumulated depreciation and impairment losses. Lease payments are apportioned between the finance charges and reduction of the lease liability so as to achieve a constant rate of interest on the remaining balance of the liability. Finance charges are charged directly to the profit 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	2-60 years
Machinery and equipment	2-50 years
Office furniture, fixtures and equipment	2-25 years
Transportation equipment	3-20 years
Stores and spares	1.5-15 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	2-15	years
Technology licenses and knowhow	4-30	years
Customer contracts and relationships	3-20.3	years
Trade name and trademarks	5-21.5	years, Indefinite
Chemicals exchange contract	19	years
Capitalised development expenditure	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) *Contract liabilities***

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

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

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

#### *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.

### **(p) *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.

**(q) 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.

**(r) Measurement of fair values**

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 in active markets for identical assets or liabilities.
- *Level 2* : inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly or indirectly.
- *Level 3* : inputs for the asset or liability that are based on unobservable input.

If the inputs used to measure the fair value of an asset or liability are 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.

**(s) 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.

When subordinated perpetual debentures recognised as equity are repurchased, the amount of the consideration paid, which includes directly attributable costs, is recognised as a deduction from equity.

**(t) Revenue**

***Accounting policies for revenue recognition in 2019***

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

*Sale of goods*

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

*Long-term advances received from customers*

Long-term advances received from customers is recognised as revenue when the Group transferred control over the goods to the customers. For the advances that contain a significant financing component, they include the interest expense accreted on the contract liability under the effective interest method. The Group uses practical expedient which is not adjust the consideration for any effects of a significant financing component if the period of financing is 12 months or less.

*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.

*Guarantee and royalty income*

Guarantee and royalty income is recognised over time as the services are provided.

***Accounting policies for revenue recognition in 2018***

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

*Sale of goods*

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.



**(u) 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.

**(v) 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.

**(w) 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.

**(x) *Earnings per share***

The Group/Company presents basic 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.

**(y) *Related parties***

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

**(z) *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 2019 and 2018 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 2019 and 2018 and the consolidated statement of financial position as at 31 December 2019 and 2018 respectively, are as following:

### *Gains on bargain purchases*

	Note	2019 (in thousand Baht)	2018
Egyptian Indian Polyester Company S.A.E., Egypt	4(ii)	-	890,140
Sorepla Technologie S.A., France	4(iv)	-	5,247
KORDÁRNA Plus a.s., Czech Republic	4(vi)	-	642,686
Schoeller Group, Austria, Czech Republic and Germany	4(viii)	-	390,414
M&G Fibras Brasil Ltda., Brazil	4(x)	114,434	-
UTT Beteiligungsgesellschaft mbH, Germany	4(xi)	507,125	-
INVISTA Resins & Fibers GmbH, Germany	4(xii)	183,947	-
<b>Total gains on bargain purchases</b>		<b>805,506</b>	<b>1,928,487</b>

### *Goodwill*

M&G Polimeros Brazil S.A., Brazil	4(i)	-	30,193
Avgol Industries 1953 Ltd., Israel	4(iii)	-	4,646,888
Medco Plast for Packing and Packaging Systems S.A.E., Egypt	4(vii)	-	997,462
IVL Dhunseri Petrochem Industries Private Limited, India	4(xiii)	587,961	-
Custom Polymers PET, LLC, USA	4(ix)	80,283	-
Indo Rama Synthetics (India) Limited, India	4(xiv)	93,338	-
Bevpak (Nigeria) Limited, Nigeria	4(xv)	132,774	-
Sinterama S.p.A. and its subsidiaries, Italy, Brazil, China and Bulgaria	4(xvi)	22,489	-
Green Fiber International Inc., USA	4(xvii)	224,216	-
<b>Total Goodwill</b>		<b>1,141,061</b>	<b>5,674,543</b>

### *(i) M&G Polimeros Brazil S.A., Brazil*

On 24 May 2018, IVL, through its indirect subsidiary, Indorama Ventures Brazil Participações 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 cash consideration of BRL 1,389.2 million (Baht 12,246.6 million). The transaction is accounted for as a business combination.

*Identifiable assets acquired and liabilities assumed*

	<i>Note</i>	<b>Fair values as at 24 May 2018 (in thousand Baht)</b>
Cash and cash equivalents		396,826
Inventories		1,023,543
Trade receivables		935,153
Property, plant and equipment	14	5,404,294
Intangible assets	16	4,990,391
Deferred tax assets, net	33	135,679
Accounts payable		(621,106)
Other assets/(liabilities), net		(48,326)
<b>Total identifiable net assets received</b>		<b>12,216,454</b>
Goodwill		30,193
<b>Purchase consideration transferred</b>		<b>12,246,647</b>
Cash acquired		(396,826)
<b>Net cash outflows</b>		<b>11,849,821</b>

The trade receivables comprise gross contractual amounts due of Baht 935.2 million which was expected to be collectible at the acquisition date.

**(ii) Egyptian Indian Polyester Company S.A.E., Egypt**

On 14 June 2018, IVL, through its indirect subsidiary, Indorama Netherlands B.V. (“INBV”) 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 cash consideration of USD 1.0 million (Baht 32.2 million). The transaction is accounted for as a business combination.

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.

Subsequent to the completion of the acquisition, Egyptian Indian Polyester Company S.A.E. was renamed to IVL Dhunseri Polyester Company S.A.E.

*Identifiable assets acquired and liabilities assumed*

	<i>Note</i>	<b>Fair values as at 14 June 2018 (in thousand Baht)</b>
Cash and cash equivalents		16,755
Inventories		50,028
Property, plant and equipment	14	5,168,397
Intangible assets	16	18,125
Short-term loan from financial institutions		(2,797,433)
Accounts payable		(34,272)
Other assets/(liabilities), net		(27,172)
<b>Total identifiable net assets</b>		<b>2,394,428</b>
Less Non-controlling interest (50%)		(1,197,214)
<b>Total identifiable net assets received</b>		<b>1,197,214</b>
Gain on bargain purchase		(890,140)
<b>Purchase consideration transferred</b>		<b>307,074</b>
Cash acquired		(16,755)
<b>Net cash outflows</b>		<b>290,319</b>

**(iii) 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 cash consideration of USD 318.9 million (Baht 10,643.5 million). The transaction is accounted for as a business combination.

*Identifiable assets acquired and liabilities assumed*

	<i>Note</i>	<b>Fair values as at 25 July 2018 (in thousand Baht)</b>
Cash and cash equivalents		1,903,017
Inventories		1,940,263
Trade receivables		969,077
Property, plant and equipment	14	13,548,733
Intangible assets	16	4,018,482
Accounts payable		(1,033,407)
Long-term loan from financial institutions		(2,624,240)
Deferred tax liabilities, net	33	(2,007,034)
Debentures		(7,202,178)
Other assets/(liabilities), net		(388,209)
<b>Total identifiable net assets</b>		<b>9,124,504</b>
Less Non-controlling interest (34.28%)		(3,127,880)
<b>Total identifiable net assets received</b>		<b>5,996,624</b>
Goodwill		4,646,888
<b>Purchase consideration transferred</b>		<b>10,643,512</b>
Cash acquired		(1,903,017)
<b>Net cash outflows</b>		<b>8,740,495</b>



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.

**(iv) 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 cash consideration of EUR 10.1 million (Baht 395.0 million). The transaction is accounted for as a business combination.

Subsequent to the completion of the acquisition, Sorepla Technologie S.A. was renamed to Wellman Neufchateau Recyclage S.A.

*Identifiable assets acquired and liabilities assumed*

	<i>Note</i>	<b>Fair values as at 30 July 2018 (in thousand Baht)</b>
Cash and cash equivalents		9,868
Inventories		24,447
Trade receivables		24,759
Property, plant and equipment	14	610,226
Deferred tax assets, net	33	38,335
Short-term loan from financial institutions		(50,981)
Accounts payable		(84,436)
Other assets/(liabilities), net		(171,925)
<b>Total identifiable net assets received</b>		<b>400,293</b>
Gain on bargain purchase		(5,247)
<b>Purchase consideration transferred</b>		<b>395,046</b>
Cash acquired		(9,868)
<b>Net cash outflows</b>		<b>385,178</b>

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.

**(v) 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 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>	<b>Fair values as at 1 October 2018 (in thousand Baht)</b>
Cash and cash equivalents		27,206
Inventories		1,515,232
Trade receivables		1,546,191
Property, plant and equipment	14	11,780,282
Short-term loan from financial institutions		(497,505)
Accounts payable		(3,967,474)
Long-term loan from financial institutions		(5,130,351)
Deferred tax liabilities, net	33	(1,114,931)
Other assets/(liabilities), net		366,783
<b>Total identifiable net assets</b>		<b>4,525,433</b>
Less Non-controlling interest (26%)		(1,176,613)
<b>Total fair value of identifiable net assets received</b>		<b>3,348,820</b>
<b>Fair value of previously held equity interest</b>		<b>3,348,820</b>
<b>Net</b>		<b>-</b>

The gain recognised as a result of remeasuring to fair value of the previously held equity interest in PT. Indorama Petrochemicals is determined as follows:

	<b>As at 1 October 2018 (in thousand Baht)</b>
Fair value of previously held equity interest	3,348,820
Carrying amount of previously held equity interest	(3,296,932)
Unrealised loss previously recognised in other comprehensive income	(50,444)
<b>Gain recognised as a result of remeasuring to fair value of the previously held interest</b>	<b>1,444</b>

The measurement of 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.

**(vi) 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 cash consideration of CZK 1,452.4 million (Baht 2,124.3 million). The transaction is accounted for as a business combination.

*Identifiable assets acquired and liabilities assumed*

	<i>Note</i>	<b>Fair values as at 30 October 2018 (in thousand Baht)</b>
Cash and cash equivalents		46,847
Inventories		610,824
Trade receivables		718,207
Property, plant and equipment	14	2,353,247
Intangible assets	16	1,276
Deferred tax assets, net	33	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)
<b>Total identifiable net assets received</b>		<b>2,767,009</b>
Gain on bargain purchase		(642,686)
<b>Purchase consideration transferred</b>		<b>2,124,323</b>
Cash acquired		(46,847)
<b>Net cash outflows</b>		<b>2,077,476</b>

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.

**(vii) 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 cash consideration of EGP 921.4 million (Baht 1,699.5 million). The transaction is accounted for as a business combination.

*Identifiable assets acquired and liabilities assumed*

	<i>Note</i>	<b>Fair values as at 13 November 2018 (in thousand Baht)</b>
Cash and cash equivalents		13,838
Inventories		365,582
Trade receivables		781,564
Property, plant and equipment	14	859,002
Intangible assets	16	451,216
Short-term loan from financial institutions		(1,332,605)
Accounts payable		(29,478)
Deferred tax liabilities, net	33	(234,097)
Other assets/(liabilities), net		73,702
<b>Total identifiable net assets</b>		<b>948,724</b>
Less Non-controlling interest (26%)		(246,669)
<b>Total identifiable net assets received</b>		<b>702,055</b>
Goodwill		997,462
<b>Purchase consideration transferred</b>		<b>1,699,517</b>

	<b>Fair values as at 13 November 2018 (in thousand Baht)</b>
Consideration payable	(144,542)
Cash acquired	(13,838)
<b>Net cash outflows</b>	<b>1,541,137</b>

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.

**(viii) 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 cash consideration of EUR 37.5 million (Baht 1,412.4 million). The transaction is accounted for as a business combination.

*Identifiable assets acquired and liabilities assumed*

	<b>Fair values as at 23 November 2018 (in thousand Baht)</b>
Cash and cash equivalents	6,532
Inventories	907,041
Trade receivables	249,064
Property, plant and equipment	14 1,078,842
Intangible assets	16 339,481
Short-term loan from financial institutions	(1,343)
Accounts payable	(476,255)
Deferred tax liabilities, net	33 (182,388)
Other assets/(liabilities), net	(118,190)
<b>Total identifiable net assets received</b>	<b>1,802,784</b>
Gain on bargain purchase	(390,414)
<b>Purchase consideration transferred</b>	<b>1,412,370</b>
Contingent consideration	(71,848)
Cash acquired	(6,532)
<b>Net cash outflows</b>	<b>1,333,990</b>

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.

The payment of contingent consideration is subject to the achievement of EBITDA in 2019 and 2020, as per stipulated in the share purchase agreement.

**(ix) Custom Polymers PET, LLC, USA**

On 15 January 2019, IVL, through its indirect subsidiary, Indorama Ventures Holdings LP (“IVHLP”), completed the acquisition of a PET recycling facility in Alabama, USA from Custom Polymers PET, LLC, as per definitive Asset Purchase Agreement dated 21 December 2018 for a cash consideration of USD 29.9 million (Baht 954.7 million). The transaction is accounted for as a business combination. During the period from acquisition date to 31 December 2019, the business contributed revenue of USD 26.6 million (Baht 825.8 million) and net loss of USD 1.3 million (Baht 39.9 million) to the Group’s results.

*Identifiable assets acquired and liabilities assumed*

	Note	Fair values as at 15 January 2019 (in thousand Baht)
Inventories		132,264
Property, plant and equipment	14	611,524
Intangible assets	16	129,003
Other assets/(liabilities), net		1,649
<b>Total identifiable net assets received</b>		<b>874,440</b>
Goodwill		80,283
<b>Purchase consideration transferred</b>		<b>954,723</b>

**(x) M&G Fibras Brasil Ltda., Brazil**

On 22 February 2019, IVL, through its indirect subsidiary, Indorama Ventures Brazil Participações S.A. (“IVBRZ”), completed the acquisition of 100% stake in M&G Fibras Brasil Ltda. located in Cabo de Santo Agostinho, Brazil from M&G Fibras Holding S.A., M&G Fibras Participações Ltda. and M&G Fibras e Resinas Ltda., as per a definitive Sale and Purchase Agreement dated 1 November 2018 for a cash consideration of BRL 106.9 million (Baht 893.1 million). During the second quarter of 2019, the final purchase price was settled with the seller to be BRL 104.2 million (Baht 870.3 million). The transaction is accounted for as a business combination. During the period from acquisition date to 31 December 2019, the business contributed revenue of BRL 195.9 million (Baht 1,522.3 million) and net loss of BRL 10.0 million (Baht 77.9 million) to the Group’s results. If the acquisition had occurred on 1 January 2019, management estimates that consolidated revenue and consolidated net profit for the year would have increased by Baht 274.5 million and decreased by Baht 20.1 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 2019.

Subsequent to the completion of the acquisition, M&G Fibras Brasil Ltda. was renamed to Indorama Ventures Fibras Brasil Ltda.

*Identifiable assets acquired and liabilities assumed*

	Note	Fair values as at 22 February 2019 (in thousand Baht)
Inventories		240,687
Trade receivables		132,699
Property, plant and equipment	14	1,217,138
Intangible assets	16	17,441



	Note	Fair values as at 22 February 2019 (in thousand Baht)
Short-term loan from financial institutions		(1,201)
Accounts payable		(161,040)
Deferred tax liabilities, net	33	(382,023)
Other assets/(liabilities), net		(78,922)
<b>Total identifiable net assets received</b>		<b>984,779</b>
Gain on bargain purchase		(114,434)
<b>Purchase consideration transferred</b>		<b>870,345</b>
Cash acquired		-
<b>Net cash outflows</b>		<b>870,345</b>

The trade receivables comprise gross contractual amounts due of Baht 194.7 million, of which Baht 62.0 million was expected to be uncollectible at the acquisition date.

**(xi) UTT Beteiligungsgesellschaft mbH, Germany**

On 28 February 2019, IVL, through its indirect subsidiary, PHP Fibers GmbH (“PHP Fibers”), completed the acquisition of 100% stake in UTT Beteiligungsgesellschaft mbH (“UTT”), Germany from Mr. Wilfried Trumpp and Ms. Venere Polito, as per definitive Share Purchase and Transfer Agreement dated 7 December 2018 for a cash consideration of EUR 65.0 million (Baht 2,325.9 million). The transaction is accounted for as a business combination. During the period from acquisition date to 31 December 2019, the business contributed revenue of EUR 86.3 million (Baht 2,978.1 million) and net profit of EUR 2.9 million (Baht 101.3 million) to the Group’s results. If the acquisition had occurred on 1 January 2019, management estimates that consolidated revenue and consolidated net profit for the year would have increased by Baht 594.0 million and Baht 21.0 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 2019.

*Identifiable assets acquired and liabilities assumed*

	Note	Fair values as at 28 February 2019 (in thousand Baht)
Cash and cash equivalents		132,343
Inventories		636,413
Trade receivables		58,068
Property, plant and equipment	14	3,169,987
Intangible assets	16	1,469,285
Accounts payable		(481,700)
Long-term loan from financial institutions		(994,712)
Deferred tax liabilities, net	33	(909,961)
Other assets/(liabilities), net		(246,664)
<b>Total identifiable net assets received</b>		<b>2,833,059</b>
Gain on bargain purchase		(507,125)
<b>Purchase consideration transferred</b>		<b>2,325,934</b>
Cash acquired		(132,343)
<b>Net cash outflows</b>		<b>2,193,591</b>

The trade receivables comprise gross contractual amounts due of Baht 58.3 million, of which Baht 0.2 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.

**(xii) INVISTA Resins & Fibers GmbH, Germany**

On 4 March 2019, IVL, through its indirect subsidiary, Trevira Holdings GmbH (“THGM”), completed the acquisition of 100% stake in the PET business of INVISTA Resins & Fibers GmbH (“IRFG”), Germany and certain Intellectual Property Rights of INVISTA Textiles (U.K.) Limited from Arteva Holdings GmbH, INVISTA Textiles (U.K.) Limited, and INVISTA Equities, LLC, as per definitive share purchase agreement dated 20 December 2018 for a cash consideration of EUR 31.5 million (Baht 1,139.2 million). The transaction is accounted for as a business combination. During the period from acquisition date to 31 December 2019, the business contributed revenue of EUR 107.0 million (Baht 3,690.5 million) and net profit of EUR 7.4 million (Baht 256.6 million) to the Group’s results. If the acquisition had occurred on 1 January 2019, management estimates that consolidated revenue and consolidated net profit for the year would have increased by Baht 926.5 million and decreased by Baht 37.6 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 2019.

Subsequent to the completion of the acquisition, INVISTA Resins & Fibers GmbH was renamed to Indorama Ventures Polymers Germany GmbH.

*Identifiable assets acquired and liabilities assumed*

	<i>Note</i>	<b>Fair values as at 4 March 2019 (in thousand Baht)</b>
Cash and cash equivalents		172,347
Inventories		731,474
Trade receivables		949,628
Property, plant and equipment	14	786,375
Intangible assets	16	1,058,235
Accounts payable		(491,178)
Deferred tax liabilities, net	33	(542,748)
Other assets/(liabilities), net		(1,340,938)
<b>Total identifiable net assets received</b>		<b>1,323,195</b>
Gain on bargain purchase		(183,947)
<b>Purchase consideration transferred</b>		<b>1,139,248</b>
Cash acquired		(172,347)
<b>Net cash outflows</b>		<b>966,901</b>

The trade receivables comprise gross contractual amounts due of Baht 949.6 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.

**(xiii) IVL Dhunseri Petrochem Industries Private Limited, India (“DPGL”)**

With effect from 1 January 2019, IVL has exercised the additional rights to appoint additional director (i.e fourth director) on the Board of Directors of DPGL and right to require deletion of one affirmative vote item in relation to the approval of business plan of DPGL. With the additional rights acquired, Management believes that it has control over DPGL and the transaction is accounted for as a business combination.

*Identifiable assets acquired and liabilities assumed*

	<i>Note</i>	<b>Fair values as at 1 January 2019 (in thousand Baht)</b>
Cash and cash equivalents		768,717
Inventories		3,323,356
Trade receivables		3,802,315
Property, plant and equipment	14	6,671,617
Intangible assets	16	499,764
Short-term loan from financial institutions		(2,501,746)
Accounts payable		(5,228,638)
Long-term loan from financial institutions		(2,351,448)
Deferred tax liabilities, net	33	(458,090)
Other assets/(liabilities), net		916,760
<b>Total identifiable net assets received</b>		<b>5,442,607</b>
<i>Less Non-controlling interests (50%)</i>		<i>(2,721,304)</i>
<b>Total fair value of identifiable net assets received</b>		<b>2,721,304</b>
Goodwill		587,961
<b>Fair value of previously held equity interest</b>		<b>3,309,265</b>

There is neither gain nor loss recognised as a result of remeasuring to fair value of the previously held equity interest in IVL Dhunseri Petrochem Industries Private Limited as follows:

	<b>As at 1 January 2019 (in thousand Baht)</b>
Fair value of previously held equity interest	3,309,265
Carrying amount of previously held equity interest	(2,960,108)
Unrealised loss previously recognised in other comprehensive income	(349,157)
<b>Gain (loss) recognised as a result of remeasuring to fair value of the previously held interest</b>	<b>-</b>

The trade receivables comprise gross contractual amounts due of Baht 3,802.3 million which was expected to be collectible at the acquisition date.

**(xiv) Indo Rama Synthetics (India) Limited, India (“IRSL”)**

On 15 January 2019, IVL, through its indirect subsidiary, Indorama Netherlands B.V. (“INBV”), purchased newly issued shares in IRSL, equaling to approximately 31.79% of IRSL’s enlarged share capital (the “Share Purchase”). Share Purchase formalities has been completed on 3 April 2019 for a cash consideration of INR 2,988.0 million (Baht 1,378.3 million). INBV is further required to do an open offer to minority shareholders holding, (the “Open Offer”). The Open Offer under regulations of the Securities Exchange Board of India (“SEBI”) required INBV to deposit 100% of the Open Offer amount into Escrow deposit with a commercial bank in India. Consequently, upon completion of the Open Offer process, INBV further acquired 6.77% stake in IRSL for a cash consideration of INR 637.1 million (Baht 293.9 million) and the remaining Escrow deposit amounted to INR 1,718.6 million (Baht 764.0 million) which is presented under “other current assets” as at 30 June 2019 was reimbursed to INBV in July 2019. The transaction is accounted for as a business combination. During the period from acquisition date to 31 December 2019, the business contributed revenue of INR 15,861.6 million (Baht 6,974.4 million) and net loss of INR 1,624.6 million (Baht 714.3 million) to the Group’s results. If the acquisition had occurred on 1 January 2019, management estimates that consolidated revenue and consolidated net profit for the year would have increased by Baht 1,973.1 million and decreased by Baht 837.5 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 2019.

*Identifiable assets acquired and liabilities assumed*

	Note	Fair values as at 3 April 2019 (in thousand Baht)
Cash and cash equivalents		1,648,323
Inventories		847,171
Trade receivables		274,242
Property, plant and equipment	14	5,589,866
Intangible assets	16	430,997
Deferred tax assets, net	33	462,431
Short-term loan from financial institutions		(1,622,214)
Accounts payable		(2,294,453)
Long-term loan from financial institutions		(1,020,636)
Other assets/(liabilities), net		(221,045)
<b>Total identifiable net assets</b>		<b>4,094,682</b>
Less Non-controlling interest (61.44%)		(2,515,773)
<b>Total identifiable net assets received</b>		<b>1,578,909</b>
Goodwill		93,338
<b>Purchase consideration transferred</b>		<b>1,672,247</b>
Cash acquired		(1,648,323)
<b>Net cash outflows</b>		<b>23,924</b>

The trade receivables comprise gross contractual amounts due of Baht 530.4 million, of which Baht 256.2 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.

(xv) *Bevpak (Nigeria) Limited, Nigeria*

On 2 October 2019, IVL, through its indirect subsidiary, Indorama Netherlands B.V. (“INBV”), completed the acquisition of 100% stake in the Packaging business of Bevpak (Nigeria) Limited located in Nigeria from Church Street Trustees Limited as trustees of the SI Trust, BTI Overseas Limited and Capital Alliance Private Equity II Limited, as per definitive share purchase agreement dated 6 February 2019 for a cash consideration of NGN 260.0 million (Baht 22.0 million). The transaction is accounted for as a business combination. During the period from acquisition date to 31 December 2019, the business contributed revenue of NGN 484.1 million (Baht 40.4 million) and net profit of NGN 613.2 million (Baht 51.2 million) to the Group’s results. If the acquisition had occurred on 1 January 2019, management estimates that consolidated revenue and consolidated net profit for the year would have increased by Baht 34.4 million and decreased by Baht 85.4 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 2019.

*Identifiable assets acquired and liabilities assumed*

	Note	Fair values as at 2 October 2019 (in thousand Baht)
Cash and cash equivalents		4,520
Inventories		15,217
Trade receivables		7,639
Property, plant and equipment	14	94,892
Intangible assets	16	33,618
Accounts payable		(2,527)
Long-term loan from financial institutions		(66,974)
Deferred tax liabilities, net	33	(25,606)
Other assets/(liabilities), net		(171,584)
<b>Total identifiable net assets received</b>		<b>(110,805)</b>
Goodwill		132,774
<b>Purchase consideration transferred</b>		<b>21,969</b>
Consideration payable		(4,397)
Cash acquired		(4,520)
<b>Net cash outflows</b>		<b>13,052</b>

The trade receivables comprise gross contractual amounts due of Baht 15.3 million, of which Baht 7.7 million was expected to be uncollectible 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.



**(xvi) Sinterama S.p.A. and its subsidiaries, Italy, Brazil, China and Bulgaria**

On 19 November 2019, IVL, through its indirect subsidiary, Indorama Netherlands B.V. (“INBV”), completed the acquisition of 100% stake in the Fibers business of Sinterama S.p.A. and its subsidiaries namely Autofil Holdings Limited, Sinterama Bulgaria EOOD, Autofil Yarns Limited, Autofil Worldwide Limited, Autofil Properties Limited, Autofil Yarns Limited - Branch Bulgaria, Sinterama Asia Limited, Sinterama Yarns Dongguan Co., Ltd, Sinterama Trading Shanghai Co., Ltd, and Sinterama do Brasil Ltda from DeA Capital Alternative Funds SGR S.p.A (51.00% shareholdings), Compagnie de l’Ours SARL (33.75% shareholdings) and other minor shareholders as per definitive share purchase agreement dated 29 July 2019 for a cash consideration of EUR 53.8 million (Baht 1,797.7 million). The transaction is accounted for as a business combination. During the period from acquisition date to 31 December 2019, the business contributed revenue of EUR 14.1 million (Baht 473.6 million) and net loss of EUR 2.7 million (Baht 89.6 million) to the Group’s results. If the acquisition had occurred on 1 January 2019, management estimates that consolidated revenue and consolidated net profit for the year would have increased by Baht 3,430.5 million and decreased by Baht 109.4 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 2019.

*Identifiable assets acquired and liabilities assumed*

	Note	Fair values as at 19 November 2019 (in thousand Baht)
Cash and cash equivalents		213,676
Inventories		1,124,114
Trade receivables		738,433
Property, plant and equipment	14	1,191,289
Intangible assets	16	2,896
Accounts payable		(747,155)
Short-term loan from financial institutions		(396,461)
Deferred tax liabilities, net	33	(163,873)
Other assets/(liabilities), net		(187,670)
<b>Total identifiable net assets received</b>		<b>1,775,249</b>
Goodwill		22,489
<b>Purchase consideration transferred</b>		<b>1,797,738</b>
Cash acquired		(213,676)
<b>Net cash outflows</b>		<b>1,584,062</b>

The trade receivables comprise gross contractual amounts due of Baht 756.6 million, of which Baht 18.2 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.

**(xvii) Green Fiber International Inc., USA**

On 3 December 2019, IVL, through its indirect subsidiary, Indorama Ventures Holdings LP (“IVHLP”), completed the acquisition of 100% stake in the PET business of Green Fiber International Inc., USA from LQ Inc., as per definitive share purchase agreement dated 3 December 2019 for a cash consideration of USD 24.6 million (Baht 746.1 million). The transaction is accounted for as a business combination. During the period from acquisition date to 31 December 2019, the business contributed revenue of USD 1.7 million (Baht 52.4 million) and net profit of USD 0.02 million (Baht 0.6 million) to the Group’s results. If the acquisition had occurred on 1 January 2019, management estimates that consolidated revenue and consolidated net profit for the year would have increased by Baht 734.7 million and decreased by Baht 1.2 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 2019.

*Identifiable assets acquired and liabilities assumed*

	Note	Fair values as at 3 December 2019 (in thousand Baht)
Cash and cash equivalents		33,383
Inventories		22,138
Trade receivables		122,446
Property, plant and equipment	14	299,754
Intangible assets	16	168,599
Accounts payable		(45,748)
Deferred tax liabilities, net	33	(86,193)
Other assets/(liabilities), net		7,554
<b>Total identifiable net assets received</b>		<b>521,933</b>
Goodwill		224,216
<b>Purchase consideration transferred</b>		<b>746,149</b>
Cash acquired		(33,383)
<b>Net cash outflows</b>		<b>712,766</b>

The trade receivables comprise gross contractual amounts due of Baht 122.4 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.

During the years ended 31 December 2019 and 2018, the Group incurred acquisition-related costs of Baht 160.3 million and Baht 465.9 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 2019 and 2018, respectively.

In accordance with TFRS 3, 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 UTT Beteiligungsgesellschaft mbH, INVISTA Resins & Fibers GmbH, Indo Rama Synthetics (India) Limited, Bevpak (Nigeria) Limited, Sinterama S.p.A. and its subsidiaries and Green Fiber International Inc. are dependent on determination of the ultimate purchase price and completion of the purchase price allocation exercise.

## **5 Related parties**

The related parties that the Group/Company had significant transactions with during the year were as follows:

Name of entities	Country of incorporation/ nationality	Immediate parent company	Subsidiary (% of effective interest)	Indirect subsidiary (% of effective interest)	Indirect joint venture (% of effective interest)	Common Director/Key management personnel	Family relationships
Indorama Resources Limited	Thailand	✓	-	-	-	✓	-
Indorama Ventures Global Services Limited	Thailand	-	99.99	-	-	✓	-
Indorama Polymers Public Company Limited	Thailand	-	99.91	-	-	✓	-
Indorama Holdings Limited	Thailand	-	99.81	-	-	✓	-
Indorama Polyester Industries Public Company Limited	Thailand	-	99.49	-	-	✓	-
Indorama Petrochem Limited	Thailand	-	99.99	-	-	✓	-
TPT Petrochemicals Public Company Limited	Thailand	-	99.97	-	-	✓	-
IVL Belgium N.V.	Belgium	-	99.99	-	-	✓	-
Indo Polymers Mauritius Limited	Mauritius	-	100.00	-	-	✓	-
(under dissolution)							
Petform (Thailand) Limited	Thailand	-	-	59.94	-	✓	-
Asia Pet (Thailand) Limited	Thailand	-	-	99.90	-	✓	-
Guangdong IVL PET Polymer Co., Ltd.	China	-	-	99.91	-	✓	-
FiberVisions (China) Textile Products Limited	China	-	-	99.99	-	-	-
Performance Fibers (Kaiping) Company Limited	China	-	-	99.99	-	✓	-
Performance Fibers (Kaiping) No.2 Company Limited	China	-	-	99.99	-	✓	-
Performance Fibers (Kaiping) No.3 Company Limited	China	-	-	99.99	-	✓	-

Name of entities	Country of incorporation/ nationality	Immediate parent company	Subsidiary (% of effective interest)	Indirect subsidiary (% of effective interest)	Indirect joint venture (% of effective interest)	Common Director/Key management personnel	Family relationships
Performance Fibers (Kaiping) Trading Company Limited	China	-	-	99.99	-	-	-
Glanzstoff Industries (Qingdao) Company Limited	China	-	-	99.99	-	-	-
Sinterama Trading (Shanghai) Co., Ltd.	China	-	-	99.99	-	-	-
Sinterama Yarns (Dongguan) Co., Ltd.	China	-	-	99.99	-	-	-
Hubei Gold Dragon Nonwoven Fabrics Co. Ltd.	China	-	-	65.30	-	-	-
Glanzstoff Holding (Hong Kong) Limited	Hong Kong - China	-	-	99.99	-	-	-
Performance Fibers (Hong Kong) Limited	Hong Kong - China	-	-	99.99	-	✓	-
Sinterama Asia Limited	Hong Kong - China	-	-	99.99	-	-	-
PT. Indorama Ventures Indonesia	Indonesia	-	-	99.99	-	✓	-
PT. Indorama Polyester Industries Indonesia	Indonesia	-	-	99.98	-	✓	-
PT. Indorama Polychem Indonesia	Indonesia	-	-	99.99	-	✓	-
PT. Indorama Polypet Indonesia	Indonesia	-	-	99.99	-	✓	-
PT. Indorama Glycol Indonesia	Indonesia	-	-	99.99	-	✓	-



Name of entities	Country of incorporation/ nationality	Immediate parent company	Subsidiary (% of effective interest)	Indirect subsidiary (% of effective interest)	Indirect joint venture (% of effective interest)	Common Director/Key management personnel	Family relationships
PT. Indorama Petrochemicals	Indonesia	-	-	99.99 (2018: 73.99)	-	✓	-
KP Equity Partners Inc.	Malaysia	-	-	99.99	-	✓	-
Indorama Ventures Packaging (Myanmar) Limited	Myanmar	-	-	99.91	-	-	-
Indorama Ventures Packaging (Philippines) Corporation	Philippines	-	-	99.99	-	-	-
IVL Singapore Pte. Ltd.	Singapore	-	-	99.91	-	✓	-
Indorama Ventures Oxides India	India	-	-	99.98	-	✓	-
Ankleshwar Private Limited (Formerly Indorama Ventures Strategic Projects Private Limited)							
Indorama Ventures Packaging (India) Private Limited (Completion of dissolution process in 2019)	India	-	-	99.98	-	-	-
Indorama Ventures Global Shared Services Private Limited	India	-	-	99.98	-	✓	-
Avgol India Private Limited	India	-	-	65.96	-	-	-
IVL Dhunseri Petrochem Industries Private Limited	India	-	-	50.00	-	✓	-
Indo Rama Synthetics (India) Limited	India	-	-	38.56	-	✓	✓
Indorama Yarns Private Limited	India	-	-	38.56	-	-	-

Name of entities	Country of incorporation/ nationality	Immediate parent company	Subsidiary (% of effective interest)	Indirect subsidiary (% of effective interest)	Indirect joint venture (% of effective interest)	Common Director/Key management personnel	Family relationships
FiberVisions (China) A/S	Denmark	-	-	99.99	-	-	-
FiberVisions A/S	Denmark	-	-	99.99	-	-	-
Wellman France Recyclage S.A.S.	France	-	-	99.99	-	-	-
Glanzstoff Longlaville S.A.S.	France	-	-	99.99	-	-	-
Glanzstoff Services S.A.S.	France	-	-	99.99	-	-	-
Wellman Neufchateau Recyclage S.A.	France	-	-	99.99	-	✓	-
FiberVisions Vermögensverwaltungsgesellschaft mbH	Germany	-	-	99.99	-	-	-
Indorama Germany GmbH (Formerly Trevira Holdings GmbH)	Germany	-	-	99.99	-	✓	-
Trevira GmbH	Germany	-	-	99.99	-	-	-
PHP Fibers GmbH	Germany	-	-	79.99	-	✓	-
Schoeller Süssen GmbH	Germany	-	-	99.99	-	-	-
UTT Beteiligungsgesellschaft mbH	Germany	-	-	79.99	-	-	-
UTT Technische Textilien GmbH & Co. KG	Germany	-	-	79.99	-	-	-
UTT Technische Textilien Geschäftsführung GmbH	Germany	-	-	79.99	-	-	-
Indorama Ventures Polymers Germany GmbH	Germany	-	-	99.99	-	-	-
Wellman International Ltd.	Ireland	-	-	99.99	-	✓	-

Name of entities	Country of incorporation/ nationality	Immediate parent company	Subsidiary (% of effective interest)	Indirect subsidiary (% of effective interest)	Indirect joint venture (% of effective interest)	Common Director/Key management personnel	Family relationships
Glanzstoff Industries S.R.L.	Italy	-	-	99.99	-	-	-
Società Industriale Cremonese	Italy	-	-	99.99	-	-	-
SICREM s.p.a.							
Sinterama S.p.A.	Italy	-	-	99.99	-	✓	-
Glanzstoff Industries A.G.	Luxembourg	-	-	99.99	-	✓	-
Textilecord Steinfort S.A.	Luxembourg	-	-	99.99	-	-	-
Glanzstoff Management GmbH	Austria	-	-	99.99	-	-	-
Schoeller GmbH & Co KG	Austria	-	-	99.99	-	-	-
Indorama Austria GmbH	Austria	-	-	99.99	-	-	-
(Formerly AE BG AlphaPhi Holding GmbH)							
AE BG AlphaOmega Holding GmbH	Austria	-	-	99.99	-	-	-
Glanzstoff - Bohemia s.r.o.	Czech Republic	-	-	99.99	-	-	-
Scorpius Capital a.s.	Czech Republic	-	-	99.99	-	✓	-
(Amalgamated with KORDÁRNA Plus a.s.)							
KORDÁRNA Plus a.s. is the surviving entity)							
KORDÁRNA Plus a.s.	Czech Republic	-	-	99.99	-	✓	-
(Amalgamated with Scorpius Capital a.s.)							
KORDÁRNA Plus a.s. is the surviving entity)							
Kordplast s.r.o.	Czech Republic	-	-	99.99	-	-	-

Name of entities	Country of incorporation/ nationality	Immediate parent company	Subsidiary (% of effective interest)	Indirect subsidiary (% of effective interest)	Indirect joint venture (% of effective interest)	Common Director/Key management personnel	Family relationships
Schoeller Kresice s.r.o.	Czech Republic	-	-	99.99	-	-	-
UAB Orion Global PET	Lithuania	-	-	99.91	-	✓	-
UAB Indorama Polymers Europe	Lithuania	-	-	99.91	-	✓	-
UAB Indorama Holdings Europe	Lithuania	-	-	99.81	-	✓	-
Indorama Netherlands Cooperatief U.A.	The Netherlands	-	-	99.99	-	-	-
Indorama Netherlands B.V.	The Netherlands	-	-	99.99	-	-	-
Indorama Ventures Europe B.V.	The Netherlands	-	-	99.99	-	✓	-
Indorama Polymers Rotterdam B.V.	The Netherlands	-	-	99.91	-	✓	-
Indorama Ventures Recycling Netherlands B.V.	The Netherlands	-	-	99.99	-	-	-
MJR Recycling B.V.	The Netherlands	-	-	99.99	-	-	-
Indorama Holdings Rotterdam B.V.	The Netherlands	-	-	99.81	-	✓	-
Indorama Ventures Dutch Investments B.V.	The Netherlands	-	-	51.00	-	-	-
Indorama Ventures Poland	Poland	-	-	99.99	-	✓	-
Sp. z o.o.	Spain	-	-	99.99	-	✓	-
Indorama Ventures Química S.L.U.	Spain	-	-	99.99	-	-	-
Indorama Ventures Spain S.L.	Spain	-	-	99.99	-	-	-
Indorama Trading AG	Switzerland	-	-	99.81	-	-	-
Indorama Ventures Adana PET Sanayi Anonim Sirketi	Turkey	-	-	99.99	-	✓	-

Name of entities	Country of incorporation/ nationality	Immediate parent company	Subsidiary (% of effective interest)	Indirect subsidiary (% of effective interest)	Indirect joint venture (% of effective interest)	Common Director/Key management personnel	Family relationships
Indorama Ventures Corlu PET Sanayi Anonim Sirketi Beverage Plastics (Holdings) Ltd.	Turkey	-	-	99.99	-	✓	-
Beverage Plastics Ltd.	United Kingdom	-	-	75.36	-	-	-
Beverage Plastics Ltd.	United Kingdom	-	-	75.36	-	-	-
Beacon Trading (UK) Limited	United Kingdom	-	-	99.81	-	-	-
Indorama Trading (UK) Ltd.	United Kingdom	-	-	99.81	-	-	-
Indorama Polymers Workington Limited	United Kingdom	-	-	99.91	-	✓	-
Autofil Holdings Limited	United Kingdom	-	-	99.99	-	-	-
Autofil Worldwide Limited	United Kingdom	-	-	99.99	-	-	-
Autofil Yarns Limited	United Kingdom	-	-	99.99	-	-	-
Autofil Properties Limited	United Kingdom	-	-	99.99	-	-	-
Indorama Ventures Portugal PTA - Unipessoal, LDA.	Portugal	-	-	99.99	-	-	-
Indorama Ventures Portugal Utility - Unipessoal, LDA.	Portugal	-	-	99.99	-	-	-
Avgol Cyprus Ltd.	Cyprus	-	-	65.96	-	-	-
“Avgol” Limited Liability Company (Formerly Avgol Rus LLC)	Russia	-	-	65.96	-	-	-



Name of entities	Country of incorporation/ nationality	Immediate parent company	Subsidiary (% of effective interest)	Indirect subsidiary (% of effective interest)	Indirect joint venture (% of effective interest)	Common Director/Key management personnel	Family relationships
Indorama Ventures Holdings LP	USA	-	-	99.99	-	-	-
Indorama Ventures USA Holdings LP	USA	-	-	99.99	-	-	-
Indorama Ventures OGL Holdings LP	USA	-	-	99.99	-	-	-
Indorama Ventures Logistics LLC	USA	-	-	99.99	-	✓	-
Indorama Ventures (Oxide & Glycols) LLC	USA	-	-	99.99	-	✓	-
Performance Fibers Holdings Finance, Inc.	USA	-	-	99.99	-	-	-
Performance Fibers Asia Holdings, LLC	USA	-	-	99.99	-	-	-
Performance Fibers Asia, LLC	USA	-	-	99.99	-	-	-
Indorama Ventures AlphaPet Holdings, Inc.	USA	-	-	99.99	-	✓	-
Indorama Polymers (USA) LLC	USA	-	-	99.99	-	-	-
AlphaPet, Inc.	USA	-	-	99.99	-	✓	-
Indorama Ventures Polyholding LLC	USA	-	-	99.99	-	-	-
Indorama Ventures USA LLC	USA	-	-	99.99	-	-	-
Auriga Polymers Inc.	USA	-	-	99.99	-	✓	-
StarPet Inc.	USA	-	-	99.99	-	✓	-
Indorama Ventures Xylenes & PTA LLC	USA	-	-	99.99	-	✓	-

Name of entities	Country of incorporation/nationality	Immediate parent company	Subsidiary (% of effective interest)	Indirect subsidiary (% of effective interest)	Indirect joint venture (% of effective interest)	Common Director/Key management personnel	Family relationships
Indorama Ventures Performance Fibers Holdings USA LLC	USA	-	-	99.99	-	-	-
FiberVisions Corporation	USA	-	-	99.99	-	✓	-
FiberVisions Manufacturing Company	USA	-	-	99.99	-	-	-
FiberVisions Products, Inc.	USA	-	-	99.99	-	-	-
FiberVisions L.P.	USA	-	-	99.99	-	-	-
Trevira North America, LLC	USA	-	-	99.99	-	-	-
PHP Fibers Inc.	USA	-	-	79.99	-	✓	-
Safe Tweave Inc.	USA	-	-	79.99	-	-	-
Indorama Ventures Olefins Holding LLC	USA	-	-	99.99	-	-	-
Indorama Ventures Investments USA LLC	USA	-	-	51.00	-	-	-
Indorama Ventures Olefins LLC	USA	-	-	90.40	-	✓	-
Indorama Ventures Exporter Inc.	USA	-	-	99.99	-	✓	-
Winnsboro Fibres LLC	USA	-	-	99.99	-	✓	-
Indorama Ventures Corpus Christi Holding LLC	USA	-	-	99.99	-	✓	-
Avgol America Inc.	USA	-	-	65.96	-	-	-
Avgol Distribution Inc.	USA	-	-	65.96	-	-	-
Indorama Ventures Sustainable Solutions LLC	USA	-	-	99.99	-	✓	-
Indorama Ventures Oxides LLC	USA	-	-	99.99	-	✓	-

Name of entities	Country of incorporation/ nationality	Immediate parent company	Subsidiary (% of effective interest)	Indirect subsidiary (% of effective interest)	Indirect joint venture (% of effective interest)	Common Director/Key management personnel	Family relationships
Indorama Ventures Sustainable Solutions Fontana, Inc. (Formerly Green Fiber International, Inc.)	USA	-	-	99.99	-	✓	-
Indorama Ventures Northern Investments Inc.	Canada	-	-	99.99	-	✓	-
Indorama Ventures Gestion Inc.	Canada	-	-	99.99	-	✓	-
Indorama Ventures PTA Montréal LP	Canada	-	-	99.99	-	-	-
4200144 Canada Inc.	Canada	-	-	99.99	-	-	-
IVL Holding, S. de R.L. de C.V.	Mexico	-	-	99.99	-	✓	-
Grupo Indorama Ventures, S. de R.L. de C.V.	Mexico	-	-	99.99	-	✓	-
Indorama Ventures Polymers Mexico, S. de R.L. de C.V.	Mexico	-	-	99.99	-	-	-
Indorama Ventures Polycom, S. de R.L. de C.V.	Mexico	-	-	99.99	-	✓	-
Indorama Ventures Servicios Corporativos, S. de R.L. de C.V.	Mexico	-	-	99.99	-	✓	-
Performance Fibers Operations Mexico, S. de R.L. de C.V.	Mexico	-	-	99.99	-	✓	-
Performance Fibers Services, S. de R.L. de C.V.	Mexico	-	-	99.99	-	✓	-

Name of entities	Country of incorporation/ nationality	Immediate parent company	Subsidiary (% of effective interest)	Indirect subsidiary (% of effective interest)	Indirect joint venture (% of effective interest)	Common Director/Key management personnel	Family relationships
Glanzstoff Industries Mexico, S. de R.L. de C.V.	Mexico	-	-	99.99	-	-	-
UTT de México Technical Textiles, S.A. de C.V.	Mexico	-	-	79.99	-	-	-
Indorama Ventures Brazil Participações S.A. (Amalgamated with Indorama Ventures Polimeros S.A. Indorama Ventures Polimeros S.A. is the surviving entity)	Brazil	-	-	99.99	-	✓	-
Indorama Ventures Polimeros S.A.	Brazil	-	-	99.99	-	✓	-
Indoramata Ventures Brazil Participações S.A. Indoramata Ventures Polimeros S.A. is the surviving entity)	Brazil	-	-	51.00	-	-	-
Tereftálicos Indústrias Químicas Ltda.	Brazil	-	-	99.99	-	-	-
Indoramata Ventures Fibras Brasil Ltda.	Brazil	-	-	99.99	-	-	-
Sinterama do Brasil Ltda.	Brazil	-	-	99.99	-	-	-
Sinterama Bulgaria EOOD	Republic of Bulgaria	-	-	89.92	-	✓	-
Indoramata PET (Nigeria) Limited	Nigeria	-	-	99.99	-	-	-
Indoramata Ventures Packaging (Nigeria) Limited	Nigeria	-	-	99.99	-	-	-

Name of entities	Country of incorporation/ nationality	Immediate parent company	Subsidiary (% of effective interest)	Indirect subsidiary (% of effective interest)	Indirect joint venture (% of effective interest)	Common Director/Key management personnel	Family relationships
Bevpak (Nigeria) Limited	Nigeria	-	-	99.99	-	-	-
Indorama Ventures Packaging (Ghana) Limited	Republic of Ghana	-	-	99.99	-	-	-
IVL Dhunseri Polyester Company S.A.E.	Egypt	-	-	49.99	-	✓	-
(Formerly Egyptian Indian Polyester Company S.A.E.)							
Medco Plast for Packing & Packaging systems S.A.E.	Egypt	-	-	73.99	-	-	-
Avgol Industries 1953 Ltd.	Israel	-	-	65.96	-	✓	-
Avgol Ltd.	Israel	-	-	65.96	-	-	-
Indorama Ventures Holdings Pty Ltd.	Australia	-	-	99.99	-	-	-
ES FiberVisions (Thailand) Co., Ltd.	Thailand	-	-	-	50.00	-	-
ES FiberVisions (Suzhou) Co., Ltd.	China	-	-	-	50.00	-	-
ES FiberVisions Shanghai Co., Ltd.	China	-	-	-	50.00	-	-
Shenma-PHP (Pingdingshan) Air Bag Yarn Manufacturing Co., Ltd.	China	-	-	-	39.20	-	-
PHP-Shenma Air Bag Yarn Marketing (Shanghai) Co., Ltd.	China	-	-	-	40.80	-	-
ES FiberVisions Hong Kong Limited	Hong Kong	-	-	-	50.00	-	-
ES FiberVisions Company Limited	Japan	-	-	-	50.00	-	-



Name of entities	Country of incorporation/ nationality	Immediate parent company	Subsidiary (% of effective interest)	Indirect subsidiary (% of effective interest)	Indirect joint venture (% of effective interest)	Common Director/Key management personnel	Family relationships
ES FiberVisions Holdings ApS	Denmark	-	-	-	50.00	-	-
ES FiberVisions ApS	Denmark	-	-	-	50.00	-	-
TTI GmbH	Germany	-	-	-	40.00	-	-
ES FiberVisions LP	USA	-	-	-	50.00	-	-
ES FiberVisions, Inc.	USA	-	-	-	50.00	-	-
Corpus Christi Polymers LLC	USA	-	-	-	33.33	-	-
Huvis Indorama Advanced Materials, LLC	USA	-	-	-	50.00	-	-
Indorama Loop Technologies, LLC	USA	-	-	-	50.00	-	-
Indorama Ventures EcoMex, S. de R.L. de C.V.	Mexico	-	-	-	51.00	-	-
Indorama Ventures EcoMex, Services, S. de R.L. de C.V.	Mexico	-	-	-	51.00	-	-
Pacific Resources Limited	Thailand	-	-	-	-	✓	✓
Cryoviva (Thailand) Limited	Thailand	-	-	-	-	✓	-
Thai Plaspac Public Company Limited	Thailand	-	-	-	-	✓	✓
Lohia Global Holdings Limited	Hong Kong - China	-	-	-	-	✓	✓
Indorama Commerce DMCC	United Arab Emirates	-	-	-	-	✓	-
Vega Aviation Limited	British Virgin Islands	-	-	-	-	✓	✓

Name of entities	Country of incorporation/ nationality	Nature of relationships
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
Indorama Eleme Petrochemicals Limited	Nigeria	10.00% shareholder of indirect subsidiary, some common directors
Indorama Industries Limited	India	Family relationships with board of directors
IVL Foundation	Thailand	Common Director/Family relationships with board of 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 11 December 2019, Indorama Ventures Global Shared Services Private Limited, a new indirect subsidiary, was incorporated in India, with the registered share capital of INR 100,000 (Baht 46,180)

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 Holding B.V. (“IHBV”) as per the right in the Call Option Agreement. The purchase price was in the amount of USD 59.7 million (Baht 1,938.2 million). The payment and the transfer of ownership of the remaining 26% shareholdings in PTIP were completed on 3 January 2019. The amount of excess of the cost of acquired subsidiaries over book value and reduction of non-controlling interest of USD 24.5 million (Baht 794.0 million) and USD 35.3 million (Baht 1,144.3 million), respectively, were recognised in the statement of change in equity for the year ended 31 December 2019.

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

Transactions	Pricing policies
Sales of goods	Market prices
Purchases of goods and raw materials	Market prices
Dividend income	As declared
Interest income	Market linked rate/contractually agreed
Other income	Contractually agreed
Interest expense	Market linked rate/contractually agreed
Distribution costs and administrative expenses	Contractually agreed
Other raw materials conversion charges and overheads	Contractually agreed

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

<i>Year ended 31 December</i>	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
<b>Subsidiaries</b>				
Interest income	-	-	3,309,609	3,686,579
Other income	-	-	362,209	186,852
Dividend income	-	-	10,109,191	10,791,886
<b>Key management personnel</b>				
Directors' fee and bonus	32,267	32,480	30,520	30,420
Short-term employee benefits	270,691	155,411	-	-
Long-term employee benefits	4,130	2,928	-	-
<b>Joint ventures</b>				
Sales of goods	5,015,389	6,516,923	-	-
Purchases of goods and raw materials	268,571	8,749,560	-	-
Other raw materials conversion charges and overheads	304	-	-	-
Distribution costs and administrative expenses	-	479	-	-
Interest income	8,541	6,011	-	-
Other income	255,696	154,325	-	113,137
Dividend income	-	151,328	-	-
<b>Other related parties</b>				
Sales of goods	2,938,632	2,294,488	-	-
Purchases of goods and raw materials	1,323,290	2,201,021	-	-
Other raw materials conversion charges and overheads	321,472	123,219	-	-
Distribution costs and administrative expenses	268,365	276,351	16,166	12,879
Other income	7,981	9,521	-	-

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

<b>Trade accounts receivable</b>	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Joint ventures	584,644	642,225	-	-
Other related parties	267,673	503,093	-	-
	<b>852,317</b>	<b>1,145,318</b>	-	-
Less allowance for doubtful accounts	-	-	-	-
<b>Net</b>	<b>852,317</b>	<b>1,145,318</b>	-	-
<b>Other receivables</b>				
Subsidiaries	-	-	366,932	33,400
Joint ventures	136,867	115,239	-	49,348
Other related parties	74,909	84,713	-	-
	<b>211,776</b>	<b>199,952</b>	<b>366,932</b>	<b>82,748</b>
Less allowance for doubtful accounts	-	-	-	-
<b>Net</b>	<b>211,776</b>	<b>199,952</b>	<b>366,932</b>	<b>82,748</b>
<b>Other non-current assets</b>				
Joint ventures	<b>388,415</b>	<b>18,906</b>	-	-

<i>Movement of short-term loans to</i>	Interest rate		Consolidated financial statements			
	At 31 December (% per annum)	At 1 January	Increase	Decrease (in thousand Baht)	Reclassification	At 31 December
<b>2019</b>						
Joint ventures	1.32-9.63	168,639	134,577	(79,872)	(52,350)	170,994
<b>2018</b>						
Joint ventures	1.32-9.70	149,890	53,819	(39,100)	4,030	168,639
<i>Movement of short-term loans to</i>	Interest rate		Separate financial statements			
	At 31 December (% per annum)	At 1 January	Increase	Decrease (in thousand Baht)	Reclassification	At 31 December
<b>2019</b>						
Subsidiaries	3.20-4.81	56,131,818	53,989,944	(65,558,799)	(29,270,425)	15,292,538
<b>2018</b>						
Subsidiaries	2.81-5.40	28,078,662	127,098,138	(95,486,184)	(3,558,798)	56,131,818

<i>Interest receivable</i>	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Subsidiaries	-	-	1,989,669	1,354,724
Joint ventures	3,314	2,294	-	-
<b>Total</b>	<b>3,314</b>	<b>2,294</b>	<b>1,989,669</b>	<b>1,354,724</b>

<i>Movement of long-term loans to</i>	<b>Interest rate</b>	<b>At 1 January</b>	<b>Consolidated financial statements</b>			<b>At 31 December</b>
	<b>At 31 December (% per annum)</b>		<b>Increase</b>	<b>Decrease (in thousand Baht)</b>	<b>Reclassification</b>	
<b>2019</b>						
Joint ventures	5.76-6.35	42,590	-	(14,321)	-	28,269
<b>2018</b>						
Joint ventures	4.80-6.01	53,096	-	(6,476)	(4,030)	42,590

<i>Movement of long-term loans to</i>	<b>Interest rate</b>	<b>At 1 January</b>	<b>Separate financial statements</b>			<b>At 31 December</b>
	<b>At 31 December (% per annum)</b>		<b>Increase</b>	<b>Decrease (in thousand Baht)</b>	<b>Reclassification</b>	
<b>2019</b>						
Subsidiaries	2.81-4.77	31,588,856	12,555,710	(1,903,351)	29,270,425	71,511,640
<b>2018</b>						
Subsidiaries	2.59-5.40	31,020,889	878,292	(3,869,123)	3,558,798	31,588,856

During 2019, the Company has amended the loan agreements with Indorama Netherlands Cooperatief U.A. to change the repayment term resulting in the reclassification of long-term loans to related parties of Baht 9,378 million, to be presented under short-term loans to related parties.

During 2019, 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 50 million, to be presented under short-term loans to related parties.

During 2019, the Company has amended the loan agreement with Indorama Ventures Global Services Limited to change the repayment term resulting in the reclassification of short-term loans to related parties of Baht 38,698 million, to be presented under long-term loans to related parties.

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 2019 and 2018, 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.



	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht)			
<b>Advance for share subscription</b>				
Subsidiary	-	-	8,168	4,810
<b>Trade accounts payable</b>				
Joint ventures	4,195	163,401	-	-
Other related parties	50,935	268,340	-	-
<b>Total</b>	<b>55,130</b>	<b>431,741</b>	<b>-</b>	<b>-</b>
<b>Other payables</b>				
Other related parties	49,752	111,909	3,331	3,794

### **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.

#### *Lease Agreement*

On 31 January 2019, Auriga Polymers Inc. (“Auriga”), an indirect subsidiary of the Company, entered into the Equipment Lease Agreement with its joint venture, Huvis Indorama Advanced Materials, LLC (“Huvis”) whereby Auriga rent to Huvis the equipment on the terms and conditions stipulated in the agreement on a non-cancellable period of 15 years. The Group treats aforesaid lease as a finance lease.

## **6 Cash and cash equivalents**

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht)			
Cash on hand	17,892	24,071	-	-
Cash at banks - current accounts	5,579,919	4,621,601	1,658	2,027
Cash at banks - savings accounts	703,551	791,266	2,397	14,782
Highly liquid short-term investments	4,145,349	141,507	-	-
<b>Total</b>	<b>10,446,711</b>	<b>5,578,445</b>	<b>4,055</b>	<b>16,809</b>

## 7 Trade accounts receivable

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht)			
<b>Related parties</b>				
Within credit terms	823,951	855,633	-	-
Overdue:				
Less than 3 months	18,482	138,605	-	-
3-6 months	8,037	874	-	-
6-12 months	185	203	-	-
Over 12 months	1,662	150,003	-	-
	<b>852,317</b>	<b>1,145,318</b>	-	-
<b>Other parties</b>				
Within credit terms	29,291,500	31,121,421	-	-
Overdue:				
Less than 3 months	3,573,347	4,687,328	-	-
3-6 months	253,386	253,836	-	-
6-12 months	100,509	51,942	-	-
Over 12 months	515,190	618,257	-	-
	<b>33,733,932</b>	<b>36,732,784</b>	-	-
Less allowance for doubtful accounts	(281,352)	(241,545)	-	-
	<b>33,452,580</b>	<b>36,491,239</b>	-	-
<b>Net</b>	<b>34,304,897</b>	<b>37,636,557</b>	-	-

The normal credit term granted by the Group ranges from 7 days to 240 days.

## 8 Inventories

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht)			
Finished goods	31,122,937	33,880,480	-	-
Work in progress	2,700,945	3,286,263	-	-
Raw materials	17,990,611	21,626,405	-	-
Trading materials	75,977	158,838	-	-
Spare parts and supplies	8,168,116	7,742,921	-	-
Goods in transit	3,459,565	4,452,701	-	-
	63,518,151	71,147,608	-	-
Less allowance for decline in value	(1,353,237)	(1,062,280)	-	-
<b>Net</b>	<b>62,164,914</b>	<b>70,085,328</b>	-	-

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Inventories recognised in ‘cost of sale of goods’:				
- Cost	308,947,952	288,886,123	-	-
- Write-down to net realisable value	883,616	473,300	-	-
- Reversal of write-down	(487,057)	(127,436)	-	-
<b>Net</b>	<b><u>309,344,511</u></b>	<b><u>289,231,987</u></b>	<b><u>-</u></b>	<b><u>-</u></b>

## 9 Other current assets

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Value added tax receivable	4,273,762	3,823,002	-	-
Advance tax payments and withholding tax	2,115,039	1,462,000	35,523	31,275
Prepaid expenses	1,249,213	858,473	825	825
Advance payments	1,092,958	1,533,545	11,884	9,134
Derivative assets	417,899	182,134	-	11,898
Material price adjustment receivable	319,272	503,386	-	-
Deposit for commodity hedging	255,708	668,154	-	-
Export incentive receivable	185,278	93,566	-	-
Insurance claims receivable	19,959	70,868	-	-
Others	443,329	159,014	-	-
<b>Total</b>	<b><u>10,372,417</u></b>	<b><u>9,354,142</u></b>	<b><u>48,232</u></b>	<b><u>53,132</u></b>

## 10 Investments in subsidiaries and other equity security

Consolidated financial statements									
Type of business	Effective ownership interest (%)		Paid-up capital		Cost		Impairment		Dividend income for the year
	2019	2018	2019	2018	2019	2018	2019	2018	2018
(in thousand Baht)									
<b>Other equity security</b>									
Tuntex Textile (Thailand) Company Limited									
Manufacture of polyester fibers and yarns	4.63	4.63	430,000	430,000	200,000	200,000	(200,000)	(200,000)	-
<b>Total</b>			<b>200,000</b>	<b>200,000</b>	<b>200,000</b>	<b>200,000</b>	<b>(200,000)</b>	<b>(200,000)</b>	<b>-</b>

		Separate financial statements									
Type of business	Ownership interest	Paid-up capital		Cost		Impairment		At cost-net		Dividend income for the year	
		2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
(in thousand Baht)											
Subsidiaries											
Indorama Petrochem Limited	99.99	99.99	10,146,167	7,944,151	7,944,151	-	-	7,944,151	7,944,151	-	-
Indorama Holdings Limited	99.81	99.81	774,468	2,001,419	2,001,419	-	-	2,001,419	2,001,419	1,980,504	1,700,667
Indorama Polymers Public Company Limited	72.60	72.60	1,382,198	7,219,741	7,219,741	-	-	7,219,741	7,219,741	1,726,087	2,448,636
Indorama Polyester Industries Public Company Limited	64.94	64.94	2,202,850	1,473,995	1,473,995	-	-	1,473,995	1,473,995	844,076	228,902
TPT Petrochemicals Public Company Limited	99.97	99.97	2,955,000	5,182,189	5,182,189	-	-	5,182,189	5,182,189	-	-
IVL Belgium N.V.	99.99	99.99	121,630	121,630	121,630	(121,630)	(121,630)	-	-	-	-
Indo Polymers Mauritius Limited	100.00	100.00	2,218	2,218	2,296	-	-	-	2,296	-	-
Indorama Ventures Global Services Limited	99.99	99.99	42,757,917	42,757,874	42,757,874	-	-	42,757,874	42,757,874	5,558,524	6,413,681
Total				66,700,999	66,703,295	(121,630)	(121,630)	66,579,369	66,581,665	10,109,191	10,791,886



None of the Group's subsidiaries and other equity security are publicly listed and consequently do not have published price quotations.

Indo Polymers Mauritius Limited ("IPML") has been in process of liquidation. IPML returned its capital of USD 32,029 and EUR 4,158 (Baht 1.1 million) to the Company in 2019.

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 11), 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.

## 11 Investments in joint ventures

Consolidated financial statements																	
Type of business	Effective ownership interest		Paid-up capital		Cost		Equity		Impairment		Effect of movements in exchange rate		Carrying value at equity		Share of net profit (losses) of joint ventures		
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	
	(in thousand Baht)																
Joint ventures																	
PT. Indorama		-	-	-	-	-	-	-	-	-	-	-	-	-	-	122,998	
Petrochemicals																	
ES FiberVisions	Manufacture of PTA	50.00	50.00	613,653	613,653	699,178	699,178	1,131,128	1,076,519	-	-	(83,565)	(21,337)	1,047,563	1,055,182	75,946	94,509
ES FiberVisions	Marketing and sales of fiber	50.00	50.00	786,545	786,545	392,992	392,992	411,277	443,279	-	-	(35,050)	(25,835)	376,227	417,444	(6,167)	1,895
(Suzhou) Co., Ltd.	Manufacture and sale of biocomponent fiber																
Shenma-PHP	Manufacture and internal sale of air bag yarns	39.20	39.20	796,144	796,144	191,864	191,864	210,214	214,309	-	-	(16,113)	(12,483)	194,101	201,826	8,388	(24,193)
(Pingdingshan) Air Bag Yarn Manufacturing Co., Ltd.																	
PHP-Shenma Air Bag Yarn Marketing (Shanghai) Co., Ltd.	Marketing and sale of air bag yarns	40.80	40.80	9,038	9,038	152,611	152,611	194,585	192,341	-	-	(14,975)	(9,829)	179,610	182,512	12,073	9,530
TTI GmbH	Research and development service	40.00	40.00	1,119	1,119	12,852	12,852	5,416	4,439	-	-	(421)	(209)	4,995	4,230	1,110	(738)
ES FiberVisions (Thailand) Company Limited	Manufacture of polyester fibers and yarns	50.00	50.00	410,000	410,000	205,000	205,000	198,618	215,680	-	-	-	-	198,618	215,680	(17,062)	(10,636)
Indorama Ventures EcoMex, S. de R.L. de C.V.	Manufacture of PET recycled flake	51.00	51.00	634,864	459,325	341,069	241,866	215,678	159,207	-	-	(11,617)	(1,002)	204,061	158,205	(41,730)	(26,228)
Indorama Ventures	Administrative services																
EcoMex Services, S. de R.L. de C.V.		51.00	51.00	7	7	3	3	2,201	1,000	-	-	(105)	3	2,096	1,003	1,198	871

Consolidated financial statements																
Type of business	Effective ownership interest		Paid-up capital		Cost		Equity		Impairment		Effect of movements in exchange rate		Carrying value at equity		Share of net profit (losses) of joint ventures	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
(in thousand Bahr)																
Joint ventures																
IVL Dhumseri Petrochem Industries Private Limited	-	50.00	-	206,720	-	2,795,152	-	3,234,893	-	-	-	(274,785)	-	2,960,108	-	423,885
Manufacture of PET Resin																
Huvis Indorama Advanced Materials, LLC	50.00	50.00	607,964	210,667	303,981	105,333	268,011	99,317	-	-	(8,750)	(1,518)	259,261	97,799	(28,436)	(6,016)
Manufacture of fibers																
Indorama Loop Technologies, LLC	50.00	-	53,593	-	26,795	-	26,795	-	-	-	(1,166)	-	25,629	-	-	-
PET and Polyester Recycling																
Total					2,326,345	4,796,851	2,663,923	5,640,984	-	-	(171,762)	(346,995)	2,492,161	5,293,989	5,320	585,877

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 Shanghai Co., Ltd. and ES FiberVisions Company Limited.

With effect from 1 January 2019, IVL has exercised the additional rights to appoint additional director (i.e fourth director) on the Board of Directors of DPGL and right to require deletion of one affirmative vote item in relation to the approval of business plan of DPGL. With the additional rights acquired, management believes that it has control over DPGL. Accordingly, there is a change in accounting treatment of investment in DPGL. (see note 4(xiii))

During 2019, Huvis Indorama Advanced Materials, LLC (“HIAM”) increased its share capital from USD 6.4 million (Baht 210.7 million) to USD 19.4 million (Baht 607.9 million) for which the Group entirely subscribed to the portion of its shareholdings.

During 2019, Indorama Ventures EcoMex, S. de R.L. de C.V. increased its share capital from USD 14.1 million (Baht 459.3 million) to USD 19.9 million (Baht 634.9 million) for which the Group entirely subscribed to the portion of its shareholdings.

During 2019, Indorama Loop Technologies, LLC (“ILT”) paid-up its share capital of USD 1.7 million (Baht 53.6 million) for which the Group entirely subscribed to the portion of its shareholdings.

During 2019, there was no disposal of investments in joint ventures.

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(v)).

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.

As at 31 December 2019 and 2018, 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 2019 and 31 December 2018.

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.

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.

	ES FiberVisions (Suzhou) Co., Ltd.	
	ES FiberVisions 2019 (in thousand Baht)	
Revenue	656,830	8,924,867
Profit from operations (a)	(12,333)	151,892
Other comprehensive income	-	-
Total comprehensive income (100%)	(12,333)	151,892
<b>Group's share of total comprehensive income</b>	<b>(6,167)</b>	<b>75,946</b>
Current assets (b)	453,327	2,201,547
Non-current assets	1,105,535	1,153,567
Current liabilities (c)	218,187	1,224,135
Non-current liabilities (d)	594,021	14,660
Net assets (100%)	746,654	2,116,319
<b>Carrying amount of interest in joint ventures</b>	<b>376,227</b>	<b>1,047,563</b>
Remark:		
a. Includes:		
- depreciation and amortisation	32,705	-
- interest expense	29,911	1,497
- tax (benefit) expense	(2,168)	24,100
b. Includes cash and cash equivalents	88,554	569,328
c. Includes current financial liabilities (excluding trade and other payables)	30,480	-
d. Includes non-current financial liabilities (excluding trade and other payables)	594,021	-

	<b>IVL Dhunseri Petrochem Industries Private Limited</b>	<b>PT. Indorama Petrochemicals 2018 (in thousand Baht)</b>	<b>ES FiberVisions</b>
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
<b>Group's share of total comprehensive income</b>	<b>423,885</b>	<b>122,876</b>	<b>94,509</b>
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
<b>Carrying amount of interest in joint ventures</b>	<b>2,960,108</b>	<b>-</b>	<b>1,055,182</b>
Remark:			
a. Includes:			
- depreciation and amortisation	370,747	290,904	-
- interest expense	406,627	329,305	1,590
- 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	-	-

#### *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:

	<b>Immaterial joint ventures</b>	
	2019	2018
	<i>(in thousand Baht)</i>	
Carrying amount of interests in immaterial joint ventures	<b>1,068,371</b>	<b>1,278,699</b>
Group's share of:		
- Loss from continuing operations, net	(64,459)	(55,515)
- Other comprehensive income, net	76	-
- Total comprehensive expense	<b>(64,383)</b>	<b>(55,515)</b>

## **12 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 20.0 million (Baht 603.1 million) and USD 33.3 million (Baht 1,081.7 million) are payable as of 31 December 2019 and 2018, respectively.

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.

### 13 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 2019				
	PHP Fibers GmbH and its subsidiaries	Petform (Thailand) Limited	Indo Rama Synthetics (India) Limited	Avgol Industries 1953 Ltd.	IVL Dhunseri Petrochem Industries Private Limited
	<i>(in thousand Baht)</i>				
Non-controlling interest percentage	20.00	40.00	61.44	34.05	50.00
Current assets	3,760,441	513,435	2,471,570	4,632,107	5,698,883
Non-current assets	11,027,771	1,684,099	5,544,343	14,870,963	6,247,350
Current liabilities	2,735,266	453,407	3,435,562	3,244,088	4,916,163
Non-current liabilities	6,351,420	30,258	1,952,616	8,028,329	2,123,755
<b>Net assets</b>	<b><u>5,701,526</u></b>	<b><u>1,713,869</u></b>	<b><u>2,627,735</u></b>	<b><u>8,230,653</u></b>	<b><u>4,906,315</u></b>
Carrying amount of non-controlling interest	<u>538,103</u>	<u>685,547</u>	<u>1,532,429</u>	<u>2,433,057</u>	<u>2,320,686</u>
Revenue	10,735,675	3,478,721	6,974,357	12,848,863	19,822,324
Profit (loss)	735,139	482,580	(1,162,832)	121,192	182,162
Other comprehensive income (expense)	<u>(78,572)</u>	<u>(4,626)</u>	<u>(2,172)</u>	<u>13,380</u>	<u>(39,343)</u>
<b>Total comprehensive income (expense)</b>	<b><u>656,567</u></b>	<b><u>477,954</u></b>	<b><u>(1,165,004)</u></b>	<b><u>134,572</u></b>	<b><u>142,819</u></b>
Profit (loss) allocated to non-controlling interest	<u>45,603</u>	<u>193,032</u>	<u>(714,444)</u>	<u>41,672</u>	<u>91,081</u>
Other comprehensive income (expense) allocated to non-controlling interest	<u>(151,669)</u>	<u>(1,644)</u>	<u>(268,901)</u>	<u>(392,831)</u>	<u>(415,822)</u>
Cash flows from (used in) operating activities	478,554	684,226	(556,028)	376,355	890,976
Cash flows used in investing activities	(3,125,353)	(118,642)	(39,017)	(296,508)	(39,322)

	31 December 2019				
	PHP Fibers GmbH and its subsidiaries	Petform (Thailand) Limited	Indo Rama Synthetics (India) Limited	Avgol Industries 1953 Ltd.	IVL Dhunseri Petrochem Industries Private Limited
	<i>(in thousand Baht)</i>				
Cash flows from (used in) financing activities (dividends to non-controlling interest: Baht 170.6 million)	2,881,032	(561,555)	418,345	(186,020)	(859,716)
<b>Net increase (decrease) in cash and cash equivalents</b>	<b>234,233</b>	<b>4,029</b>	<b>(176,700)</b>	<b>(106,173)</b>	<b>(8,062)</b>

	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
<b>Net assets</b>	<b>3,792,868</b>	<b>1,422,898</b>	<b>8,518,242</b>	<b>4,344,680</b>
Carrying amount of non- controlling interest	644,169	569,159	2,784,216	1,144,269
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
<b>Total comprehensive income (expense)</b>	<b>(23,973)</b>	<b>320,355</b>	<b>(68,039)</b>	<b>(137,026)</b>
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)
<b>Net increase (decrease) in cash and cash equivalents</b>	<b>(40,160)</b>	<b>33,361</b>	<b>(277,729)</b>	<b>249,367</b>

## 14 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
<i>Cost</i>						(in thousand Baht)			
<b>At 1 January 2018</b>		<b>8,322,480</b>	<b>20,356,008</b>	<b>159,343,583</b>	<b>1,650,645</b>	<b>365,216</b>	<b>710,582</b>	<b>21,446,803</b>	<b>212,195,317</b>
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	2,113,541	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		(206,934)	(836,517)	(4,072,775)	(44,667)	(7,959)	(12,304)	180,235	(5,000,921)
<b>At 31 December 2018 and 1 January 2019</b>		<b>10,193,326</b>	<b>26,661,440</b>	<b>195,610,102</b>	<b>1,918,578</b>	<b>484,178</b>	<b>1,187,850</b>	<b>40,243,914</b>	<b>276,299,388</b>
Additions		5,757	382,412	3,068,570	125,524	44,441	147,459	14,731,685	18,505,848
Acquisitions through business combinations	4	2,322,202	3,960,972	12,981,982	162,851	38,464	-	165,971	19,632,442
Transfers		73,114	676,370	6,207,383	144,391	25,520	-	(7,126,778)	-
Reclassification		-	(38,667)	34,117	494	-	(28,272)	(563,871)	(596,199)
Disposals		(147)	(2,275)	(2,149,669)	(68,856)	(23,199)	(3,292)	(28,060)	(2,275,498)
Effect of movements in exchange rates		(877,068)	(2,169,976)	(13,084,549)	(127,303)	(15,692)	(33,029)	(3,010,332)	(19,317,949)
<b>At 31 December 2019</b>		<b>11,717,184</b>	<b>29,470,276</b>	<b>202,667,936</b>	<b>2,155,679</b>	<b>553,712</b>	<b>1,270,716</b>	<b>44,412,529</b>	<b>292,248,032</b>

	Consolidated financial statements					Construction in progress	Total
	Land and land improvements	Buildings and building improvements	Machinery and equipment	Office furniture, fixtures and equipment	Transportation equipment	Stores and spares	
					<i>(in thousand Baht)</i>		
<b>Depreciation</b>							
<b>At 1 January 2018</b>	<b>483,931</b>	<b>5,688,681</b>	<b>52,117,276</b>	<b>1,077,366</b>	<b>209,363</b>	<b>155,854</b>	<b>59,732,471</b>
Depreciation charge for the year	64,926	1,068,219	10,737,274	209,389	48,996	32,411	12,161,215
Reclassification	-	-	(371)	-	-	-	(371)
Disposals	(112)	(1,013)	(565,571)	(64,957)	(33,088)	(1,386)	(666,127)
Effect of movements in exchange rates	(5,977)	(170,554)	(1,082,415)	(20,498)	(3,011)	(157)	(1,282,612)
<b>At 31 December 2018 and 1 January 2019</b>	<b>542,768</b>	<b>6,585,333</b>	<b>61,206,193</b>	<b>1,201,300</b>	<b>222,260</b>	<b>186,722</b>	<b>69,944,576</b>
Depreciation charge for the year	96,482	1,295,657	12,577,854	250,297	79,585	43,940	14,343,815
Reclassification	-	-	-	14	-	-	14
Disposals	-	-	(1,898,468)	(68,135)	(19,523)	-	(1,986,126)
Effect of movements in exchange rates	(33,656)	(424,452)	(3,417,174)	(46,951)	(9,481)	(1,562)	(3,933,276)
<b>At 31 December 2019</b>	<b>605,594</b>	<b>7,456,538</b>	<b>68,468,405</b>	<b>1,336,525</b>	<b>272,841</b>	<b>229,100</b>	<b>78,369,003</b>
<b>Impairment losses</b>							
<b>At 1 January 2018</b>	-	<b>(118,865)</b>	<b>(1,115,284)</b>	<b>(5,909)</b>	<b>(575)</b>	<b>(296)</b>	<b>(1,260,890)</b>
Impairment losses	-	-	(49,818)	-	-	-	(49,818)
Disposal	-	-	-	-	-	-	15,629
Effect of movements in exchange rates	-	841	120,301	1,506	4	2	122,685
<b>At 31 December 2018 and 1 January 2019</b>	-	<b>(118,024)</b>	<b>(1,044,801)</b>	<b>(4,403)</b>	<b>(571)</b>	<b>(294)</b>	<b>(1,172,394)</b>
Impairment losses	-	-	(393,876)	-	-	-	(393,876)
Reversal	-	-	18,938	-	-	-	18,938
Effect of movements in exchange rates	-	8,350	81,845	664	40	22	91,225
<b>At 31 December 2019</b>	-	<b>(109,674)</b>	<b>(1,337,894)</b>	<b>(3,739)</b>	<b>(531)</b>	<b>(272)</b>	<b>(1,456,107)</b>



In 2013, Indorama Polymers Workington Ltd. (“IRPW”), an indirect subsidiary, suspended its operations and mothballed the plant with the management 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 2019, 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 the management 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 believed 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 determined 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 TRY 1.7 million and TRY nil million, respectively.

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 determined 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.

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 determined 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.

In December 2019, the Board of Directors of Avgol Industries 1953 Ltd. (“Avgol”), an indirect subsidiary, approved the resolution to relocate its facility at Barkan site (West Bank) to another existing site in Israel within 2020. In this regard, the Group recorded impairment loss-net on machinery and equipment of



USD 0.07 million (Baht 2.3 million) in the consolidated statement of income for the year ended 31 December 2019.

During 2019, the actual financial performances of Performance Fibers Operations Mexico, S. de R.L. de C.V. (“PFOM”) and Glanzstoff Longlaville S.A.S. (“GLLV”), the indirect subsidiaries, were significantly lower than the management’s expectations. The management believes that the impairment indications existed; therefore, the management assessed the recoverable amount by preparing discounted cash flows to determine the value in use of those CGUs. Based on the result of this assessment, the Group recorded impairment loss on plant, machinery and equipment of USD 7.0 million (Baht 217.3 million) for PFOM and EUR 4.5 million (Baht 155.3 million) for GLLV, totaling of Baht 372.6 million, in the consolidated statement of income for the year ended 31 December 2019. The carrying amount of plant, machinery and equipment of PFOM and GLLV after recognition of impairment loss amounted to USD 19.4 million and EUR 19.2 million, respectively.

The gross amount of the Group’s fully depreciated property, plant and equipment that was still in use as at 31 December 2019 amounted to Baht 22,226.7 million (2018: Baht 22,602.6 million).

Capitalised borrowing costs relating to the construction of the new plant are amounted to Baht 1,533.9 million (2018: Baht 1,095.4 million), with a capitalisation rate of 2.20-6.20% (2018: 2.20-6.40%) (see Note 32).

## 15 Goodwill

	Note	Consolidated financial statements	
		2019	2018
		(in thousand Baht)	
<b>Cost</b>			
<b>At 1 January</b>		<b>15,210,011</b>	<b>9,837,748</b>
Acquired through business combinations	4	1,141,061	5,674,543
Effect of foreign currency exchange differences		(1,101,141)	(302,280)
<b>At 31 December</b>		<b>15,249,931</b>	<b>15,210,011</b>
<b>Net book value</b>			
<b>At 1 January</b>		<b>15,210,011</b>	<b>9,837,748</b>
<b>At 31 December</b>		<b>15,249,931</b>	<b>15,210,011</b>

### *Impairment testing for the cash generating unit containing goodwill*

For the purpose of impairment testing, goodwill has been allocated to the cash generating unit or group of cash generating units (“CGU”) identified according to the lowest level within the entity for which information about goodwill is available and monitored for internal management purpose as follows:

	<b>Consolidated financial statements</b>	
	2019	2018
	<i>(in million Baht)</i>	
CGU 1 – Indorama Ventures OGL Holdings LP and its subsidiaries	6,301	6,780
CGU 2 – Avgol Industries 1953 Ltd. and its subsidiaries	4,198	4,518
Others	4,751	3,912
<b>Total</b>	<b>15,250</b>	<b>15,210</b>

The recoverable amount of the CGU containing goodwill were based on discounted cash flows estimated by managements covering a five-year period. Cash flows beyond the five-year period are extrapolated using the growth rate does not exceed the long-term average growth rate for the business in which CGU operates. The discount rate was a post-tax measure estimated based on the historical industry average weighted-average cost of capital.

2019	<b>CGU1</b>	<b>CGU2</b>
Growth rate (%)	1.0	0.0
Discount rate (%)	7.5	8.0
2018	<b>CGU1</b>	<b>CGU2</b>
Growth rate (%)	1.0	0.0
Discount rate (%)	8.5	8.0

The estimated recoverable amount of each CGU exceeded its carrying amount therefore no impairment losses to be recognised as of 31 December 2019 and 2018.

## 16 Other intangible assets

	Note	Rights acquired	Supplier contract and relationships	Software licenses	Consolidated financial statements					Total
					Technology licenses and knowhow	Customer contracts and relationships <i>(in thousand Baht)</i>	Trade name and trademarks	Chemicals exchange contract	Capitalised development expenditure	
<b>Cost</b>										
<b>At 1 January 2018</b>		<b>131,406</b>	<b>6,985,626</b>	<b>392,564</b>	<b>9,004,914</b>	<b>5,427,182</b>	<b>1,410,168</b>	<b>326,809</b>	<b>783,152</b>	<b>24,461,821</b>
Additions		452	-	75,239	6,245	7,674	-	-	109,298	198,908
Acquisitions through business combinations										
● M&G Polimeros Brazil S.A.	4(i)	-	695,828	9,362	1,755,988	2,529,213	-	-	-	4,990,391
● Egyptian Indian Polyester Company S.A.E.	4(ii)	-	-	18,125	-	-	-	-	-	18,125
● Avgol Industries 1953 Ltd.	4(iii)	67,270	-	51,540	112,022	2,142,916	1,597,574	-	47,160	4,018,482
● KORDÁRNA Plus a.s.	4(vi)	-	-	1,276	-	-	-	-	-	1,276
● Medco Plast for Packing and Packaging Systems S.A.E.	4(vii)	-	-	-	-	364,831	86,385	-	-	451,216
● Schoeller Group	4(viii)	-	-	11,325	229,710	-	98,446	-	-	339,481
Reclassifications		-	-	(1,399)	-	(8,987)	-	-	25,357	14,971
Write-off		-	-	-	-	-	-	-	(196)	(196)
Effect of movements in exchange rates		(7,231)	(194,376)	(15,899)	(279,743)	(378,360)	(100,009)	(2,311)	(40,716)	(1,018,645)
<b>At 31 December 2018 and 1 January 2019</b>		<b>191,897</b>	<b>7,487,078</b>	<b>542,133</b>	<b>10,829,136</b>	<b>10,084,469</b>	<b>3,092,564</b>	<b>324,498</b>	<b>924,055</b>	<b>33,475,830</b>
Additions		5,913	-	71,131	8,017	-	4,717	-	63,745	153,523
Acquisitions through business combinations										
● Custom Polymers PET, LLC	4(ix)	-	-	-	-	129,003	-	-	-	129,003
● M&G Fibras Brasil Ltda.	4(x)	-	17,441	-	-	-	-	-	-	17,441
● UTT Beteiligungsgesellschaft mbH	4(xi)	-	-	4,700	949,302	372,149	100,194	-	42,940	1,469,285
● INVISTA Resins & Fibers GmbH	4(xii)	-	-	45	422,554	588,686	46,950	-	-	1,058,235
● IVL Dhunseri Petrochem Industries Private Limited	4(xiii)	-	224,828	540	-	274,396	-	-	-	499,764
● Indo Rama Synthetics (India) Limited	4(xiv)	-	-	-	-	299,272	131,725	-	-	430,997
● Bevpak (Nigeria) Limited	4(xv)	-	-	-	-	33,618	-	-	-	33,618
● Sinterama S.p.A. and its subsidiaries	4(xvi)	-	-	2,896	-	-	-	-	-	2,896
● Green Fiber International Inc.	4(xvii)	-	4,784	-	-	163,815	-	-	-	168,599
Reclassifications		12,378	-	4,689	-	-	-	-	17,285	34,352

	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
					(in thousand Baht)				
Write-off	-	-	(139)	(5,042)	-	-	-	(1,833)	(7,014)
Effect of movements in exchange rates	(14,768)	(630,308)	(38,697)	(939,561)	(1,033,974)	(248,280)	(22,958)	(85,261)	(3,013,807)
At 31 December 2019	195,420	7,103,823	587,298	11,264,406	10,911,434	3,127,870	301,540	960,931	34,452,722
Amortisation									
At 1 January 2018	39,410	1,359,135	258,270	1,929,652	2,313,904	225,453	98,914	133,932	6,358,670
Amortisation charge for the year	11,248	530,048	48,640	595,375	678,259	145,119	17,012	71,494	2,097,195
Write-off	-	-	-	-	-	-	-	(284)	(284)
Effect of movements in exchange rates	(1,293)	(33,869)	(4,936)	(35,476)	(72,945)	(15,346)	(632)	(8,418)	(172,915)
At 31 December 2018 and 1 January 2019	49,365	1,855,314	301,974	2,489,551	2,919,218	355,226	115,294	196,724	8,282,666
Amortisation charge for the year	16,451	913,985	91,308	570,541	713,836	259,775	16,340	101,925	2,684,161
Write-off	-	-	(104)	-	-	-	-	(480)	(584)
Effect of movements in exchange rates	(3,523)	(182,156)	(22,285)	(196,274)	(252,413)	(37,264)	(8,627)	(20,529)	(723,071)
At 31 December 2019	62,293	2,587,143	370,893	2,863,818	3,380,641	577,737	123,007	277,640	10,243,172
Impairment losses									
At 1 January 2018	1,126	-	1,877	-	72,944	-	-	-	75,947
Effect of movements in exchange rates	(327)	-	(546)	-	(21,213)	-	-	-	(22,086)
At 31 December 2018 and 1 January 2019	799	-	1,331	-	51,731	-	-	-	53,861
Effect of movements in exchange rates	(139)	-	(231)	-	(8,993)	-	-	-	(9,363)
At 31 December 2019	660	-	1,100	-	42,738	-	-	-	44,498
Net book value									
At 1 January 2018	90,870	5,626,491	132,417	7,075,262	3,040,334	1,184,715	227,895	649,220	18,027,204
At 31 December 2018 and 1 January 2019	141,733	5,631,764	238,828	8,339,585	7,113,520	2,737,338	209,204	727,331	25,139,303
At 31 December 2019	132,467	4,516,680	215,305	8,400,588	7,488,055	2,550,133	178,533	683,291	24,165,052

## 17 Other non-current assets

		Consolidated financial statements		Separate financial statements	
	Note	2019	2018	2019	2018
		<i>(in thousand Baht)</i>			
Derivative assets		3,555,346	873,086	321,163	216,418
Advance payment on purchase of machinery		221,345	91,019	-	-
Refundable deposits		226,664	197,647	-	-
Finance lease receivable from related party	5	365,570	-	-	-
Others		734,397	151,443	8,169	4,810
<b>Total</b>		<b>5,103,322</b>	<b>1,313,195</b>	<b>329,332</b>	<b>221,228</b>

## 18 Interest-bearing liabilities

Consolidated financial statements						
	Secured	2019 Unsecured	Total	Secured	2018 Unsecured	Total
			<i>(in thousand Baht)</i>			
Bank overdrafts	388,872	3,785,738	4,174,610	1,301,876	3,787,708	5,089,584
Short-term loans from financial institutions (a)	10,418,671	15,786,218	26,204,889	8,657,051	17,525,324	26,182,375
Long-term loans from financial institutions (b)	14,844,484	33,740,147	48,584,631	11,231,838	32,034,899	43,266,737
Finance lease liabilities (c)	-	819,255	819,255	-	608,283	608,283
Debentures (d)	-	67,167,873	67,167,873	-	61,617,442	61,617,442
<b>Total interest-bearing liabilities</b>	<b>25,652,027</b>	<b>121,299,231</b>	<b>146,951,258</b>	<b>21,190,765</b>	<b>115,573,656</b>	<b>136,764,421</b>

Separate financial statements						
	Secured	2019 Unsecured	Total	Secured	2018 Unsecured	Total
			<i>(in thousand Baht)</i>			
Short-term loans from financial institutions (a)	-	4,961,000	4,961,000	-	2,833,000	2,833,000
Long-term loans from financial institutions (b)	-	3,020,659	3,020,659	-	4,869,611	4,869,611
Debentures (d)	-	48,816,555	48,816,555	-	51,103,264	51,103,264
<b>Total interest-bearing liabilities</b>	<b>-</b>	<b>56,798,214</b>	<b>56,798,214</b>	<b>-</b>	<b>58,805,875</b>	<b>58,805,875</b>

	Consolidated financial statements		Separate financial statements	
<i>Assets pledged as security for liabilities as at 31 December</i>	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Trade accounts receivable	14,262,030	17,867,446	-	-
Inventories	23,740,334	23,891,830	-	-
Property, plant and equipment	49,484,785	38,620,321	-	-
<b>Total</b>	<b>87,487,149</b>	<b>80,379,597</b>	<b>-</b>	<b>-</b>

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

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
<i>Maturity period</i>	<i>(in thousand Baht)</i>			
Within 1 year	40,520,790	42,911,828	8,349,148	6,753,405
1-5 years	71,812,742	49,186,007	24,314,336	23,771,042
After 5 years	33,798,471	44,058,303	24,134,730	28,281,428
<b>Total</b>	<b>146,132,003</b>	<b>136,156,138</b>	<b>56,798,214</b>	<b>58,805,875</b>

**(a) Short-term loans from financial institutions**

Short-term loans from financial institutions comprise the following:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Secured short-term loan secured by trade accounts receivable, inventories, plant and machine and working capital	2,577,699	2,645,561	-	-
Unsecured short-term loan	15,320,631	17,190,941	4,961,000	2,833,000
Secured revolving loan (USD 191,203,655) (2018: USD 69,765,479) due in March 2021, secured by trade accounts receivable and inventories	5,765,555	2,263,876	-	-
Secured revolving loan (USD 6,662,364) (2018: USD 1,081,481) due in August 2020, secured by trade accounts receivable and inventories	200,897	35,094	-	-
Secured revolving loan (2018: EUR 100,000,000) secured by plant and machine	-	3,712,520	-	-
Unsecured revolving loan (EUR 2,181,510) (2018: EUR 9,006,902)	73,585	334,383	-	-
Packing credits	1,580,184	-	-	-
Promissory note	392,002	-	-	-
Bill discount	294,336	-	-	-
<b>Total</b>	<b>26,204,889</b>	<b>26,182,375</b>	<b>4,961,000</b>	<b>2,833,000</b>

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:

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<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	-	1,630,740
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	3,033,130	3,261,480	3,033,130	3,261,480
Unsecured loan, due in December 2022, repayable in quarterly installments, starting in first quarter of 2018 with interest at BIBOR 3 month plus margin per annum	-	337,500	-	-
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	515,617	650,451	-	-
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	151,657	326,148	-	-
Unsecured loan, due in May 2021, repayable in lumpsum, with interest at EURIBOR 3 month plus margin per annum	3,367,800	3,707,310	-	-
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	-	-
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	-	-
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	2,293,715	2,524,513	-	-
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	1,507,700	1,622,490	-	-

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
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	78,683	98,616	-	-
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	-	-
Unsecured loan, due in February 2021, repayable in lumpsum, with interest at 3 month LIBOR plus margin per annum	1,806,504	1,944,216	-	-
Unsecured loan, due in August 2021, repayable in lumpsum, with interest at 3 month LIBOR plus margin per annum	4,516,260	1,620,180	-	-
Unsecured loan, due in February 2022, repayable in lumpsum, with interest at 3 month LIBOR plus margin per annum	3,010,840	-	-	-
Unsecured loan, due in December 2024, repayable in lumpsum, with interest at 3 month LIBOR plus margin per annum	5,780,813	-	-	-
Unsecured loan, due in March 2024, repayable in lumpsum, with interest at 3 month LIBOR plus margin per annum	5,085,378	-	-	-
Unsecured loan, due in April 2024, repayable in lumpsum, with interest at 3 month LIBOR plus margin per annum	3,010,840	-	-	-
Unsecured loan, due in December 2024, repayable in lumpsum, with interest at 3 month LIBOR plus margin per annum	1,809,240	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	507,432	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	499,863	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	515,844	640,527	-	-
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	422,156	519,197	-	-
Unsecured loan, due in August 2022, repayable in lumpsum, with interest at 1 month LIBOR plus margin per annum	-	1,216,868	-	-

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Secured loan, due in June 2023, repayable in lumpsum, with interest at 3 month LIBOR plus margin per annum secured by land	331,694	390,410	-	-
Secured loan, due in September 2027, repayable in lumpsum, with interest at 3 month LIBOR plus margin per annum secured by land	1,101,526	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	2,405,274	2,588,401	-	-
Unsecured loan, due in June 2024, repayable in lumpsum, with interest at fixed rate per annum	472,235	-	-	-
Secured loan, due in March 2020, repayable in quarterly, with interest at 6 month LIBOR plus margin per annum secured by property plant and equipment	53,614	-	-	-
Secured loan, due in March 2023, repayable in quarterly, with interest at 1 year MCLR plus margin per annum secured by property plant and equipment	326,529	-	-	-
Secured loan, due in September 2023, repayable in quarterly, with interest at 1 year MCLR plus margin per annum secured by property plant and equipment	201,882	-	-	-
Secured loan, due in September 2024, repayable in quarterly, with interest at 1 year MCLR plus margin per annum secured by property plant and equipment	248,232	-	-	-
Secured loan, due in December 2023, repayable in quarterly, with fixed interest rate secured by property plant and equipment	158,112	-	-	-
Secured loan, due in September 2024, repayable in quarterly, with interest at 1 year MCLR plus margin per annum secured by property plant and equipment	527,871	-	-	-
Secured loan, due in March 2024, repayable in quarterly, with interest at 6 month LIBOR plus margin per annum secured by property plant and equipment	221,548	-	-	-
Secured loan, due in September 2024, repayable in quarterly, with interest at 1 year MCLR plus margin per annum secured by property plant and equipment	76,573	-	-	-
Secured loan, due in September 2024, repayable in quarterly, with interest at 1 year MCLR plus margin per annum secured by property plant and equipment	308,820	-	-	-
Secured loan, due in March 2028, repayable in quarterly, with interest at 3 month EURIBOR plus margin per annum secured by property plant and equipment	329,890	-	-	-

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht)			
Secured loan, due in March 2028, repayable in quarterly, with interest at 3 month EURIBOR plus margin per annum secured by property plant and equipment	240,165	-	-	-
Secured loan, due in June 2025, repayable in quarterly, with interest at 3 month EURIBOR plus margin per annum secured by property plant and equipment	322,215	-	-	-
Secured loan, due in April 2024, repayable semi-annually, with fixed interest rate, secured by property plant and equipment	633,000	-	-	-
Secured loan, due in June 2023, repayable quarterly, with market interest rate secured by property plant and equipment	481,080	-	-	-
Secured loan, due in June 2024, repayable annually, with market interest rate secured by property plant and equipment	299,620	-	-	-
Secured loan, due in November 2020, repayable at quarterly, with interest at 6 month EURIBOR plus margin per annum secured by property plant and equipment	161,399	-	-	-
Secured loan, due in March 2020, repayable at quarterly, with interest at 6 month LIBOR plus margin per annum secured by property plant and equipment	18,485	-	-	-
Secured revolving loan, (USD 57,440,186) (2018: 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	1,732,051	1,863,923	-	-
Other long-term loans	476,017	10,788	-	-
Total long-term loans from financial institutions	49,041,304	43,517,378	3,033,130	4,892,220
Less deferred financing costs	(456,673)	(250,641)	(12,471)	(22,609)
<b>Net long-term loans from financial institutions</b>	<b>48,584,631</b>	<b>43,266,737</b>	<b>3,020,659</b>	<b>4,869,611</b>
Less portion due within one year, net of related deferred financing costs	(6,033,458)	(8,626,722)	-	(1,620,602)
<b>Long-term loans from financial institutions</b>	<b>42,551,173</b>	<b>34,640,015</b>	<b>3,020,659</b>	<b>3,249,009</b>

On 28 February 2018, the Company, Indorama Ventures Global Services Limited (“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 2019, the Group had unutilised credit facilities totaling Baht 65,351.8 million (2018: Baht 52,449.9 million).

(c) *Finance lease liabilities*

	Consolidated financial statements					
	2019			2018		
<i>Finance lease liabilities</i>	Minimum lease payments	Interest	Present value of minimum lease payments (in thousand Baht)	Minimum lease payments	Interest	Present value of minimum lease payments
<i>Maturity period</i>						
Within 1 year	150,804	20,781	130,023	131,784	21,588	110,196
1-5 years	570,702	54,823	515,879	374,594	51,816	322,778
After 5 years	185,681	12,328	173,353	201,202	25,893	175,309
<b>Total</b>	<b>907,187</b>	<b>87,932</b>	<b>819,255</b>	<b>707,580</b>	<b>99,297</b>	<b>608,283</b>

(d) *Debentures*

As at 31 December, the Group had outstanding debentures as follows:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht)			
IVL - Debentures (i)	48,816,555	51,103,264	48,816,555	51,103,264
IVL Singapore - Debentures (ii)	4,152,582	4,467,126	-	-
AVGOL - Debentures (iii)	5,239,951	6,047,052	-	-
IVGSL - Debentures (iv)	8,958,785	-	-	-
<b>Total</b>	<b>67,167,873</b>	<b>61,617,442</b>	<b>48,816,555</b>	<b>51,103,264</b>

(i) IVL Debentures

As at 31 December 2019, the Company had outstanding unsubordinated and unsecured debentures totaling Baht 48,870 million (2018: Baht 51,170 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	29	36,971
1/2011-6	3,163,000	5.35	10 years	19 Oct 21	2,453	3,160,547
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	643	1,249,857
1/2012-5	2,649,500	5.52	10 years	5 Apr 22	1,363	2,648,137
2/2012-2	880,000	4.78	8 years	14 Dec 20	233	879,767
2/2012-3	1,645,000	5.11	10 years	14 Dec 22	1,080	1,643,920
2/2012-4	1,475,000	5.28	12 years	14 Dec 24	1,354	1,473,646

Debentures no.	Principal (in thousand Baht)	Interest rate (% p.a.)	Term	Maturity date	Deferred debenture issuance expense (in thousand Baht)	Net
1/2013-2	520,000	4.70	7 years	27 Jun 20	129	519,871
1/2013-3	1,100,000	5.10	10 years	27 Jun 23	1,368	1,098,632
1/2014-3	1,400,000	5.30	10 years	14 Mar 24	1,326	1,398,674
1/2015-1	1,100,000	4.20	10 years	13 Oct 25	1,157	1,098,843
1/2015-2	500,000	4.00	7 years	13 Oct 22	362	499,638
2/2015-1	1,150,000	3.92	10 years	9 Dec 25	950	1,149,050
1/2016-1	300,000	2.88	5 years	20 Oct 21	183	299,817
1/2016-2	200,000	3.68	10 years	20 Oct 26	230	199,770
1/2016-3	2,200,000	4.10	12 years	20 Oct 28	2,725	2,197,275
1/2016-4	2,300,000	4.39	15 years	20 Oct 31	3,056	2,296,944
1/2017-1	2,000,000	2.60	3 years	4 May 20	576	1,999,424
1/2017-2	500,000	3.24	5 years	4 May 22	596	499,404
1/2017-3	1,000,000	3.75	7 years	4 May 24	1,579	998,421
1/2017-4	2,000,000	4.10	10 years	4 May 27	3,739	1,996,261
1/2017-5	2,000,000	4.28	12 years	4 May 29	3,965	1,996,035
2/2017-1	300,000	2.92	7 years	16 Nov 24	347	299,653
2/2017-2	700,000	3.46	10 years	16 Nov 27	914	699,086
2/2017-3	1,000,000	3.90	15 years	16 Nov 32	1,424	998,576
1/2018-1	3,000,000	2.31	3 years	8 Jun 21	2,321	2,997,679
1/2018-2	3,000,000	2.78	5 years	8 Jun 23	3,334	2,996,666
1/2018-3	1,500,000	3.18	7 years	8 Jun 25	1,884	1,498,116
1/2018-4	1,800,000	3.83	10 years	8 Jun 28	2,456	1,797,544
1/2018-5	5,000,000	4.12	12 years	8 Jun 30	7,033	4,992,967
1/2018-6	3,200,000	4.27	15 years	8 Jun 33	4,636	3,195,364
<b>Total</b>	<b>48,870,000</b>				<b>53,445</b>	<b>48,816,555</b>
Less portion due within one year	(3,400,000)				(11,852)	(3,388,148)
<b>Net</b>	<b>45,470,000</b>				<b>41,593</b>	<b>45,428,407</b>

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.

#### (ii) IVL Singapore Debentures

As at 31 December 2019, IVL Singapore Pte. Limited ("IVLS"), an indirect subsidiary of the Company, had outstanding senior unsecured guaranteed debentures totalling SGD 195.0 million (Baht 4,161.3 million) (2018: SGD 195.0 million (Baht 4,467.1 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	4,161,252	3.73	10 years	7 Oct 25	8,670	4,152,582
<b>Total</b>	<b>4,161,252</b>				<b>8,670</b>	<b>4,152,582</b>



The resolution of IVLS held on 25 August 2015 approved the issuance of debentures up to an amount not exceeding USD 140 million equivalent in Singapore dollars. 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 2019, Avgol Industries 1953 Ltd. (“Avgol”), an indirect subsidiary of the Company, had outstanding unsecured debentures totalling USD 197.9 million (Baht 5,275.6 million) (2018: USD 197.9 million (Baht 6,047.0 million)), as follows:

Debentures no.	Principal (in thousand Baht)	Interest rate (% p.a.)	Term	Maturity date	Deferred debentures issuance expense (in thousand Baht)	Net
1/2014-C	3,650,150	4.75	10 years	31 Dec 24	16,223	3,633,927
1/2017-D	1,625,462	3.90	8 years	31 Dec 25	19,438	1,606,024
<b>Total</b>	<b>5,275,612</b>				<b>35,661</b>	<b>5,239,951</b>
Less portion due within one year	(729,972)				(10,287)	(719,685)
<b>Net</b>	<b>4,545,640</b>				<b>25,374</b>	<b>4,520,266</b>

(iv) IVGSL Debentures

As at 31 December 2019, Indorama Ventures Global Services Limited (“IVGSL”), a subsidiary of the Company, had outstanding senior unsecured debentures totalling USD 300.0 million (Baht 9,032.5 million) as follows:

Debentures no.	Principal (in thousand Baht)	Interest rate (% p.a.)	Term	Maturity date	Deferred debentures issuance expense (in thousand Baht)	Net
1/2019-1	9,032,520	4.375	5 years	12 Sep 24	73,735	8,958,785
<b>Total</b>	<b>9,032,520</b>				<b>73,735</b>	<b>8,958,785</b>

The resolution of IVGSL held on 27 June 2019 approved the issuance of debentures up to an amount not exceeding USD 600.0 million (or its equivalent in any other currency).

On 12 September 2019, IVGSL issued senior unsecured bonds to foreign institutional investors for the total amount of USD 300.0 million. The debenture is guaranteed by the Company.

## 19 Trade accounts payable

		Consolidated financial statements		Separate financial statements	
	Note	2019	2018	2019	2018
		(in thousand Baht)			
Related parties	5	55,130	431,741	-	-
Other parties		57,117,738	54,133,073	-	-
<b>Total</b>		<b>57,172,868</b>	<b>54,564,814</b>	<b>-</b>	<b>-</b>

## 20 Other current liabilities

		Consolidated financial statements		Separate financial statements	
	Note	2019	2018	2019	2018
		(in thousand Baht)			
Accrued operating expenses		5,544,987	5,145,069	35,556	153,117
Other payables		2,508,471	2,668,383	3,331	3,794
Materials price adjustments payable		1,610,741	1,265,861	-	-
Interest payable		738,009	520,399	279,384	304,200
Payable for acquiring joint operation	12	603,080	1,081,660	-	-
Value added tax payable		597,042	422,488	-	-
Contract liabilities		563,485	450,331	-	-
Withholding tax payable		331,054	275,087	45,487	42,267
Others		1,620,563	1,309,866	2,399	2,243
<b>Total</b>		<b>14,117,432</b>	<b>13,139,144</b>	<b>366,157</b>	<b>505,621</b>

## 21 Non-current provisions for employee benefits

	Consolidated financial statements		Separate financial statements	
<i>At 31 December</i>	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
<b>Statement of financial position</b>				
<b>Non-current provisions for:</b>				
Post-employment benefits				
Thailand legal severance plan	628,296	391,343	-	-
Defined benefit plans				
established in Europe	3,223,915	1,325,519	-	-
Defined benefit plans				
established in rest of the world	825,159	594,636	-	-
Other long-term employee benefits	18,824	15,739	-	-
<b>Total</b>	<b>4,696,194</b>	<b>2,327,237</b>	<b>-</b>	<b>-</b>

<i>For the year ended 31 December</i>	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
<b>Statement of income:</b>				
<b>Recognised in profit or loss:</b>				
Post-employment benefits				
Thailand legal severance plan	155,042	35,622	-	-
Defined benefit plans				
established in Europe	234,964	259,866	-	-
Defined benefit plans				
established in rest of the world	114,566	93,577	-	-
Other long-term employee benefits	5,964	7,931	-	-
<b>Total</b>	<b>510,536</b>	<b>396,996</b>	<b>-</b>	<b>-</b>
<b>Recognised in other comprehensive income:</b>				
Remeasurement gains:				
Actuarial losses (gains)	1,239,247	(12,980)	-	-
Return on plan assets excluding amounts included in interest income	(344,728)	(4,528)	-	-
Others	149	610	-	-
<b>Total</b>	<b>894,668</b>	<b>(16,898)</b>	<b>-</b>	<b>-</b>

#### *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.

<i>Present value of the defined benefit obligations</i>	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
At 1 January	407,082	352,386	-	-
<b>Included in profit or loss:</b>				
Current service costs	36,967	28,910	-	-
Past service costs	107,346	-	-	-
Interest on obligation	12,958	8,907	-	-
Actuarial losses for other long-term employee benefits	3,735	5,736	-	-
	<b>161,006</b>	<b>43,553</b>	<b>-</b>	<b>-</b>
<b>Included in other comprehensive income</b>				
Actuarial losses (gains)				
- Demographic assumptions	3,502	-	-	-
- Financial assumptions	45,874	(3,282)	-	-

<i>Present value of the defined benefit obligations</i>	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
<b>Included in other comprehensive income</b>				
- Experience adjustment	79,657	36,437	-	-
	<b>129,033</b>	<b>33,155</b>	-	-
<b>Other</b>				
Benefits paid by the plan	(50,001)	(22,012)	-	-
	<b>(50,001)</b>	<b>(22,012)</b>	-	-
<b>At 31 December</b>	<b>647,120</b>	<b>407,082</b>	-	-

The expense is recognised in the following line items in the statement of income:

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Cost of sale of goods	104,997	29,234	-	-
Distribution costs and administrative expenses	56,009	14,319	-	-
<b>Total</b>	<b>161,006</b>	<b>43,553</b>	-	-

On 5 April 2019, the Labor Protection Act was amended to include a requirement that an employee, who is terminated after having been employed by the same employer for an uninterrupted period of twenty years or more, receives severance payment of 400 days of wages at the most recent rate. The Group has therefore amended its retirement plan in accordance with the changes in the Labor Protection Act in 2019. As a result of this change, the provision for retirement benefits as well as past service cost recognised increased.

#### ***Defined benefit plans established in Europe***

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 195.3 million in contributions to its defined benefit plans in 2020.

The statement of financial position obligation was determined as follows:

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Excess of present value of obligations over fair value of plan assets	3,432,551	1,395,670	-	-
Effect of movement in exchange rates	(208,636)	(70,151)	-	-
<b>Statement of financial position obligation</b>	<b>3,223,915</b>	<b>1,325,519</b>	-	-

<i>Present value of the defined benefit obligations</i>	<b>Consolidated</b>		<b>Separate</b>	
	<b>financial statements</b>		<b>financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
At 1 January	2,977,077	2,841,469	-	-
<b>Included in profit or loss:</b>				
Current service costs	184,928	155,173	-	-
Past service costs	572	72,788	-	-
Interest on obligation	83,696	67,573	-	-
Loss on settlement	-	142	-	-
Actuarial losses (gains)	1,761	(1,306)	-	-
	<u>270,957</u>	<u>294,370</u>	<u>-</u>	<u>-</u>
<b>Included in other comprehensive income</b>				
Actuarial losses (gains)				
- Demographic assumptions	(7,655)	(8,305)	-	-
- Financial assumptions	992,411	42,897	-	-
- Experience adjustment	34,192	(36,554)	-	-
	<u>1,018,948</u>	<u>(1,962)</u>	<u>-</u>	<u>-</u>
<b>Others</b>				
Defined benefit obligations assumed upon acquisition of subsidiaries	1,447,913	-	-	-
Benefits paid by the plan	(53,127)	(20,103)	-	-
Expected employees contribution	13,511	13,645	-	-
Effect of movements in exchange rates	(376,965)	(150,342)	-	-
	<u>1,031,332</u>	<u>(156,800)</u>	<u>-</u>	<u>-</u>
<b>At 31 December</b>	<u>5,298,314</u>	<u>2,977,077</u>	<u>-</u>	<u>-</u>
<i>Fair value of plan assets</i>	<b>Consolidated</b>		<b>Separate</b>	
	<b>financial statements</b>		<b>financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
At 1 January	1,651,558	1,538,939	-	-
<b>Included in profit or loss:</b>				
Interest income	35,993	36,451	-	-
Others	-	(1,947)	-	-
	<u>35,993</u>	<u>34,504</u>	<u>-</u>	<u>-</u>
<b>Included in other comprehensive income</b>				
Return on plan assets excluding amounts included in interest income	<u>323,539</u>	<u>15,432</u>	<u>-</u>	<u>-</u>

<i>Fair value of plan assets</i>	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
<b>Others</b>				
Expected plan participant contributions	12,003	12,003	-	-
Benefits paid by the plan	(15,047)	(12,474)	-	-
Contribution paid into the plan	234,682	143,345	-	-
Effect of movements in exchange rates	(168,329)	(80,191)	-	-
	<u>63,309</u>	<u>62,683</u>	<u>-</u>	<u>-</u>
<b>At 31 December</b>	<u><b>2,074,399</b></u>	<u><b>1,651,558</b></u>	<u><b>-</b></u>	<u><b>-</b></u>
<b>Statement of financial position obligations at 31 December</b>	<u><b>3,223,915</b></u>	<u><b>1,325,519</b></u>	<u><b>-</b></u>	<u><b>-</b></u>

The expense is recognised in the following line items in the statement of income:

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Cost of sale of goods	158,688	234,867	-	-
Administrative expenses	76,276	24,999	-	-
<b>Total</b>	<u><b>234,964</b></u>	<u><b>259,866</b></u>	<u><b>-</b></u>	<u><b>-</b></u>

#### *Plan assets*

Plan assets comprise the following:

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Equity securities	15,988	2,375	-	-
Insurance contract	1,961,415	1,565,610	-	-
Interest bearing securities	90,598	57,002	-	-
Others	6,398	26,571	-	-
<b>Total</b>	<u><b>2,074,399</b></u>	<u><b>1,651,558</b></u>	<u><b>-</b></u>	<u><b>-</b></u>

#### *Defined benefit plans established in rest of the world*

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 14.8 million in contributions to its defined benefit plans in 2020.



The statement of financial position obligation was determined as follows:

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Excess of present value of obligations over fair value of plan assets	859,875	609,377	-	-
Effect of movements in exchange rates	(34,716)	(14,741)	-	-
<b>Statement of financial position obligation</b>	<b>825,159</b>	<b>594,636</b>	<b>-</b>	<b>-</b>
<b><i>Present value of the defined benefit obligations</i></b>	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
At 1 January	788,264	687,123	-	-
<b>Included in profit or loss:</b>				
Current service costs	54,186	39,911	-	-
Past service costs	(5,154)	13,313	-	-
Interest on obligation	69,300	46,335	-	-
Actuarial losses (gains)	5,459	(7,980)	-	-
	<b>123,791</b>	<b>91,579</b>	<b>-</b>	<b>-</b>
<b>Included in other comprehensive income</b>				
Actuarial losses (gains)				
- Demographic assumptions	5,928	(6,082)	-	-
- Financial assumptions	69,619	(59,195)	-	-
- Experience adjustment	15,719	21,104	-	-
	<b>91,266</b>	<b>(44,173)</b>	<b>-</b>	<b>-</b>
<b>Others</b>				
Defined benefit obligations assumed upon acquisition of subsidiaries	149,673	129,921	-	-
Benefits paid by the plan	(69,312)	(51,450)	-	-
Others	(22)	-	-	-
Effect of movements in exchange rates	(44,755)	(24,736)	-	-
	<b>35,584</b>	<b>53,735</b>	<b>-</b>	<b>-</b>
<b>At 31 December</b>	<b>1,038,905</b>	<b>788,264</b>	<b>-</b>	<b>-</b>

<i>Fair value of plan assets</i>	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
At 1 January	193,628	132,437	-	-
<b>Included in profit or loss:</b>				
Interest income	9,846	6,795	-	-
Others	(621)	(8,793)	-	-
	<u>9,225</u>	<u>(1,998)</u>	<u>-</u>	<u>-</u>
<b>Included in other comprehensive income</b>				
Return on plan assets excluding amounts included in interest income	<u>21,189</u>	<u>(10,904)</u>	<u>-</u>	<u>-</u>
<b>Others</b>				
Fair value of plan assets assumed upon acquisition of subsidiaries	11,700	90,950	-	-
Contributions paid into the plan	20,893	8,945	-	-
Benefits paid by the plan	(32,677)	(15,807)	-	-
Other	(173)	-	-	-
Effect of movements in exchange rates	(10,039)	(9,995)	-	-
	<u>(10,296)</u>	<u>74,093</u>	<u>-</u>	<u>-</u>
<b>At 31 December</b>	<u>213,746</u>	<u>193,628</u>	<u>-</u>	<u>-</u>
<b>Statement of financial position obligations at 31 December</b>	<u>825,159</u>	<u>594,636</u>	<u>-</u>	<u>-</u>

The expense is recognised in the following line items in the statement of income:

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Cost of sale of goods	87,362	64,037	-	-
Administrative expenses	27,204	29,540	-	-
<b>Total</b>	<u>114,566</u>	<u>93,577</u>	<u>-</u>	<u>-</u>

#### *Plan assets*

Plan assets comprise the following:

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Equity securities	80,382	73,182	-	-
Government bonds	15,972	-	-	-
Interest bearing securities	34,751	116,441	-	-
Insurance contract	31,429	-	-	-
Others	51,212	4,005	-	-
<b>Total</b>	<u>213,746</u>	<u>193,628</u>	<u>-</u>	<u>-</u>

### *Actuarial assumptions*

<i>Principal actuarial assumptions</i>	Consolidated		Separate	
	financial statements		financial statements	
	2019	2018	2019	2018
	(%)		(%)	
<i>Thailand legal severance plan</i>				
Discount rate	1.70	2.70	-	-
Future salary increases	4.00-6.00	4.00-6.00	-	-
Employee turnover	0.00-40.00	0.00-40.00	-	-

At 31 December 2019, the weighted-average duration of the defined benefit obligation was 8.00 years (2018: 10.00 years).

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(%)		(%)	
<i>Defined benefit plans established in Europe</i>				
Discount rate	0.30-12.10	1.11-14.90	-	-
Expected return on plan assets	1.20-1.50	1.50-2.20	-	-
Future salary increases	1.20-8.00	1.40-10.00	-	-
Employee turnover	0.05-15.95	1.00-17.89	-	-

At 31 December 2019, the weighted-average duration of the defined benefit obligation were 8.80 to 28.30 years (2018: 8.00 to 28.00 years).

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(%)		(%)	
<i>Defined benefit plans established in rest of the world</i>				
Discount rate	1.90-8.00	2.90-9.45	-	-
Expected return on plan assets	4.25-7.05	4.25-9.45	-	-
Future salary increases	2.50-8.00	2.50-8.00	-	-
Employee turnover	0.00-26.50	0.00-28.35	-	-

At 31 December 2019, the weighted-average durations of the defined benefit obligation were 2.60 to 15.60 years (2018: 2.60 to 17.77 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	
	(in million Baht)			
<b>Thailand legal severance plan</b>				
<b>At 31 December 2019</b>	Increase	Decrease	Increase	Decrease
Discount rate (0.5% movement)	(26)	28	-	-
Future salary increases (0.5% movement)	27	(25)	-	-
Employee turnover (0.5% movement)	(28)	30	-	-
<b>Defined benefit plans established in Europe</b>				
<b>At 31 December 2019</b>	Increase	Decrease	Increase	Decrease
Discount rate (0.5% movement)	(308)	360	-	-
Expected return on plan assets (0.5% movement)	(2)	-	-	-
Future salary increases (0.5% movement)	53	(51)	-	-
Employee turnover (0.5% movement)	(12)	12	-	-
<b>Defined benefit plans established in rest of the world</b>				
<b>At 31 December 2019</b>	Increase	Decrease	Increase	Decrease
Discount rate (0.5% movement)	(36)	39	-	-
Expected return on plan assets (0.5% movement)	(1)	1	-	-
Future salary increases (0.5% movement)	28	(26)	-	-
Employee turnover (0.5% movement)	(2)	3	-	-
<b>Thailand legal severance plan</b>				
<b>At 31 December 2018</b>	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	-	-
<b>Defined benefit plans established in Europe</b>				
<b>At 31 December 2018</b>	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	-	-
<b>Defined benefit plans established in rest of the world</b>				
<b>At 31 December 2018</b>	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	-	-

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.

## 22 Share capital and warrants

	Par value per share (in Baht)	Consolidated and Separate financial statements			
		2019		2018	
		Number	Amount (thousand shares /in thousand Baht)	Number	Amount
Authorised shares at 31 December	1	<u>5,666,010</u>	<u>5,666,010</u>	<u>5,666,010</u>	<u>5,666,010</u>
<b><i>Issued and paid-up shares</i></b>					
At 1 January					
- ordinary shares	1	5,614,552	5,614,552	5,245,411	5,245,411
Exercise of warrants	1	<u>-</u>	<u>-</u>	<u>369,141</u>	<u>369,141</u>
<b>At 31 December</b>					
<b>- ordinary shares</b>	1	<u>5,614,552</u>	<u>5,614,552</u>	<u>5,614,552</u>	<u>5,614,552</u>

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-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 are as follows:

	(in thousand unit)
<b>Warrants issued at 1 January 2018</b>	<b>369,868</b>
Less: Exercised during the year	(369,141)
Less: Expired during the year	<u>(727)</u>
<b>Warrants issued at 31 December 2018</b>	<b><u>-</u></b>

### ***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.

## **23 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.



## 24 Subordinated perpetual debentures

On 31 October 2014, the Company completed the issuance of Subordinated Perpetual Debentures (“the 1<sup>st</sup> 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 1<sup>st</sup> Debentures. The 1<sup>st</sup> 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 1<sup>st</sup> Debentures and is paid on a quarterly basis. However, the Company has the sole right to unconditionally defer interest and cumulative interest payments to the 1<sup>st</sup> 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 the 1<sup>st</sup> Debentures and shall not declare and make any dividend payment.

IVL has exercised its call option to early redeem all of the 1<sup>st</sup> Debentures. The aggregate early redemption amount of the 1<sup>st</sup> Debentures was Baht 15,000 million and was fully repaid on 31 October 2019.

On 8 November 2019, the Company has issued and offered Subordinated Perpetual Debentures of the Company No. 1/2019 (the “2<sup>nd</sup> Debentures”) in the amount of Baht 15,000 million at par value 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 2<sup>nd</sup> Debentures. The 2<sup>nd</sup> Debentures are unsecured and unconvertible. The 2<sup>nd</sup> Debentures bear interest at 5% per annum for the first to the fifth years; and thereafter, the interest rate for the Debentures shall be in accordance with the details stated under the terms and conditions in relation to the 2<sup>nd</sup> Debentures. The interest is paid on a quarterly basis. However, the Company has the sole right to unconditionally defer interest and cumulative interest payments to the 2<sup>nd</sup> 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 the 2<sup>nd</sup> Debentures and shall not declare and make any dividend payment.

On 7 November 2019, Indorama Ventures Global Services Limited (“IVGS”), a direct subsidiary of the Company, resolved to approve the purchase of the 2<sup>nd</sup> Debentures issued and offered by the Company for an amount up to Baht 1,400 million. As at 31 December 2019, the balance of the purchased 2<sup>nd</sup> Debentures amounting to Baht 679.6 million is presented as “Subordinated perpetual debentures acquired by subsidiary” as part of equity in the consolidated financial statement as at 31 December 2019.

## 25 Segments information and disaggregation of revenue

The Group’s reportable segments, as described below, represent 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 Group continues to consolidate its existing businesses. Fundamental shifts in the portfolio, both in its existing shape and form, necessitate the need to review the way the Group’s CODM analyse and report segment. In 2019, the Group’s reportable segments have been changed as following;

#### *Reportable segments in 2018*

- Segment 1     Manufacture and distribution of solid state polymerised chips, PET preforms, 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”)

#### *Reportable segment in 2019*

- Segment 1     Manufacture and distribution of PET value chain comprising PET, PTA, PX and Recycled PET (“Integrated PET”)
- Segment 2     Manufacture and distribution of EO&EG and Cracker (“Olefins”)
- Segment 3     Manufacture and distribution of product in relation to the mobility (automotive and tires) domain, the personal hygiene domain, and the lifestyle domain (“Fibers”)
- Segment 4     Manufacture and distribution of PET-base preforms, PET bottles and HDPE/PP closures (“Packaging”)
- Segment 5     Manufacture and distribution of IPA, Naphthalene dicarboxylate (“NDC”) and Specialty PET Resins (“Specialty Chemicals”)

The segment information of the year 2018 is not restated as the Group determine that the information is not available and the cost to develop would be excessive. Consequently, the Group disclose current period segment information on both the old and new basis of segmentation in 2019.

There are varying levels of integration between reportable segments. This integration includes sales of goods.

Information regarding the results of each reportable segment is included below. Performance is measured based on segment profit before interest and income tax (*2018: profit before income tax*), as included in the internal management reports that are reviewed by the Group’s CODM. Segment profit before interest and income tax is used to measure performance as management believes that such information is the most relevant in evaluating the results of certain segments.

The Group’s main revenue is derived from contracts with customers and recognised at a point in time.

*Information about reportable segments and disaggregation of revenue (reportable segment applicable up to 2018)*

For the year ended 31 December	Consolidated financial statements											
	PET		Feedstock		Fibers				Eliminations and unallocated			Total
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018		
	(in thousand Baht)											
External revenue	192,916,543	179,284,821	52,823,588	68,760,561	106,934,985	99,110,204	17,332	15,314	352,692,448	347,170,900		
Inter-segment revenue	3,130,172	3,130,617	80,087,883	78,535,396	123,639	96,764	(83,341,694)	(81,762,777)	-	-		
Total segment revenue	196,046,715	182,415,438	132,911,471	147,295,957	107,058,624	99,206,968	(83,324,362)	(81,747,463)	352,692,448	347,170,900		
Interest income	203,788	128,037	108,535	71,101	37,880	5,552	(192,107)	(133,989)	158,096	70,701		
Net foreign exchange gain (loss)	-	(358,636)	-	90,384	-	200,795	-	594,299	-	526,842		
Gain on bargain purchases	183,947	890,140	-	-	621,559	1,038,347	-	-	805,506	1,928,487		
Unallocated revenue	-	-	-	-	-	-	2,208,733	2,188,442	2,208,733	2,188,442		
Total revenue	196,434,450	183,074,979	133,020,006	147,457,442	107,718,063	100,451,662	(81,307,736)	(79,098,711)	355,864,783	351,885,372		
Cost of sale of goods	168,980,669	154,401,215	116,528,879	119,764,431	92,511,045	84,565,196	(82,965,985)	(77,611,165)	295,054,608	281,119,677		
Distribution costs and administrative expenses	13,172,480	9,457,598	7,915,710	7,748,981	8,175,309	6,839,568	(2,154,214)	(5,192,422)	27,109,285	18,853,725		
Provision for doubtful debts expenses	48,273	8,743	3,404	6,681	39,889	8,515	-	-	91,566	23,939		
Loss on impairment and written-off of property, plant and equipment	761	-	9,750	13,869	393,733	64,094	-	-	404,244	77,963		
Net foreign exchange (gain) loss	97,712	-	(155,316)	-	46,016	-	(164,165)	-	(175,753)	-		
Depreciation and amortisation	4,998,826	4,042,628	6,303,342	6,322,583	5,700,325	3,877,120	-	-	17,002,493	14,242,331		
Unallocated expenses	-	-	-	-	-	-	4,870,819	3,776,208	4,870,819	3,776,208		
Total expenses	187,298,721	167,910,184	130,605,769	133,856,545	106,866,317	95,354,493	(80,413,545)	(79,027,379)	344,357,262	318,093,843		

<i>For the year ended 31 December</i>	PET		Feedstock		Consolidated financial statements Fibers (in thousand Baht)				Eliminations and unallocated		Total	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Share of profit (losses) of joint ventures, net	(68,968)	392,512	-	122,998	74,288	70,367	-	-	-	-	5,320	585,877
<b>Profit before interest and income tax expenses</b>	<b>9,066,761</b>	<b>15,557,307</b>	<b>2,414,237</b>	<b>13,723,895</b>	<b>926,034</b>	<b>5,167,536</b>	<b>(894,191)</b>	<b>(71,332)</b>	<b>11,512,841</b>	<b>34,377,406</b>		
Interest expense	2,821,281	2,048,748	1,965,415	1,518,166	2,422,361	1,877,502	(4,603,688)	(4,341,748)	2,605,369	1,102,668		
<b>Profit before income tax expenses</b>	<b>6,245,480</b>	<b>13,508,559</b>	<b>448,822</b>	<b>12,205,729</b>	<b>(1,496,327)</b>	<b>3,290,034</b>	<b>3,709,497</b>	<b>4,270,416</b>	<b>8,907,472</b>	<b>33,274,738</b>		
Tax expense	287,843	1,897,718	313,895	2,037,554	308,730	266,277	-	-	910,468	4,201,549		
Unallocated items	-	-	-	-	-	-	3,633,320	2,735,550	3,633,320	2,735,550		
<b>Profit for the year</b>	<b>5,957,637</b>	<b>11,610,841</b>	<b>134,927</b>	<b>10,168,175</b>	<b>(1,805,057)</b>	<b>3,023,757</b>	<b>76,177</b>	<b>1,534,866</b>	<b>4,363,684</b>	<b>26,337,639</b>		

For the year ended 31 December	Consolidated financial statements									
	PET		Feedstock		Fibers			Eliminations and unallocated		Total
	2019	2018	2019	2018	2019	2018	2019	2018	2019	
					(in thousand Baht)					
Cash and cash equivalents	3,769,823	2,036,136	451,651	713,788	2,914,128	2,498,553	-	-	7,135,602	5,248,477
Inventories	21,527,155	28,117,237	20,132,213	22,079,603	20,624,217	20,870,438	(118,671)	(981,950)	62,164,914	70,085,328
Property, plant and equipment	60,617,297	57,602,637	89,334,041	91,661,365	61,522,245	55,633,920	-	-	211,473,583	204,897,922
Unallocated assets	-	-	-	-	-	-	99,793,808	98,963,104	99,793,808	98,963,104
<b>Total assets</b>	<b>85,914,275</b>	<b>87,756,010</b>	<b>109,917,905</b>	<b>114,454,756</b>	<b>85,060,590</b>	<b>79,002,911</b>	<b>99,675,137</b>	<b>97,981,154</b>	<b>380,567,907</b>	<b>379,194,831</b>
Interest-bearing liabilities	41,335,990	49,574,105	54,576,374	57,621,400	48,410,192	41,642,207	(99,339,911)	(103,187,019)	44,982,645	45,650,693
Unallocated liabilities	-	-	-	-	-	-	197,417,972	181,688,783	197,417,972	181,688,783
<b>Total liabilities</b>	<b>41,335,990</b>	<b>49,574,105</b>	<b>54,576,374</b>	<b>57,621,400</b>	<b>48,410,192</b>	<b>41,642,207</b>	<b>98,078,061</b>	<b>78,501,764</b>	<b>242,400,617</b>	<b>227,339,476</b>
Capital expenditure and investments	5,129,544	21,389,444	10,792,959	15,971,843	9,503,609	16,944,606	177,911	2,174,625	25,604,023	56,480,518
Depreciation	4,060,532	3,439,434	5,516,238	5,490,710	4,751,542	3,224,376	15,503	6,695	14,343,815	12,161,215
Amortisation	940,574	603,194	787,104	831,873	948,783	652,744	20,178	24,257	2,696,639	2,112,068
Loss (gain) on disposal and written-off of property, plant and equipment	(179,338)	1,066	13,480	12,795	14,114	10,166	-	-	(151,744)	24,027

*Information about reportable segments and disaggregation of revenue (reportable segment applicable from 2019 onward)*

<i>For the year ended 31 December 2019</i>	Consolidated financial statements					Eliminations and unallocated	Total
	Integrated PET	Fibers	Olefins	Specialty Chemicals (in thousand Baht)	Packaging		
<i>Information about reportable segments</i>							
External revenue	211,658,350	97,550,084	6,164,960	26,898,193	10,403,529	17,332	352,692,448
Inter-segment revenue	24,700,094	340,379	2,934,532	2,906,062	-	(30,881,067)	-
<b>Total segment revenue</b>	<b>236,358,444</b>	<b>97,890,463</b>	<b>9,099,492</b>	<b>29,804,255</b>	<b>10,403,529</b>	<b>(30,863,735)</b>	<b>352,692,448</b>
<i>Disaggregation of revenue from sale of goods</i>							
<i>Primary geographical markets</i>							
Thailand	9,663,300	3,599,457	-	45,330	2,872,643	-	16,180,730
North America	72,066,680	20,912,600	6,117,870	14,606,368	-	-	113,703,518
Europe	59,416,170	32,911,666	-	7,738,804	1,109,232	-	101,175,872
Rest of the world	70,512,200	40,126,361	47,090	4,507,691	6,421,654	17,332	121,632,328
<b>Total segment revenue</b>	<b>211,658,350</b>	<b>97,550,084</b>	<b>6,164,960</b>	<b>26,898,193</b>	<b>10,403,529</b>	<b>17,332</b>	<b>352,692,448</b>
Interest income	236,292	37,430	86	4,208	2,064	(4,674,735)	(4,394,655)
Gain on bargain purchases	-	621,559	-	183,947	-	-	805,506
Unallocated revenue	-	-	-	-	-	6,761,484	6,761,484
<b>Total revenue</b>	<b>236,594,736</b>	<b>98,549,452</b>	<b>9,099,578</b>	<b>29,992,410</b>	<b>10,405,593</b>	<b>(28,776,986)</b>	<b>355,864,783</b>
Cost of sale of goods	200,837,763	84,812,493	5,976,847	26,639,378	7,489,148	(30,701,021)	295,054,608
Distribution costs and administrative expenses	17,463,191	7,415,550	804,707	2,655,839	725,024	(2,462,421)	26,601,890



	Consolidated financial statements					Eliminations and unallocated	Total
	Integrated PET	Fibers	Olefins	Specialty Chemicals <i>(in thousand Baht)</i>	Packaging		
<i>For the year ended 31 December 2019</i>							
Provision for doubtful debts expenses	27,966	32,244	-	31,344	12	-	91,566
Loss on impairment and written-off of property, plant and equipment	1,167	393,733	8,971	373	-	-	404,244
Net foreign exchange (gain) loss	(80,777)	73,683	(343)	(5,248)	1,096	694,422	682,833
Depreciation and amortisation	7,789,975	5,367,957	1,663,230	1,542,274	639,057	-	17,002,493
Unallocated expenses	-	-	-	-	-	4,519,628	4,519,628
<b>Total expenses</b>	<b>226,039,285</b>	<b>98,095,660</b>	<b>8,453,412</b>	<b>30,863,960</b>	<b>8,854,337</b>	<b>(27,949,392)</b>	<b>344,357,262</b>
Share of profit (losses) of joint ventures, net	(40,532)	74,288	-	(28,436)	-	-	5,320
<b>Profit before interest and income tax expenses</b>	<b>10,514,919</b>	<b>528,080</b>	<b>646,166</b>	<b>(899,986)</b>	<b>1,551,256</b>	<b>(827,594)</b>	<b>11,512,841</b>
Interest expense	3,661,512	2,313,833	353,571	483,203	326,814	(4,624,906)	2,514,027
<b>Profit before income tax expenses</b>	<b>6,853,407</b>	<b>(1,785,753)</b>	<b>292,595</b>	<b>(1,383,189)</b>	<b>1,224,442</b>	<b>3,797,312</b>	<b>8,998,814</b>
Tax expense (benefit)	1,228,428	308,458	(17,833)	(819,408)	210,823	-	910,468
Unallocated items	-	-	-	-	-	3,724,662	3,724,662
<b>Profit for the year</b>	<b>5,624,979</b>	<b>(2,094,211)</b>	<b>310,428</b>	<b>(563,781)</b>	<b>1,013,619</b>	<b>72,650</b>	<b>4,363,684</b>

For the year ended 31 December 2019	Consolidated financial statements					Eliminations and unallocated	Total
	Integrated PET	Fibers	Olefins	Specialty Chemicals (in thousand Baht)	Packaging		
Cash and cash equivalents	3,905,799	2,806,990	9,916	210,383	202,514	-	7,135,602
Inventories	32,680,472	18,468,548	1,224,339	8,896,264	1,013,962	(118,671)	62,164,914
Property, plant and equipment	103,701,317	58,039,754	32,866,418	11,976,750	4,889,344	-	211,473,583
Unallocated assets	-	-	-	-	-	99,793,808	99,793,808
<b>Total assets</b>	<b>140,287,588</b>	<b>79,315,292</b>	<b>34,100,673</b>	<b>21,083,397</b>	<b>6,105,820</b>	<b>99,675,137</b>	<b>380,567,907</b>
Interest-bearing liabilities	49,642,129	47,159,839	26,801,983	13,624,362	3,427,868	(98,782,446)	41,873,735
Unallocated liabilities	-	-	-	-	-	200,526,882	200,526,882
<b>Total liabilities</b>	<b>49,642,129</b>	<b>47,159,839</b>	<b>26,801,983</b>	<b>13,624,362</b>	<b>3,427,868</b>	<b>101,744,436</b>	<b>242,400,617</b>
Capital expenditure and investments	8,072,280	8,833,873	6,000,612	1,979,365	539,982	177,911	25,604,023
Depreciation	6,611,849	4,448,261	1,370,145	1,313,980	584,077	15,503	14,343,815
Amortisation	1,180,407	919,696	293,085	228,294	54,979	20,178	2,696,639
Loss (gain) on disposal and written-off of property, plant and equipment	24,034	9,005	8,971	(193,635)	(120)	-	(151,745)

### 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			
	Segment assets		Capital expenditure and investments	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Thailand	35,265,991	32,497,642	2,223,437	807,381
North America	156,758,459	162,368,710	12,562,759	42,558,869
Europe	99,281,294	99,430,314	7,530,991	8,985,303
Rest of the world	89,262,163	84,898,165	3,286,836	4,128,965
<b>Total</b>	<b>380,567,907</b>	<b>379,194,831</b>	<b>25,604,023</b>	<b>56,480,518</b>

### Promotional privileges

Certain subsidiaries incorporated in Thailand have been granted promotional certificates by the Office of the Board of Investment for manufacturing of worsted wool yarn, wool top, purified terephthalic acid, polyethylene terephthalate resin, PET preforms and closures and amorphous resin ("promoted operations"). The certain subsidiaries incorporated in Thailand have been granted several privileges including exemption and/or reduction from payment of income tax on the net profit derived from promoted operations with certain terms and conditions prescribed in the promotional certificates.

Consolidated financial statements						
<i>Year ended 31 December</i>	Promoted businesses	2019	Total	Promoted businesses	2018	Total
		Non-promoted businesses			Non-promoted businesses	
			<i>(in million Baht)</i>			
Export sales	6,799,931	23,525,747	30,325,678	12,524,581	31,278,468	43,803,049
Local sales	6,453,468	33,424,808	39,878,276	6,550,537	40,647,679	47,198,216
Eliminations	(2,913,622)	(2,450,127)	(5,363,749)	(7,701,981)	(3,147,227)	(10,849,208)
<b>Total</b>	<b>10,339,777</b>	<b>54,500,428</b>	<b>64,840,205</b>	<b>11,373,137</b>	<b>68,778,920</b>	<b>80,152,057</b>

### Contract Balances

The following table provides information about receivables and contract liabilities from contracts with customers.

		Consolidated financial statements		Separate financial statements	
	Note	2019	2018	2019	2018
		(in million Baht)			
Trade accounts receivable	8	34,305	37,637	-	-
Contract liabilities					
- Current	21	563	450	-	-

The contract liabilities primarily relate to the advance consideration received from customers for sales of goods. The Group recognises such contract liabilities as revenue when transferring control of the goods to the customers.

Significant changes in the contract liabilities during the year are as follows:

		Consolidated financial statements	Separate financial statement
	Note	(in million Baht)	
At 1 January 2019		450	-
Recognised as revenue during the year		(4,062)	-
Advance received during the year		3,996	-
Advance received from customer acquired from Business combination	4	228	-
Exchange rate translation		(49)	-
<b>At 31 December 2019</b>		<b>563</b>	<b>-</b>

## 26 Other income

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht)			
Insurance claim	203,999	868,963	-	-
Others	1,979,671	1,083,639	362,209	299,989
<b>Total</b>	<b>2,183,670</b>	<b>1,952,602</b>	<b>362,209</b>	<b>299,989</b>

Insurance claim in 2018 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.

## 27 Cost of sale of goods

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Changes in inventories of finished goods and work in progress	5,582,080	(9,175,976)	-	-
Raw materials and consumables used	223,685,103	229,633,903	-	-
Depreciation and amortisation	14,799,024	12,341,250	-	-
Personnel expense	22,122,329	18,949,633	-	-
Others	43,155,975	37,483,177	-	-
<b>Total</b>	<b>309,344,511</b>	<b>289,231,987</b>	<b>-</b>	<b>-</b>

## 28 Distribution costs

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Distribution	15,913,624	14,046,818	-	-
Depreciation and amortisation	2,241,430	1,932,033	-	-
Insurance expense	734,842	606,537	-	-
Travelling expense	497,361	384,580	-	-
Others	1,828,914	1,479,430	-	-
<b>Total</b>	<b>21,216,171</b>	<b>18,449,398</b>	<b>-</b>	<b>-</b>

## 29 Administrative expenses

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Personnel expense	4,280,161	3,538,713	-	-
Professional fees	1,999,346	1,741,973	347,680	548,697
Loss on impairment of investment in subsidiary	-	-	-	121,630
Others	6,418,043	4,839,051	65,192	91,047
<b>Total</b>	<b>12,697,550</b>	<b>10,119,737</b>	<b>412,872</b>	<b>761,374</b>

### 30 Employee benefit expenses

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht)			
<b>Management</b>				
Wages and salaries	165,407	96,036	-	-
Contribution to defined contribution plans, social security and expenses related to defined benefit plans	4,130	2,928	-	-
Others	137,551	91,855	30,520	30,420
	<b>307,088</b>	<b>190,819</b>	<b>30,520</b>	<b>30,420</b>
<b>Other employees</b>				
Wages and salaries	19,396,332	16,576,236	-	-
Contribution to defined contribution plans, social security and expenses related to defined benefit plans	2,589,325	2,074,801	-	-
Bonus	1,422,223	1,155,248	-	-
Staff welfare	2,952,425	2,631,495	-	-
Others	42,185	50,566	-	-
	<b>26,402,490</b>	<b>22,488,346</b>	<b>-</b>	<b>-</b>
<b>Total employee benefit expenses</b>	<b>26,709,578</b>	<b>22,679,165</b>	<b>30,520</b>	<b>30,420</b>

#### **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 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 2019 amounted to Baht 35.8 million (2018: Baht 30.2 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 2019 amounted to Baht 18.8 million. (2018: Baht 15.0 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 2019 amounted to approximately USD 3.5 million (Baht 108.8 million) (2018: USD 2.9 million (Baht 95.0 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 2019 was GBP 0.1 million and EUR 3.7 million (Baht 134.0 million) (2018: GBP 0.1 million and EUR 4.2 million (Baht 165.2 million)).

## 31 Expenses by nature

The statements of comprehensive income include an analysis of expenses by function. Expenses by nature disclosed in accordance with the requirements of various TFRS were as follows:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht)			
<b>Included in cost of sale of goods:</b>				
Changes in inventories of finished goods and work in progress	5,582,080	(9,175,976)	-	-
Raw materials and consumables used	223,685,103	229,633,903	-	-
Employee benefit expenses	22,122,329	18,949,633	-	-
Depreciation and amortisation	14,799,024	12,341,250	-	-
<b>Included in distribution costs and administrative expenses:</b>				
Employee benefit expenses	4,280,161	3,538,713	-	-
Depreciation and amortisation	2,241,430	1,932,033	-	-

## 32 Finance costs

		Consolidated financial statements		Separate financial statements	
	Note	2019	2018	2019	2018
		(in thousand Baht)			
Interest expense:					
Financial institutions		7,149,025	5,322,804	2,286,686	2,272,638
<b>Total interest expense</b>		<b>7,149,025</b>	<b>5,322,804</b>	<b>2,286,686</b>	<b>2,272,638</b>
Less: amount included in the cost of assets under construction	14	(1,533,896)	(1,095,420)	-	-
<b>Net</b>		<b>5,615,129</b>	<b>4,227,384</b>	<b>2,286,686</b>	<b>2,272,638</b>

### 33 Tax expense (benefit)

<i>Income tax recognised in profit or loss</i>	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
<b>Current tax expense</b>				
Current year	859	4,171	-	-
Adjustment for under/(over) provided in prior years	13	(12)	-	-
	<b>872</b>	<b>4,159</b>	<b>-</b>	<b>-</b>
<b>Deferred tax expense</b>				
Movements in temporary differences	662	(347)	(25)	23
	<b>662</b>	<b>(347)</b>	<b>(25)</b>	<b>23</b>
<b>Total income tax expense</b>	<b>1,534</b>	<b>3,812</b>	<b>(25)</b>	<b>23</b>

<b>Consolidated financial statements</b>						
<i>Income tax</i>	2019			2018		
	Before tax	Tax (expense) benefit	Net of tax	Before tax	Tax (expense) benefit	Net of tax
	<i>(in million Baht)</i>					
<b>Recognised in other comprehensive income</b>						
Hedge of net investment in foreign operations	207	(41)	166	137	(27)	110
Cash flow hedges	853	21	874	(502)	21	(481)
Defined benefit plan actuarial gains	(895)	133	(762)	17	(10)	7
<b>Total</b>	<b>165</b>	<b>113</b>	<b>278</b>	<b>(348)</b>	<b>(16)</b>	<b>(364)</b>

<b>Separate financial statements</b>						
<i>Income tax</i>	2019			2018		
	Before tax	Tax (expense) benefit	Net of tax	Before tax	Tax (expense) benefit	Net of tax
	<i>(in million Baht)</i>					
<b>Recognised in other comprehensive income</b>						
Hedge of net investment in foreign operations	207	(41)	166	137	(28)	109
Cash flow hedges	(84)	17	(67)	12	(2)	10
<b>Total</b>	<b>123</b>	<b>(24)</b>	<b>99</b>	<b>149</b>	<b>(30)</b>	<b>119</b>

<b>Reconciliation of effective tax rate</b>	<b>Consolidated financial statements</b>			
	2019		2018	
	Rate (%)	(in million Baht)	Rate (%)	(in million Baht)
Profit before income tax expense		5,898		30,150
Income tax using the Thai corporation tax rate	20.00	1,180	20.00	6,030
Income tax reduction - deferred - other countries		95		(52)
Effect of different tax rates in foreign jurisdictions		278		438
Income not subject to tax and tax privileges		(544)		(1,155)
Coupon payment on subordinated perpetual debentures recognised in equity		(215)		(210)
Expenses not deductible for tax purposes		417		320
Utilisation of previously unrecognised tax losses		(337)		(710)
Recognition of deferred tax assets from previously unrecognised tax losses		(382)		(90)
Current year losses for which no deferred tax asset was recognised		913		316
Under (over) provided in prior years		13		(12)
Written-off unrecoverable deferred tax assets from loss carry forward		360		34
Share of profit of joint ventures		(34)		(146)
Foreign exchange differences arising from transaction of intercompany loans considered as part of net investment in foreign operations		(846)		(199)
Gain on bargain purchases		(161)		(386)
Change in recognition of temporary difference		661		(416)
Others		136		50
<b>Total</b>	<b>26.01</b>	<b>1,534</b>	<b>12.64</b>	<b>3,812</b>

<b>Reconciliation of effective tax rate</b>	<b>Separate financial statements</b>			
	2019		2018	
	Rate (%)	(in million Baht)	Rate (%)	(in million Baht)
Profit before income tax expense		11,047		11,816
Income tax using the Thai corporation tax rate	20.00	2,209	20.00	2,363
Income not subject to tax		(2,021)		(2,160)
Coupon payment on subordinated perpetual debentures recognised in equity		(215)		(210)
Expenses not deductible for tax purposes		2		30
<b>Total</b>	<b>(0.23)</b>	<b>(25)</b>	<b>0.19</b>	<b>23</b>

<b>Deferred tax At 31 December</b>	<b>Consolidated financial statements</b>					
	<b>Assets</b>		<b>Liabilities</b>		<b>Net</b>	
	2019	2018	2019	2018	2019	2018
	<i>(in million Baht)</i>					
Property, plant and equipment	(2,241)	(2,213)	16,548	13,695	14,307	11,482
Intangible assets	(118)	(116)	5,512	5,090	5,394	4,974
Accounts receivable	(3)	(5)	-	-	(3)	(5)
Derivatives	-	-	306	270	306	270
Inventories	(204)	(331)	33	51	(171)	(280)
Provisions	(533)	(431)	348	251	(185)	(180)
Loss carry forward	(3,867)	(2,317)	-	-	(3,867)	(2,317)

<i>Deferred tax At 31 December</i>	Consolidated financial statements					
	Assets		Liabilities		Net	
	2019	2018	2019	2018	2019	2018
	<i>(in million Baht)</i>					
Others	(1,537)	(1,308)	444	438	(1,093)	(870)
Total	(8,503)	(6,721)	23,191	19,795	14,688	13,074
Set off of tax	6,181	4,007	(6,181)	(4,007)	-	-
<b>Net deferred tax (assets) liabilities</b>	<b>(2,322)</b>	<b>(2,714)</b>	<b>17,010</b>	<b>15,788</b>	<b>14,688</b>	<b>13,074</b>

<i>Deferred tax At 31 December</i>	Separate financial statements					
	Assets		Liabilities		Net	
	2019	2018	2019	2018	2019	2018
	<i>(in million Baht)</i>					
Derivatives	(14)	-	189	151	175	151
Provisions	(3)	(3)	-	-	(3)	(3)
Loss carry forward	(40)	(15)	-	-	(40)	(15)
Total	(57)	(18)	189	151	132	133
Set off of tax	57	18	(57)	(18)	-	-
<b>Net deferred tax liabilities</b>	<b>-</b>	<b>-</b>	<b>132</b>	<b>133</b>	<b>132</b>	<b>133</b>

Consolidated financial statements						
Deferred tax	At 1 January 2019	Charged / (credited to) :		Acquired through business combinations	Exchange differences	At 31 December 2019
		Profit or loss	Other comprehensive income			
		(in million Baht)				
Property, plant and equipment	11,482	1,030	-	2,833	(1,038)	14,307
Intangible assets	4,974	(328)	-	1,188	(440)	5,394
Accounts receivable	(5)	2	-	-	-	(3)
Derivatives	270	13	20	-	3	306
Inventories	(280)	106	-	-	3	(171)
Provisions	(180)	321	-	(344)	18	(185)
Loss carry forward	(2,317)	(362)	-	(1,512)	324	(3,867)
Others	(870)	(120)	(133)	(59)	89	(1,093)
Total	13,074	662	(113)	2,106	(1,041)	14,688

Consolidated financial statements						
Deferred tax	At 1 January 2018	Charged / (credited to) :		Acquired through business combinations	Exchange differences	At 31 December 2018
		Profit or	Other			
		loss	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)



## 34 Earnings per share

### *Basic earnings per share*

The calculations of basic earnings per share for the years ended 31 December 2019 and 2018 were based on the profit for the years attributable to 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:

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht / thousand shares)</i>			
<b><i>Profit attributable to ordinary shareholders for the year ended 31 December</i></b>				
Profit for the year attributable to owners of the parent	5,252,109	26,465,403	11,072,571	11,793,352
Less: coupon payment on subordinated perpetual debentures	<u>(977,576)</u>	<u>(1,050,000)</u>	<u>(982,603)</u>	<u>(1,050,000)</u>
<b>Profit attributable to ordinary shareholders of the Company (basic)</b>	<b><u>4,274,533</u></b>	<b><u>25,415,403</u></b>	<b><u>10,089,968</u></b>	<b><u>10,743,352</u></b>
<b>Weighted average number of ordinary shares outstanding (basic) at 31 December</b>	<b><u>5,614,552</u></b>	<b><u>5,511,507</u></b>	<b><u>5,614,552</u></b>	<b><u>5,511,507</u></b>
<b>Basic earnings per share (in Baht)</b>	<b><u>0.76</u></b>	<b><u>4.61</u></b>	<b><u>1.80</u></b>	<b><u>1.95</u></b>

## 35 Dividends

The shareholders of the Company have approved dividends as follows:

	Approval date	Payment schedule	Dividend rate per share (Baht)	Amount (in million Baht)
<b>2019</b>				
Interim dividend	12 November 2019	December 2019	<u>0.35</u>	<u>1,965</u>
Interim dividend	9 August 2019	September 2019	<u>0.35</u>	<u>1,965</u>
Interim dividend	8 May 2019	June 2019	<u>0.35</u>	<u>1,965</u>
<b>2018</b>				
Annual dividend	24 April 2019	May 2019	<u>0.35</u>	<u>1,965</u>
Interim dividend	19 November 2018	December 2018	<u>0.35</u>	<u>1,965</u>
Interim dividend	7 August 2018	September 2018	<u>0.70</u>	<u>3,909</u>
<b>2017</b>				
Annual dividend	26 April 2018	May 2018	<u>0.55</u>	<u>3,051</u>



## 36 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 18). 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:

At 31 December	Effective interest rate (% per annum)	Consolidated financial statements			
		Maturity period			
		Within 1 year	After 1 year but within 5 years (in thousand Baht)	After 5 years	Total
<b>2019</b>					
<b>Current</b>					
Short-term loans to related parties	1.32-9.63	170,994	-	-	170,994
<b>Non-current</b>					
Long-term loans to related parties	5.76-6.35	-	28,269	-	28,269
<b>Total</b>		<b>170,994</b>	<b>28,269</b>	<b>-</b>	<b>199,263</b>
<b>2018</b>					
<b>Current</b>					
Short-term loans to related parties	1.32-9.70	168,639	-	-	168,639
<b>Non-current</b>					
Long-term loans to related parties	4.80-6.01	-	-	42,590	42,590
<b>Total</b>		<b>168,639</b>	<b>-</b>	<b>42,590</b>	<b>211,229</b>

At 31 December	Effective interest rate (% per annum)	Separate financial statements			
		Maturity period			Total
		Within 1 year	After 1 year but within 5 years (in thousand Baht)	After 5 years	
<b>2019</b>					
<b>Current</b>					
Short-term loans to related parties	3.20-4.81	15,292,538	-	-	15,292,538
<b>Non-current</b>					
Long-term loans to related parties	2.81-4.77	-	71,511,640	-	71,511,640
<b>Total</b>		<b>15,292,538</b>	<b>71,511,640</b>	<b>-</b>	<b>86,804,178</b>
<b>2018</b>					
<b>Current</b>					
Short-term loans to related parties	2.81-5.40	56,131,818	-	-	56,131,818
<b>Non-current</b>					
Long-term loans to related parties	2.59-5.40	-	31,588,856	-	31,588,856
<b>Total</b>		<b>56,131,818</b>	<b>31,588,856</b>	<b>-</b>	<b>87,720,674</b>

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:

At 31 December	Effective interest rate (% per annum)	Consolidated financial statements			
		Maturity period			Total
		Within 1 year	After 1 year but within 5 years (in thousand Baht)	After 5 years	
<b>2019</b>					
<b>Current</b>					
Bank overdrafts	0.03-18.00	4,174,610	-	-	4,174,610
Short-term loans from financial institutions	0.50-18.25	26,204,889	-	-	26,204,889
Long-term loans from financial institutions	1.00-17.00	6,033,458	-	-	6,033,458
Finance lease liabilities	1.50-20.00	130,023	-	-	130,023
Debentures	2.60-4.78	4,107,833	-	-	4,107,833
<b>Non-current</b>					
Long-term loans from financial institutions	1.00-17.00	-	37,348,593	5,202,580	42,551,173
Finance lease liabilities	1.50-20.00	-	515,878	173,354	689,232
Debentures	2.31-6.00	-	34,464,149	28,595,891	63,060,040
<b>Total</b>		<b>40,650,813</b>	<b>72,328,620</b>	<b>33,971,825</b>	<b>146,951,258</b>
<b>2018</b>					
<b>Current</b>					
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

Consolidated financial statements					
At 31 December	Effective interest rate (% per annum)	Maturity period			Total
		Within 1 year	After 1 year but within 5 years	After 5 years	
		(in thousand Baht)			
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

Separate financial statements					
At 31 December	Effective interest rate (% per annum)	Maturity period			Total
		Within 1 year	After 1 year but within 5 years	After 5 years	
		(in thousand Baht)			
2019					
Current					
Short-term loans from financial institutions	1.55-2.25	4,961,000	-	-	4,961,000
Debentures	2.60-4.78	3,388,148	-	-	3,388,148
Non-current					
Long-term loans from financial institutions	3.40-4.26	-	3,020,659	-	3,020,659
Debentures	2.31-6.00	-	21,293,677	24,134,730	45,428,407
Total		8,349,148	24,314,336	24,134,730	56,798,214
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

### ***Interest rate swap contract***

The Group/Company entered into interest rate swap agreements for long-term loans with various financial institutions to hedge the risk on the volatility of the interest rate.

### ***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.

<b><i>Assets and liabilities denominated in the foreign currencies as at 31 December</i></b>	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
<b><i>United States Dollars</i></b>				
Cash and cash equivalents	5,916,632	3,003,287	411	39
Other investments	4,721	5,080	-	-
Trade accounts receivable	18,030,991	20,136,051	-	-
Short-term loans to related parties	138,614	80,854	3,473,891	4,995,249
Long-term loans to related parties	28,269	42,590	-	8,203,731
Interest-bearing liabilities	(52,659,619)	(50,711,259)	(3,020,659)	(4,892,220)
Trade accounts payable	(24,729,515)	(28,829,530)	-	-
<b>Gross balance sheet exposure (a)</b>	<b><u>(53,269,907)</u></b>	<b><u>(56,272,927)</u></b>	<b><u>453,643</u></b>	<b><u>8,306,799</u></b>
<b><i>Euro</i></b>				
Cash and cash equivalents	1,579,951	895,668	13	15
Other investments	14,957	16,933	-	-
Trade accounts receivable	6,088,430	7,897,278	-	-
Short-term loans to related parties	20,957	22,615	-	7,794
Long-term loans to related parties	-	-	-	1,174,146
Interest-bearing liabilities	(18,259,164)	(14,205,920)	-	-
Trade accounts payable	(10,503,109)	(10,803,215)	-	-
<b>Gross balance sheet exposure (b)</b>	<b><u>(21,057,978)</u></b>	<b><u>(16,176,641)</u></b>	<b><u>13</u></b>	<b><u>1,181,955</u></b>

(a) As at 31 December 2019, net financial assets and liabilities denominated in USD of Baht 4,433.5 million (2018: 13,350.1 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 2019, net financial assets and liabilities denominated in Euro of Baht 11,455.1 million (2018: 14,031.9 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.

<i>Assets and liabilities denominated in the foreign currencies as at 31 December</i>	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
<b><i>Pounds Sterling</i></b>				
Cash and cash equivalents	56,272	27,217	-	-
Trade accounts receivable	353,222	394,649	-	-
Interest-bearing liabilities	(260,332)	(277,712)	-	-
Trade accounts payable	(128,578)	(131,663)	-	-
<b>Gross balance sheet exposure</b>	<b>20,584</b>	<b>12,491</b>	<b>-</b>	<b>-</b>
<b><i>Nigerian Naira</i></b>				
Cash and cash equivalents	417,692	338,260	-	-
Trade accounts receivable	218,705	333,146	-	-
Trade accounts payable	(105,858)	(35,803)	-	-
<b>Gross balance sheet exposure</b>	<b>530,539</b>	<b>635,603</b>	<b>-</b>	<b>-</b>
<b><i>Chinese Yuan</i></b>				
Cash and cash equivalents	439,086	333,882	-	-
Other investments	-	127,434	-	-
Trade accounts receivable	1,203,421	1,087,132	-	-
Interest-bearing liabilities	(493,986)	(1,752,282)	-	-
Trade accounts payable	(2,125,437)	(1,880,893)	-	-
<b>Gross balance sheet exposure</b>	<b>(976,916)</b>	<b>(2,084,727)</b>	<b>-</b>	<b>-</b>
<b><i>Mexican Peso</i></b>				
Cash and cash equivalents	84,491	11,011	-	-
Trade accounts receivable	455,837	639,952	-	-
Short-term loans to related parties	14,738	67,463	-	-
Trade accounts payable	(406,117)	(492,899)	-	-
<b>Gross balance sheet exposure</b>	<b>148,949</b>	<b>225,527</b>	<b>-</b>	<b>-</b>
<b><i>Polish Zloty</i></b>				
Cash and cash equivalents	42,566	14,989	-	-
Trade accounts receivable	69,116	65,106	-	-
Trade accounts payable	(117,739)	(218,696)	-	-
<b>Gross balance sheet exposure</b>	<b>(6,057)</b>	<b>(138,601)</b>	<b>-</b>	<b>-</b>
<b><i>Indonesian Rupiah</i></b>				
Cash and cash equivalents	56,262	144,374	-	-
Trade accounts receivable	891,467	1,346,490	-	-
Interest-bearing liabilities	(17,481)	(34,754)	-	-
Trade accounts payable	(1,243,114)	(2,198,729)	-	-
<b>Gross balance sheet exposure</b>	<b>(312,866)</b>	<b>(742,619)</b>	<b>-</b>	<b>-</b>
<b><i>Danish Krone</i></b>				
Cash and cash equivalents	136,436	239,503	-	-
Trade accounts receivable	426,251	279,823	-	-
Trade accounts payable	(397,000)	(472,965)	-	-
<b>Gross balance sheet exposure</b>	<b>165,687</b>	<b>46,361</b>	<b>-</b>	<b>-</b>

<i>Assets and liabilities denominated in the foreign currencies as at 31 December</i>	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
<b><i>Philippines Peso</i></b>				
Cash and cash equivalents	19,714	4,337	-	-
Trade accounts receivable	219,794	212,763	-	-
Interest-bearing liabilities	(821,836)	(1,148,183)	-	-
Trade accounts payable	(10,807)	(15,322)	-	-
<b>Gross balance sheet exposure</b>	<b>(593,135)</b>	<b>(946,405)</b>	<b>-</b>	<b>-</b>
<b><i>Turkish Lira</i></b>				
Cash and cash equivalents	43	154	-	-
Trade accounts receivable	265,151	201,233	-	-
Interest-bearing liabilities	(119,976)	(9,083)	-	-
Trade accounts payable	(7,037)	(5,494)	-	-
<b>Gross balance sheet exposure</b>	<b>138,181</b>	<b>186,810</b>	<b>-</b>	<b>-</b>
<b><i>Indian Rupee</i></b>				
Cash and cash equivalents	803,984	45,706	-	-
Other investments	11,332	-	-	-
Trade accounts receivable	1,116,811	27,647	-	-
Interest-bearing liabilities	(3,808,663)	-	-	-
Trade accounts payable	(2,641,515)	(4,965)	-	-
<b>Gross balance sheet exposure</b>	<b>(4,518,051)</b>	<b>68,388</b>	<b>-</b>	<b>-</b>
<b><i>Czech Koruna</i></b>				
Cash and cash equivalents	42,574	17,631	-	-
Trade accounts receivable	416	4,391	-	-
Interest-bearing liabilities	(6,694)	(58,730)	-	-
Trade accounts payable	(61,148)	(84,543)	-	-
<b>Gross balance sheet exposure</b>	<b>(24,852)</b>	<b>(121,251)</b>	<b>-</b>	<b>-</b>
<b><i>Egyptian pound</i></b>				
Cash and cash equivalents	4,168	10,410	-	-
Trade accounts receivable	378,917	328,990	-	-
Interest-bearing liabilities	(1,042,414)	(961,951)	-	-
Trade accounts payable	(52)	(18,950)	-	-
<b>Gross balance sheet exposure</b>	<b>(659,381)</b>	<b>(641,501)</b>	<b>-</b>	<b>-</b>
<b><i>Brazilian real</i></b>				
Cash and cash equivalents	366,035	112,992	-	-
Other investments	4,093	-	-	-
Trade accounts receivable	2,838,250	2,603,751	-	-
Interest-bearing liabilities	(37,408)	(670,018)	-	-
Trade accounts payable	(3,252,118)	(2,138,142)	-	-
<b>Gross balance sheet exposure</b>	<b>(81,148)</b>	<b>(91,417)</b>	<b>-</b>	<b>-</b>
<b><i>Israeli New Shekels</i></b>				
Cash and cash equivalents	40,798	136,971	-	-
Trade accounts receivable	77,315	32,450	-	-
Interest-bearing liabilities	(2,771,424)	(2,181,600)	-	-



<i>Assets and liabilities denominated in the foreign currencies as at 31 December</i>	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
<b><i>Israeli New Shekels</i></b>				
Trade accounts payable	(35,160)	(38,615)	-	-
<b>Gross balance sheet exposure</b>	<b>(2,688,471)</b>	<b>(2,050,794)</b>	<b>-</b>	<b>-</b>
<b><i>Russian ruble</i></b>				
Cash and cash equivalents	57,585	15,381	-	-
Trade accounts receivable	326,296	142,130	-	-
Trade accounts payable	(17,339)	(8,437)	-	-
<b>Gross balance sheet exposure</b>	<b>366,542</b>	<b>149,074</b>	<b>-</b>	<b>-</b>
<b><i>Saudi Arabian Riyal</i></b>				
Cash and cash equivalents	59	-	-	-
Trade accounts receivable	5,837	-	-	-
<b>Gross balance sheet exposure</b>	<b>5,896</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b><i>Arab Emirates Dirham</i></b>				
Trade accounts receivable	109,805	-	-	-
<b>Gross balance sheet exposure</b>	<b>109,805</b>	<b>-</b>	<b>-</b>	<b>-</b>

The net fair value position of currency swaps and forward exchange contracts at 31 December 2019 was Baht 9,329.0 million (net asset transactions) (2018: Baht 12,252.0 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.

	Carrying amount	Consolidated financial statements			
		Fair value			
		Level 1	Level 2	Level 3	Total

(in million Baht)

### 31 December 2019

#### *Financial assets and Financial liabilities measured at fair value*

Derivatives assets	3,973	-	3,973	-	3,973
Derivatives liabilities	253	-	253	-	253
Commodity hedge liabilities	-	-	122	-	122

### 31 December 2018

#### *Financial assets and Financial liabilities measured at fair value*

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

	Carrying amount	Separate financial statements			
		Fair value			
		Level 1	Level 2	Level 3	Total

(in million Baht)

### 31 December 2019

#### *Financial assets and Financial liabilities measured at fair value*

Derivatives assets	321	-	321	-	321
Derivatives liabilities	72	-	72	-	72

### 31 December 2018

#### *Financial assets measured at fair value*

Derivatives assets	228	-	228	-	228
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### 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.

### 37 Commitments with non-related parties

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in million Baht)			
<b>Capital commitments</b>				
<i>Contracted but not provided for:</i>				
Land and land improvements	97	110	-	-
Buildings and other construction	219	274	-	-
Machinery and equipment	1,814	1,890	-	-
<b>Total</b>	<b>2,130</b>	<b>2,274</b>	<b>-</b>	<b>-</b>
<b>Future minimum lease payments under non-cancellable operating leases</b>				
Within 1 year	1,129	989	-	-
1-5 years	2,823	2,394	-	-
After 5 years	2,747	2,111	-	-
<b>Total</b>	<b>6,699</b>	<b>5,494</b>	<b>-</b>	<b>-</b>
<b>Other commitments</b>				
Purchase orders and unused letters of credit for goods and supplies	13,062	15,549	-	-
Bank guarantees	5,643	2,502	4,121	512
Others	306	421	-	-
<b>Total</b>	<b>19,011</b>	<b>18,472</b>	<b>4,121</b>	<b>512</b>

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.

### 38 Events after the reporting period

IVL and/or Indorama Ventures Holdings LP, an indirect subsidiary, entered into an Equity and Asset Purchase Agreement on 7 August 2019 with Huntsman Corporation, USA, or its wholly owned subsidiary (ies) (whether directly or indirectly) (the Seller's Subsidiaries) to acquire certain integrated Oxides and Derivatives businesses/assets from Huntsman Corporation, USA, a listed entity on New York Stock Exchange and/or the Seller's Subsidiaries, located in: (i) Port Neches, TX, USA. ("Port Neches Facility"); (ii) Dayton, TX, USA ("Dayton Facility"); (iii) Alvin (Chocolate Bayou), TX, USA ("Chocolate Bayou Facility"); (iv) Botany, New South Wales, Australia ("Botany Facility"); and (v) Ankleshwar, India ("Ankleshwar Facility"), which manufacture the following key products: Ethylene Oxide (EO), Propylene Oxide (PO), Glycols, Ethanolamines (EOA), Surfactants, Linear Alkylbenzene (LAB), and Methyl Tertiary-butyl Ether (MTBE), including certain R&D Centers, patents and technology. The transaction has been completed on 3 January 2020.

On 26 February 2019, the board of directors proposed for the dividend payment of Baht 0.175 per share, amounting to Baht 982.5 million. This dividend payment is subject to the approval by the shareholders of the Company.

### 39 Thai Financial Reporting Standards (TFRS) not yet adopted

New and revised TFRS which relevant to the Group's/Company's operations are expected to have material impact on the consolidated and separate financial statements when initially adopted, and will become effective for the financial statements in annual reporting periods beginning on or after 1 January 2020, are as follows:

<b>TFRS</b>	<b>Topic</b>
TFRS 7*	Financial Instruments: Disclosures
TFRS 9*	Financial Instruments
TFRS 16	Leases
TAS 32*	Financial Instruments: Presentation
TFRIC 16*	Hedges of a Net Investment in a Foreign Operation
TFRIC 19*	Extinguishing Financial Liabilities with Equity Instruments

\* TFRS - Financial instruments standards

#### **(a) TFRS - Financial instruments standards**

These TFRS - Financial instruments standards establish requirements related to definition, recognition, measurement, impairment and derecognition of financial assets and financial liabilities, including accounting for derivatives and hedge accounting. When these TFRS are effective, some accounting standards, interpretations and guidance which are currently effective will be cancelled.

#### **(b) TFRS 16 Leases**

TFRS 16 introduces a single lessee accounting model for lessees. A lessee recognises a right-of-use asset and a lease liability, with recognition exemptions for short-term leases and leases of low-value items. Lease accounting for lessor remains similar to the current standard, i.e. lessors continue to classify leases as finance or operating leases. When this TFRS is effective, some accounting standards and interpretations which are currently effective will be cancelled.

Management is currently considering the potential impact from these TFRS on the financial statements in the initial period adopted.



# Indorama Ventures

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