



REIMAGINING CHEMISTRY TOGETHER  
**TO CREATE A BETTER  
WORLD**

# KEY ACHIEVEMENTS 2021

Member of

## Dow Jones Sustainability Indices

Powered by the S&P Global CSA

## Sustainability Yearbook

Member 2022

### S&P Global

- Indorama Ventures was **recognized as a member in the S&P Global Sustainability Yearbook 2022** and was listed in the Dow Jones Sustainability Indices (DJSI)-**World and Emerging Markets for the third and fifth consecutive year respectively in the Chemicals sector.**
- **IVL was ranked in the 97<sup>th</sup> percentile** among the top 139 global chemical companies.



- Indorama Ventures **achieved a B Rating** in the CDP's Climate Change Assessment in 2021.



## FTSE4Good

- Indorama Ventures **remained a constituent of the FTSE4Good Index Series**
- IVL achieving an ESG score of **4.1 out of 5 ranked in the 95<sup>th</sup> percentile.**



- In 2021, Indorama Ventures **achieved the Platinum Recognition Level at score 75.**
- **IVL recognized as the top 1% of companies (99<sup>th</sup> percentile)** rated by EcoVadis in the **manufacture of basic chemicals.**



- Indorama Ventures received the **2021 Thailand Sustainability Investment (THSI) Award for the seventh consecutive year.**



- IVL also received the **Best Sustainability Award at the SET Awards 2021.**



- **IVL was ranked #1** with a grade of B among the **world's top 50 global chemical companies.**



FOR MORE  
INFORMATION



- Indorama Ventures was graded **BBB** for the ESG rating in 2021.



- Indorama Ventures achieved an overall ESG at 7<sup>th</sup> out of 228 companies. The company is at medium risk of experiencing material financial impacts from ESG factors. Furthermore, the company has not experienced any significant controversies.



- Indorama Ventures was awarded “**Best Sustainability-Linked Transaction & Best ESG-Linked Financing Deal of the Year**” for its THB 10 billion Sustainability-Linked Bond (SLB).

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# IVL BUSINESS AT A GLANCE



## IVL OPERATIONS

as of 31<sup>st</sup> December 2021



\* The Sustainability Report 2021 consists of data from 112 sites. Further details are provided under 'About This Report' in the full Sustainability Report 2021.

### BUSINESS SEGMENTS



#### COMBINED PET

#1 PET globally  
Recycling leadership

The only integrated player in Europe and fully integrated in North America  
Packaging leadership in emerging markets  
Global leader in PIA



#### FIBERS

#1 Staple fiber in ASEAN  
#2 in Bicomponent fiber  
#2 in Automotive safety & tire



#### INTEGRATED OXIDES AND DERIVATIVES (IOD)

#1 Non-ionic surfactants in Americas  
#1 EO in Americas  
#1 Americas' fabric & home care ingredients provider  
#2 Ethoxylation company globally

### North America

- Canada
- Mexico
- The United States

### Europe

- Austria
- Bulgaria
- Czech Republic
- Denmark
- France
- Germany
- Ireland
- Italy
- Lithuania
- Luxembourg
- Poland
- Portugal
- Russia
- Slovakia
- Spain
- The Netherlands
- Turkey
- United Kingdom

### Asia

- China
- India
- Indonesia
- Israel
- Myanmar
- Philippines
- Thailand



### South America

- Brazil

### Africa

- Egypt
- Ghana
- Nigeria

### Oceania

- Australia

# VISION 2030



# GROUP CEO MESSAGE



FOR FULL MESSAGE

**“CLIMATE CHANGE THREATENS OUR ECOSYSTEMS AND OUR ECONOMIES, THE SOLUTION IS DECARBONIZATION. RECOGNIZING THE URGENCY TO ACT, INDORAMA VENTURES IS STEPPING UP INVESTING IN OUR PEOPLE AND TECHNOLOGY TO DELIVER ON OUR PURPOSE.”**

**ALOKE LOHIA**

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

# CHIEF EXECUTIVE OFFICER MESSAGE



**“AS OUR CHEMISTRY TOUCHES EVERYDAY LIFE, WE ARE CONFIDENT IN OUR CAPACITY TO CREATE DECENT PERFORMANCE WITH ADEQUATE FLEXIBILITY TO DELIVER ON OUR SUSTAINABILITY AMBITION AS WE PREPARE FOR THE NEW WORLD OF CIRCULARITY.”**

**DILIP KUMAR AGARWAL**

Chief Executive Officer and Chief Financial Officer  
Member of the Sustainability and Risk Management Committee

# CHIEF STRATEGY OFFICER MESSAGE



FOR FULL MESSAGE

**“WE REALIZED THE NEEDS TO UNLOCK CROSS-FUNCTIONAL INTERDEPENDENCIES IN ORDER TO ACHIEVE OUR FULL POTENTIAL AS ‘ONE IVL’ AND BECOMING A SUSTAINABLE COMPANY IN THE NEW NORMAL ECOSYSTEM.”**

**UDEY PAUL SINGH GILL**

Chief Strategy Officer

Member of the Sustainability and Risk Management Committee

# CHAIRMAN OF ESG COUNCIL MESSAGE



**“THE CIRCULAR ECONOMY IS AN INDUSTRIAL EVOLUTION, SUPPORTED BY OUR PRODUCTS AND BUSINESS OPERATIONS WHICH ARE ALSO MEETING CONSUMERS’ EXPECTATIONS THROUGH A ‘MAKE-USE-RECYCLE’ MODEL.”**

A stylized, handwritten signature in black ink, representing Yash Lohia.

**YASH LOHIA**

Chairman of ESG Council

Member of the Sustainability and Risk Management Committee

# 2021 SUSTAINABILITY HIGHLIGHTS



## ENVIRONMENTAL



Total energy consumption  
**109.5** million GJ

+5%

Total energy intensity  
**6.63** GJ/ton of production

-1%

Total renewable energy consumption  
**2.8** million GJ

+59%

Total renewable electricity consumption  
**7.5%**

+4.58%



GHG emissions (scope 1) intensity  
**0.439** tCO<sub>2</sub>e / ton of production

-3%

GHG emissions (scope 2) intensity  
**0.150** tCO<sub>2</sub>e / ton of production

-3%

GHG emissions (scope 1&2) intensity  
**0.589** tCO<sub>2</sub>e / ton of production

-3%



Total water withdrawal intensity  
**5.33** m<sup>3</sup>/ton of production

+0.4%

Total recycled/reused water  
**5.93%**

-0.62%



Hazardous waste intensity  
**0.0085** tons/ton of production

+16%

Waste diverted from landfill  
**78%**

+8%



## RECYCLING



Recycling of post-consumer PET bale input

+43%

**317,064** tons

**1,591,292** tons  
(Since 2011 - Dec 2021)

**CELEBRATE WITH US**  
Since 2011, we have achieved

**75 billion** PET bottles  
RECYCLED ON  
24 MARCH 2022  
AND COUNTING



Recycled

+43%

**14.3 billion** PET bottles

**72 billion** PET bottles  
(Since 2011 - Dec 2021)

with a total reduced  
**GHG emission of  
2.50 million tons**



Reduced carbon footprint in their life cycle

+43%

**0.5 million** tons

**2.4 million** tons  
(Since 2011 - Dec 2021)





## SOCIAL

### HUMAN RESOURCES

Total Workforce

**25,760**

+2.19%

Gender Diversity

**22%**

Employee Engagement

**76.20%** (NPS)

Average training

**29.92** hours

+61%

Overall Employee Attrition

**11.42%**

+35%

### OCCUPATIONAL HEALTH AND SAFETY

Total recordable injury rate: TRIR

**0.98** cases

per 200,000 man-hours

+11%

Lost time injury frequency rate: LTIFR

**0.66** cases

per 200,000 man-hours

+38%

### CORPORATE SOCIAL RESPONSIBILITY

Total CSR contribution

US\$ **1.65** million

+51%

Total in-kind giving

US\$ **200,981**

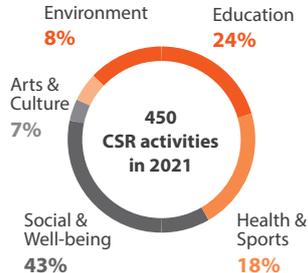
-20%

**9,493**

Volunteer hours

Recycling education

**2,751** people trained



FOR MORE INFORMATION



## ECONOMIC & GOVERNANCE

### FINANCIAL HIGHLIGHTS

Total Sales Volume

**14.8** million tons

+5%

Total Revenues

US\$ **14,629** million

+38%

Core EBITDA

US\$ **1,743** million

+55%

Core Net Profit after Tax and NCI

US\$ **684** million

+234%

Operating Cash Flow

US\$ **1,055** million

-24%

Core Earnings per Share

THB **3.76**

+2.48 THB

**TRIS**  
Rating

AA-

### CORPORATE GOVERNANCE POLICY AWARENESS CAMPAIGN (CGPAC) IMPLEMENTATION REPORT 2021

**87%** Employee attendance

### HUMAN RIGHTS DECLARATION

**90%** signed by Business Heads

**92%** signed by Site Heads

### INNOVATION VITALITY INDEX



Fibers Business



Combined PET Business



IOD Business

**23%**

**31%**

**22%**

### CUSTOMER SATISFACTION STUDY\*

**86.16%**  
Customer Satisfaction Index

**92%**  
Customer Retention Rate (CRR)

**57**  
Net Promoter Score (NPS)

\* A formal customer satisfaction study was conducted every other year as part of our group sustainability strategy. This study was conducted in 2020.

# CONTRIBUTIONS TO SDGs

The SDGs are an important way to become a sustainable society by improving people's quality of life and solving global, social and environmental concerns. We have contributed significantly to achieving the SDGs, which also serves as a source of sustainable growth. IVL has become the first company in Thailand to publish a report lined to the UN's Sustainable Development Goals (SDGs) in 2020. Please find our new edition SDGs Report 2021 for more detail.



FOR MORE INFORMATION

## OUR CONTRIBUTIONS TO THE SDGs



SDGs Report 2021



FOR MORE INFORMATION

## TARGETS

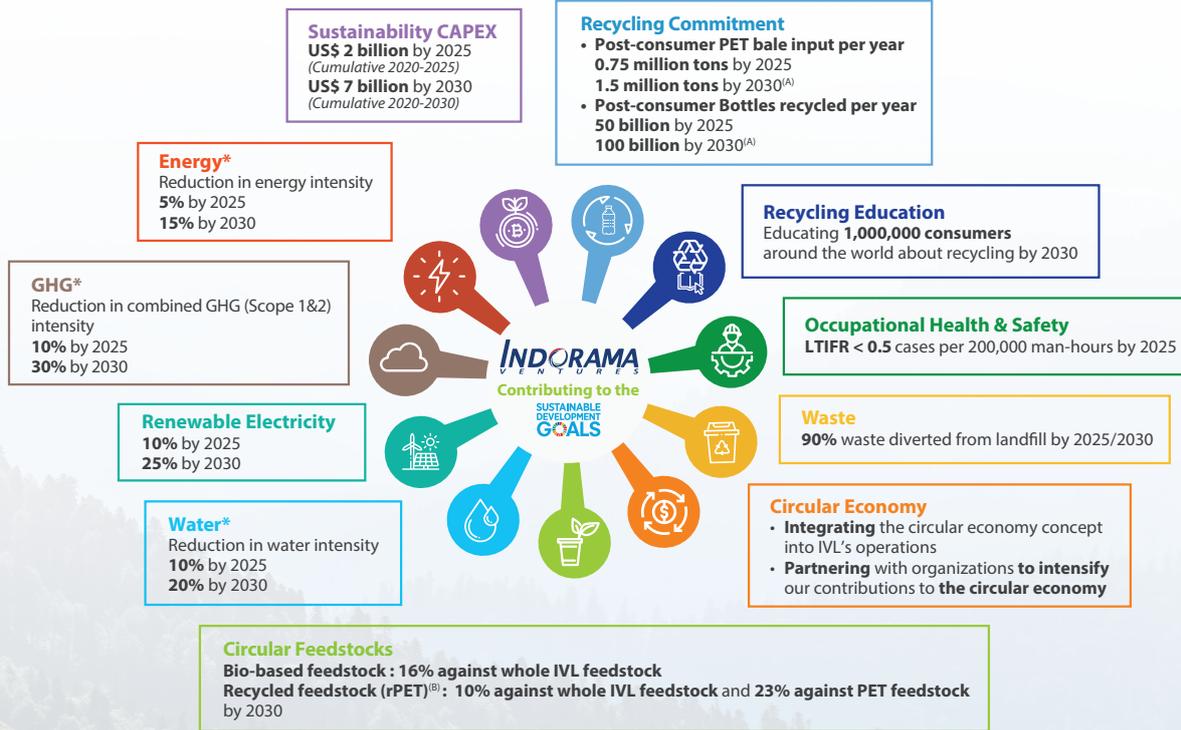


# OUR SUSTAINABILITY AMBITIONS TOWARDS NET ZERO CARBON



FOR MORE INFORMATION

## FOCUSING ON SHORT AND MEDIUM-TERM TARGETS



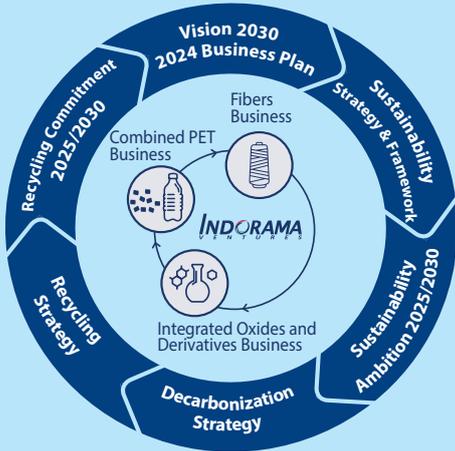
Remark: IVL Vision 2030 recycling ambition,

(A) 3.13 million tons and 200 billion bottles per year

(B) 21% against whole IVL feedstock and 48% against PET feedstock

\* Base year 2020

# OUR APPROACH TO VALUE CREATION

INPUT	AVAILABILITY, QUALITY AND AFFORDABILITY	FOCUS
 <p><b>Financial Capital</b> US\$ 5,117 million in total equity US\$ 5,292 million in current assets</p>	<p>Operating in an environment with new acquisitions and upcoming plants to strengthen position as leading sustainable chemical company.</p>	<p><b>Our Vision</b> To be a world-class sustainable chemical company making great products for society.</p>
 <p><b>Manufactured Capital</b> 124 sites in 33 countries in 6 continents including 16 recycling facilities</p>	<p>Constantly on the lookout for new mergers and acquisitions to strengthen our supply chain. This highly integrated global footprint strategy ensures operations can weather unforeseen disruptions satisfactorily.</p>	<p><b>Our Mission</b> We commit to be a responsible industry leader leveraging on the excellence of our people, processes, and technologies to create values for our stakeholders.</p>
 <p><b>Natural Capital</b> Total material consumption = 15.97 million tons Energy consumption = 109.5 million GJ Water consumption = 88.1 million m<sup>3</sup> Renewable energy = 2.8 million GJ</p>	<p>Adopting more efficient and sustainable practices reduces capital needed to sustain business operations. Moving towards the Net Zero Carbon through our decarbonization strategies and responsible operation.</p>	<p><b>Purpose Statement</b> Reimagining Chemistry Together to Create A Better World</p>
 <p><b>Human Capital</b> A highly qualified, experienced and diverse board 25,760 total workforce US\$ 2,400,000 total training cost</p>	<p>To avoid a shortage of talent, we actively invest in developing necessary talent and skills for our employees to take on bigger responsibilities and become a future ready organization.</p>	 <p>The diagram is a circular flow chart. At the top is 'Vision 2030' and '2024 Business Plan'. The center features the 'INDORAMA' logo. Surrounding the center are four business units: 'Fibers Business', 'Combined PET Business', 'Integrated Oxides and Derivatives Business', and 'Recycling Business'. The outer ring of the diagram lists four strategic pillars: 'Sustainability Strategy &amp; Framework', 'Sustainability Ambition 2025/2030', 'Decarbonization Strategy', and 'Recycling Strategy'. A 'Recycling Commitment 2025/2030' is also indicated on the left side.</p>
 <p><b>Social and Relationship Capital</b> US\$ 1.65 million CSR contribution</p>	<p>Trust is important for a corporation to thrive; therefore, we readily invest in education programs that promote recycling, encourage safety &amp; wellness throughout our operations and ensure we always have a positive impact on people and the environment.</p>	
 <p><b>Intellectual Capital</b> US\$ 22.7 million in R&amp;D spending 214 R&amp;D employees 21 R&amp;D centers</p>	<p>We invest in developing new innovations to not only to remain a market leader but also develop new techniques and processes to reduce our impact on the environment and create new sustainable products.</p>	

As we enter our eleventh year of sustainability reporting, we adopted the International Integrated Reporting Council (IIRC)'s International Integrated Reporting <IR> Framework. By structuring our report based on this framework, we can demonstrate to our stakeholders how we are creating value through our short, medium and long-term strategies through six capital inputs.



OUTPUT	OUTCOME	IMPACT
<p><b>Total Production Volume</b> 14.72* million tons 16.51* million tons</p> <p><b>IOD Business</b> Production volume = 2.24* million tons Core EBITDA = US\$ 377 million</p> <p><b>Combined PET Business</b> Production volume = 10.73* million tons Core EBITDA = US\$ 1,103 million</p> <p><b>Fibers Business</b> Production volume = 1.75* million tons Core EBITDA = US\$ 268 million</p> <p>* Excluding inter-company sales * Including inter-company sales</p>	<p><b>Financial Capital</b> Total Revenue = US\$ 14.6 billion Core EBITDA = US\$ 1,743 million Core Earning per Share (EPS) = THB 3.76</p> <p><b>Manufactured Capital</b> 14.3 billion PET bottles recycled / 317,064 tons of PET bale input 222,205 tons of flake production 0.0234 tons / ton of production waste intensity 78% waste diverted from landfill</p> <p><b>Natural Capital</b> 1.5% reduction in total energy intensity 3% reduction in combined GHG (Scope 1&amp;2) intensity 5.93% water reused and recycled 143,175 tons GHG reduction from renewable energy consumption (Biogas, biomass, renewable electricity)</p> <p><b>Human Capital</b> 22% female / 29.92 average training hours / 11.42% overall attrition rate 0.98 cases per 200,000 man-hours in TRIR 0.66 cases per 200,000 man-hours in LTIFR</p> <p><b>Social and Relationship Capital</b> 86.16% overall Customer Satisfaction Index (CSI) 92% overall Customer Retention Rate (CRR) / NPS = 57 450 CSR activities / 2,751 people received recycling education</p> <p><b>Intellectual Capital</b> Vitality Index : 31% in Combined PET Business / 23% in Fibers Business / 22% in IOD Business 696 new products / 121 collaborative projects 74 Patents (applied and granted out of overall 958 patents) 65% of R&amp;D spend aligned with green products in Combined PET Business</p>	<p><b>Better Growth</b> Future-proofing our organization, leveraging on new ways of working</p> <p> </p> <p><b>Great Product for Society</b>      <b>Circular Economy</b></p> <p>Contributing to SDGs</p> <p></p> <p><b>Better Environment</b> Working together with partners to decarbonize our operations</p> <p> </p> <p><b>Net Zero Carbon</b>      <b>Recycling to End Plastic Waste</b></p> <p>Contributing to SDGs</p> <p></p> <p><b>Better Life</b> Reimagining our products for value, performance and environment</p> <p> </p> <p><b>Health &amp; Safety</b>      <b>Well-being &amp; Empowerment</b></p> <p>Contributing to SDGs</p> <p></p>

# SUSTAINABLE FINANCE



“The sustainable finance that we raised strengthens our financial profile and will help us grow our business in line with our strategic plan. Contributing to the issuance was the confidence of investors in our growth prospects. This will also position IVL as a world-class sustainable chemical company supplying valuable products for the manufacture of a range of consumer and industrial products. I express my heartfelt thanks to investors for placing their trust in IVL.”

**Mr. Sanjay Ahuja**  
Group CFO\*



\* Mr. Sanjay Ahuja is serving as Interim Executive President Combined PET since March 2022.



## Total US\$ 1.3 billion in Sustainable Finance

Year	Loan/Bond Description	Amount
2018	Green loan arranged by Mizuho	US\$ 200m EUR 200m
2019	Ninja loan arranged by a syndicated ESG loan	US\$ 255m
2020	Blue loan for recycling arranged by the IFC, ADB and DEG	US\$ 300m
2021	Sustainability-linked Bond arranged by BBL, KBank, KTB, SCB, and HSBC	US\$ 300m

Indorama Ventures issued THB 10 billion in Sustainability-Linked Bonds (SLBs) in 2021 to drive sustainable production and support its actions on climate change.

The largest issuance of SLBs in Thailand is part of our financing strategy across a range of instruments and will be measured by our performance in achieving sustainability targets while showcasing our long-standing commitment to sustainable growth.

Indorama Ventures issued THB **10** billion  
**Sustainability-Linked Bond**  
with three Sustainability Performance Targets

- Reducing GHG emissions intensity**  
by 10% by 2025 (from a 2020 base)
- Increasing recycling of PET bale input**  
to 750,000 tons per year by 2025
- Achieving 25% renewable electricity consumption**  
in 2030



**INDORAMA**

# DRIVING IVL'S BUSINESS GROWTH



To support our growth and achieve our sustainability ambitions, we developed six enabling functions which are steered by experienced professionals identified within the organization and recruited from the industry. These enabling functions will help us execute our strategic and operational plans in line with our vision and mission.

## Business Continuity

Value protection and creation through consistency, compliance and effective risk and BCM practices

## Communications

Strategic communications that promote our global business value

## Digital

Offering world-class digital capabilities that drive business value and create a competitive advantage

## Environment, Health and Safety

Supporting our prosperity by ensuring that people and our planet are safe

## Indorama Ventures Excellence (IVEX)

Overseeing Lean Six Sigma implementation throughout IVL to enhance our operational capacity and efficiency

## Sustainability

Driving the creation of ESG and circular value and becoming a world-class sustainable chemical company





# RESPONSIBLE BUSINESS AND EFFECTIVE GOVERNANCE



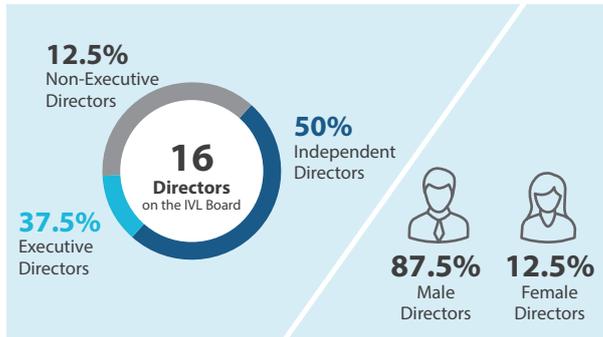
**Mr. Russell Leighton Kekuewa**  
Independent Director  
Member of the Sustainability and  
Risk Management Committee

***"We strive to do well by  
doing things the right way."***

# CORPORATE GOVERNANCE



Effective governance at IVL and its subsidiaries relies on a strong focus on integrity, business growth, and an experienced and high-caliber Board of Directors. Published in 2019, the Corporate Governance Manual (CG Manual) provides all directors, employees and stakeholders with a clear focus on how IVL's values are being implemented, how they are linked to the Company's long-term objectives and how corporate governance is being realized. The Company continuously monitors its progress and provides guidance and support to ensure strong awareness among all IVL associates.



**100%** Independent Directors on the NCCG Committee

Directors on the Nomination, Compensation and Corporate Governance (NCCG) Committee are **100% independent.**

IVL received an **"Excellent - 5 Star" CG score** by the Thai Institute of Directors (IOD) for the ninth consecutive year.

IVL successfully renewed its certification with Thailand's Private Sector **Coalition Against Corruption (CAC)** in April 2021, having been first certified in October 2014.

**2021 Highlights**

**Introduced the Declaration on Human Rights** to be signed by all Business Heads and Site Heads. **90%** signed by Business Heads. **92%** signed by Site Heads.

**Launched the Conflict of Interest Assistance Package** to support the implementation of the Conflict of Interest Policy at subsidiaries.

**No penalties** were imposed on IVL for material non-compliance with respect to corporate governance regulations.

# SUPPLY CHAIN MANAGEMENT



FOR MORE INFORMATION

Integrating sustainability into our supply chain is a core focus and we have robust mechanisms in place. Our suppliers must comply with IVL's Policies and ESG compliance, adhering to proper business ethics and environmental regulations, in addition to recognizing the importance of human rights. The coverage areas include ethics, human rights, EHS and mutual trust and respect.

## Sustainable Procurement Pathways



### Upgrade Key Supplier Tools and Digital Data Systems

- Revise the Code of Conduct, Supplier Self-assessment and GHG questionnaire.
- Enhance and explore digital supplier engagement tools.



### Capacity Building

- Provide training to global procurement teams.
- Productively engage with suppliers who may differ in decarbonization maturities.



### Supplier Engagement Program

- Engage and incentivize suppliers to reduce their carbon footprints.
- Align our procurement decisions based on program outcomes.

## 2021 Assessment Results

100%

100% of raw material suppliers and critical non-raw material suppliers were assessed based on human rights-related risks.



No key raw materials and critical non-raw materials suppliers were identified as human rights-related risks.



No key raw materials and critical non-raw materials suppliers were specified as being exposed to risks of incidents of child, forced and compulsory labor.



No complaints concerning human rights in supply chain were submitted through the grievance reporting system.



IVL obtained a **Platinum Medal** and placed in the **Top 1%** of best performing companies on sustainability in the supply chain.

## 2021 Highlights



Establish a **decarbonizing approach in the supply chain - prioritize Scope 3** by aligning procurement decisions to overall decarbonization efforts



Reinforce strong **ESG principles in procurement and complete supplier tools**

- Responsible sourcing policy
- Self-assessment
- GHG questionnaire



**1 workshop conducted**  
**2 workshops** by Q2/2022 for the global procurement team

# CUSTOMER RELATIONSHIP MANAGEMENT



Strong customer satisfaction is essential for a profitable and sustainable business. We conduct a formal customer satisfaction study every other year as part of our group sustainability strategy, designed to understand and assess customer needs, expectations and satisfaction with our products and services. We systematically seek feedback across all business interactions and at all levels from our customers. Our study comprises 22 focused areas incorporated within six overarching factors.

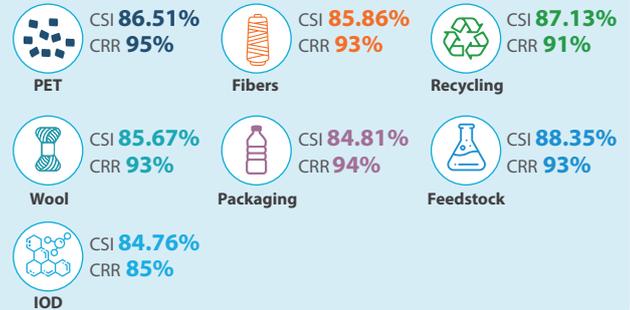


**2021-2022 Target :**  
CSI  $\geq$  86%

**Actual\* :**  
IVL overall



## Business Segments\*



\* A formal customer satisfaction study was conducted every other year as part of our group sustainability strategy. This study was conducted in 2020.

## 2021 Highlights



### Yokohama Supplier Excellence Awarded to Performance Fibers in China

With this recognition, Performance Fibers in China demonstrates IVL's high standards and beliefs, emphasizing our value that the customer is why we exist. We measure ourselves by our customers' success and aim to exceed their expectations through unparalleled innovation and attention.



### Glanzstoff Sicrem received the Pirelli Supplier Award for its outstanding service level in 2021.

As part of the Indorama Mobility Group, Glanzstoff Sicrem has continuously been a supplier of textile reinforcements, awarded in the "Service Level" category for having contributed to the production of the first Forest Stewardship Council certified tyre with FSC-certified Rayon.

# DRIVING SUSTAINABLE VALUE CREATION AND GROWTH



**Mr. Rathian Srimongkol**  
Independent Director  
Member of the Sustainability and  
Risk Management Committee

**“Sustainable and innovative solutions will be required in all of our product portfolios – and we are rising to this challenge.”**

# INNOVATION MANAGEMENT



We continuously improve our systems and processes to deliver solutions that meet the environmental needs of our customers while exceeding their expectations. Our product portfolio reflects our strategic support for the circular economy, focus on innovation and our vision of making great products for society.

## Vitality Index\*

\* Revenue generated from the sales of products developed during the last five years.



Combined PET Business

2021

Target **34%**

Actual **31%**

2022

Target **31%**



Fibers Business

2021

Target **23%**

Actual **23%**

2022

Target **23%**



IOD Business

2021

Target **18%**

Actual **22%**

2022

Target **22%**

## 2021 Highlights



**US\$ 22.7 million** in R&D spending



**214** R&D employees



**21** R&D centers



**121** collaborative projects



**696** new products introduced in 2021



**74** patents in 2021 (applied and granted) out of overall **958** patents



# PRODUCT STEWARDSHIP



Our commitment to strong product stewardship starts with our raw materials and can be seen through all the stages of our value chain. We invest in our product stewardship to minimize full life cycle environmental impacts of our products where possible through safer chemistry, improving the efficiency and eco-impact of our production systems, developing innovative product solutions and benchmarking our products.

Raw Materials	Product Development	Production	Distribution & Marketing	Product Use & End of Life
Regulatory Compliance (REACH, SVHC, SIN list, FDA, etc.)				
Management of Hazardous Chemicals and Substances				
Management and Provision of Safety Datasheets, Information and Communications				
Risk Assessment (Health, Safety & Environment) and Management				
Responsible procurement	Responsible production (sustainable eco-efficiency processes & emissions and waste management)		Safe transport of products	<ul style="list-style-type: none"> <li>Responsible consumption through collection &amp; recycling</li> <li>Product service &amp; solutions</li> </ul>
<ul style="list-style-type: none"> <li>Bio-based feedstocks</li> <li>Circular Feedstock</li> <li>Safer chemistry substitution</li> </ul>	<ul style="list-style-type: none"> <li>Resources (renewable energy and water)</li> <li>Lightweighting and Downgauging</li> </ul>		Transportation efficiency	<ul style="list-style-type: none"> <li>Design for recyclability</li> <li>Use phase impacts</li> <li>End of life management</li> <li>Biodegradability and composability</li> </ul>
Reduction in toxicity (from raw materials and from the production process)				

Remark:  Process Control and Management  Product Design

## 2021 Highlights



**100%** of European entities were compliant with REACH regulations



**100%** compliance with the ECHA SVHC list and in proactively removing products on the SIN list



**Zero** violations of domestic and international regulations



**Launched**  
Deja™ Carbon Neutral PET



**ChemScore: 1<sup>st</sup> rank among the world's top 50 chemical producers** ranking by ChemSec, based on the environmental impact and management of hazardous chemicals, setting the benchmark for a sustainable chemicals industry.

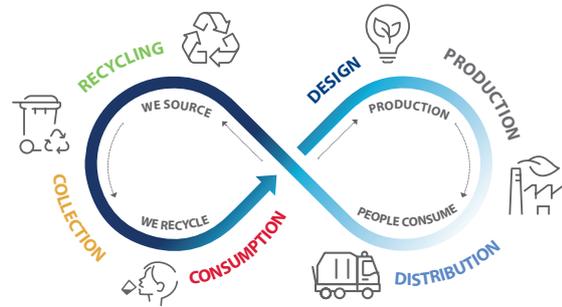
# CIRCULAR ECONOMY



A circular economy is needed for packaging so it never becomes waste or pollution. Packaging that cannot be eliminated or reused must be kept in circulation – in the economy and out of the environment. For this to happen, we need dedicated, ongoing and adequate funding for collection, sorting and recycling.

- 
**Building the infrastructure the world needs to provide a circular economy**
  - Waste collection and separation
  - PET recycling plants
- 
**Increasing use of circular feedstocks while reducing fossil-based feedstocks**
  - Bio-based feedstock
  - Recycled feedstock (rPET)
- 
**Collaborating with customers on demand for sustainable materials**
  - PET bottles and packaging
- 
**Circular product design and innovations**
  - Easy mask (with partners)
  - Circular Innovation Challenge
  - Deja™

## INDORAMA VENTURES CIRCULAR ECONOMY



### 2021 Highlights



**Extended Producer Responsibility**  
a necessary part of the solution to packaging waste and pollution

We are proud to endorse the Ellen MacArthur Foundation's call for the implementation of Extended Producer Responsibility (EPR) for packaging, together with more than 150 leading businesses and organizations.



**The Easy Mask**

- Constructed with our Deja™ performance yarn, which is 100% rPET;
- DyeCoo's CO<sub>2</sub> dyeing technology does not use any water;
- Stoll's seamless knitting technology lowers manufacturing waste to less than 1%.

The mask can be readily dismantled, allowing pieces to be changed and reused rather than discarded.



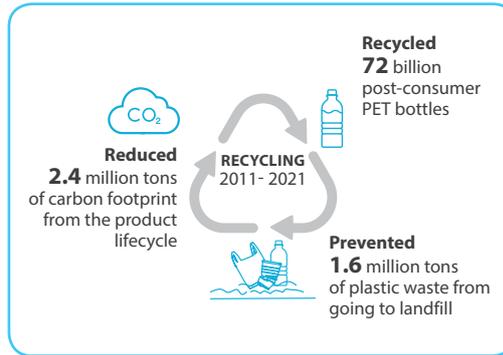
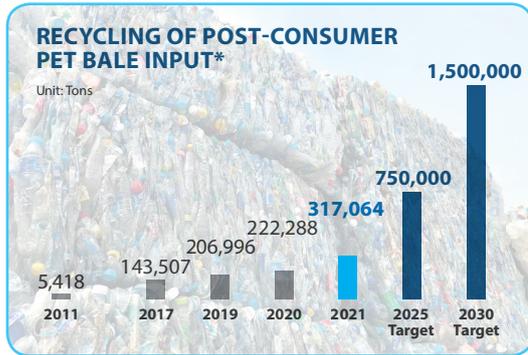
**The Circular Innovation Challenge program**, developed by international organizations in collaboration with IVL, is raising public awareness about the need to reduce waste in Thailand.

# DRIVING CIRCULARITY THROUGH RECYCLING



FOR MORE INFORMATION

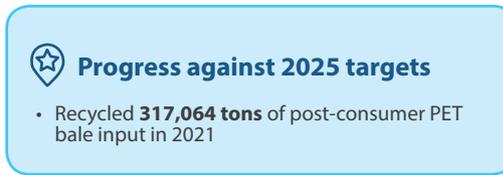
We have achieved further growth in mechanical recycling, enabling us to produce recycled products. We are also proud of our commitment to rPET, a material that is highly suited to the circular economy and which offers consumers an opportunity to contribute to a closed-loop system.



## 2021 Highlights

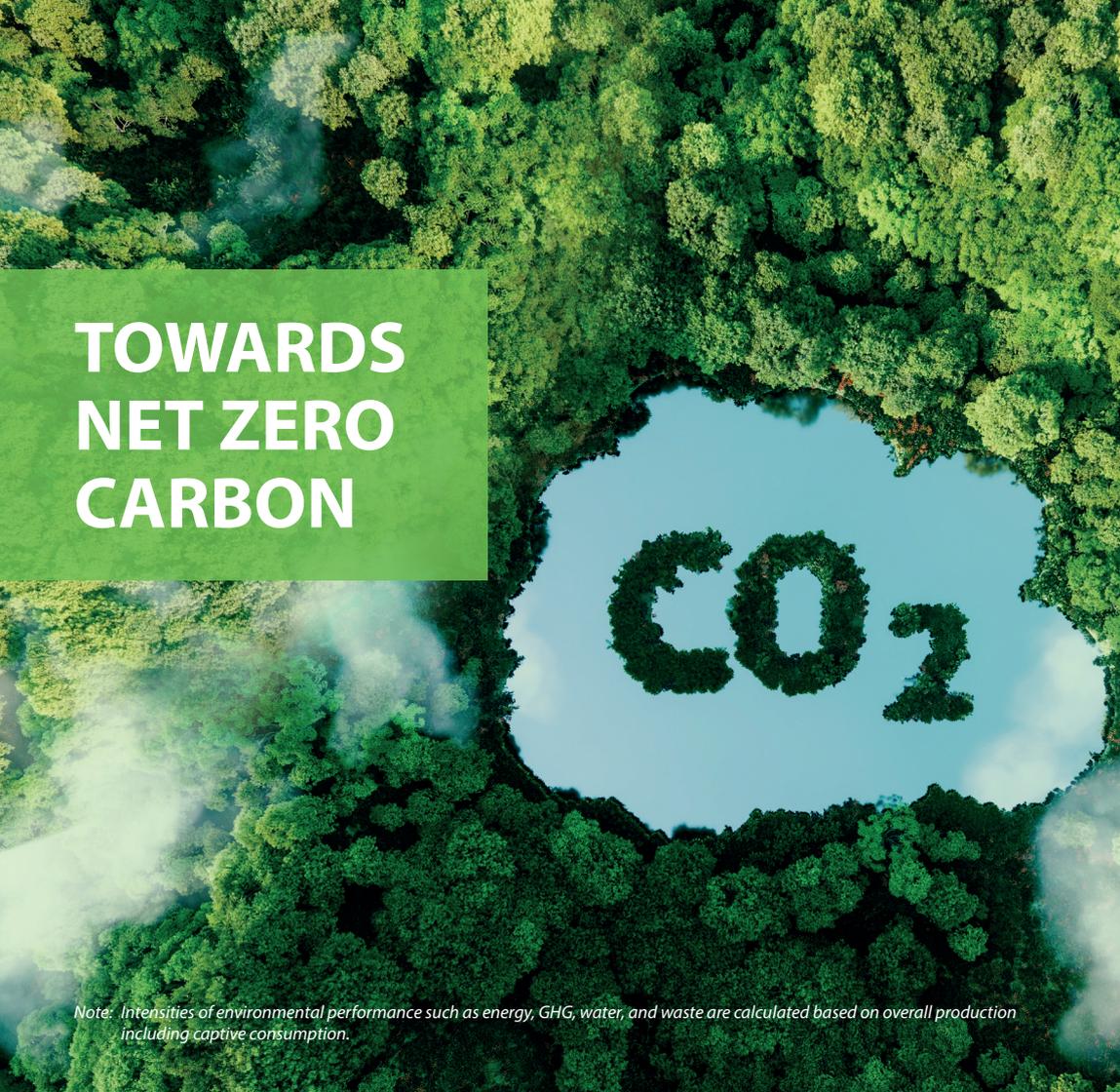
- Acquisition of **1 new** recycling facility in Dallas, Texas recycling more than 3 billion PET bottles/annum
- Commenced establishing a **greenfield recycling facility in Indonesia** to process more than 2 billion PET bottles by 2023

IVL is proud to be part of the New Plastics Economy Global Commitment, reporting from mid-year to mid-year. Led by the Ellen MacArthur Foundation, in collaboration with the UN Environment Programme, the third Global Commitment report notes our "significant progress" on recycling.



\* IVL Vision 2030 recycling ambition: 3.13 million tons and 200 billion bottles per year.

# TOWARDS NET ZERO CARBON



CO<sub>2</sub>

*Note: Intensities of environmental performance such as energy, GHG, water, and waste are calculated based on overall production including captive consumption.*



**Mr. Tevin Vongvanich**  
Independent Director  
Member of the Sustainability and  
Risk Management Committee

**“Our Decarbonization  
Strategies define what  
we stand for and our  
aggressive aims to deal  
with climate change.”**

# DECARBONIZATION & NET ZERO CARBON



FOR MORE INFORMATION

At “Thailand’s Climate Leadership Summit: A New Era of Accelerated Actions,” organized by Global Compact Network of Thailand (GCNT) and the United Nations in Thailand, IVL committed to taking action to decrease emissions towards Net Zero Carbon goal.

## Our Decarbonization Strategies



### Improving Operational Efficiency

Investing in operational and energy efficiency projects to reduce direct and indirect emissions



### Renewable Electricity

Decarbonizing IVL’s energy consumption by onsite and offsite renewable electricity projects



### Recycling

Investing in and expanding recycling facilities to address plastic pollution and reducing lifecycle carbon emissions



### Circular Feedstocks

Replacing fossil fuel-based feedstocks with bio-based and recycled feedstocks



### Future Technologies

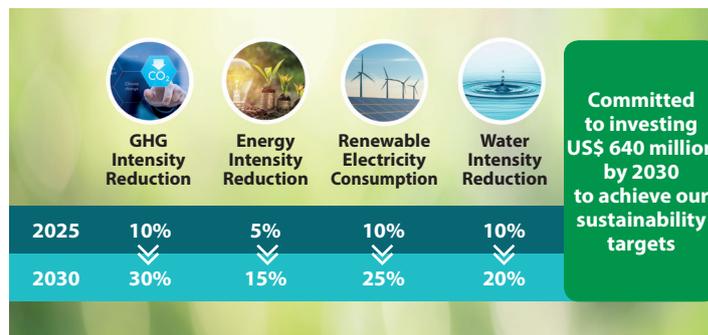
Exploring opportunities for carbon capture utilization and storage (CCUS), green hydrogen, bio/renewable feedstocks, and renewable natural gas (RNG)



### Natural Capital Solutions

Exploring partial/full ownership of carbon offsetting projects

## Accelerating Sustainability Targets

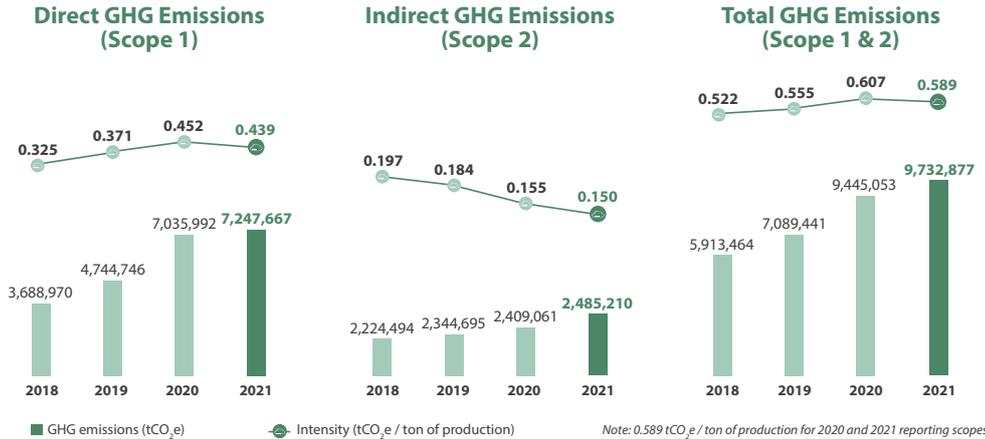


In 2021, **Decarbonization SOPs**, including the application of **Internal Carbon Pricing (ICP)**, have been developed and deployed to accelerate sustainability projects having impact on environment.

Carbon Pricing	Guidance
Sites under Active Emission Trading Scheme (ETS)	Use ETS price forecasts for Scope 1 emissions Use US\$ 20 ICP for Scope 2 emissions
Sites not (yet) under ETS	Use an internal carbon price of US\$ 20 per ton

# GHG MANAGEMENT

We are lowering GHG emissions across our value chain to achieve our 2025/2030 targets and have increased our commitment to do that in order to support the Paris Climate Agreement, in which many nations have agreed to cut GHG emissions and align with a 1.5 °C climate target.



## GHG Scope 3

Since 2020, GHG Scope 3 data collection coverage has been 100% for 5 categories.

- Purchased Goods and Services
- Fuel and Energy - related Activities
- Upstream and Downstream Transportation and Distribution
- Employee Commuting and Business Travel
- Waste Generated in Operations



\* Base year 2020

## 2025 Target

**10%** reduction in combined GHG (Scope 1&2) intensity\*

## 2030 Target

**30%** reduction in combined GHG (Scope 1&2) intensity\*

## 2021 Highlights

### Establishment of Decarbonization Committee

consisting of subject matter experts from each segment to oversee the decarbonization initiatives

### US\$ 28.5 million CAPEX investment in GHG Reduction Projects

**143,175 tons of GHG reduction** from renewable energy consumption (Biogas, biomass, renewable electricity)

**100%** GHG accounting, verification and assurance in accordance with ISO 14064-1 and ISO 14064-3

### Progress against 2025 targets

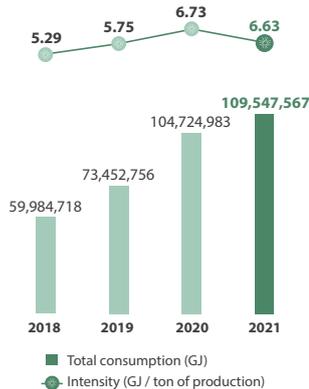
**3%** reduction in combined GHG (Scope 1&2) intensity

# ENERGY MANAGEMENT

Many green projects, such as using renewable energy and improving energy efficiency have been implemented in every country where we operate. These initiatives contribute significantly to our 2025/2030 goals of reducing energy consumption and GHG emissions.

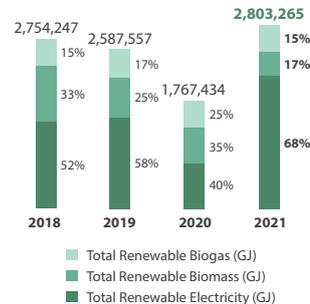


## Total Energy Consumption



Note: 6.64 GJ / ton of production for 2020 reporting scope and 6.63 GJ / ton of production for 2021 reporting scope

## Total Renewable Energy Consumption



## 2021 Highlights



\* Base year 2020

### 2025 Target

**5%** reduction in energy intensity\*

**10%** renewable electricity consumption

### 2030 Target

**15%** reduction in energy intensity\*

**25%** renewable electricity consumption

**67%**

ISO 50001:2011/  
ISO 50001:2018  
certification  
compared with 2020  
reporting scope

**6**

sites consume 100%  
renewable electricity

**11** contracts signed for  
**35** MWp solar rooftop

## Indorama Ventures in Indonesia signs an agreement to install solar panels

PT. Indorama PolyPet Indonesia, an Indorama Ventures company in Cilegon, has signed an agreement with PT. Pejuang Surya Nusantara to install rooftop solar panels with a capacity of 1.2 megawatts peak, which is expected to save carbon emissions of 1,100 tons CO<sub>2</sub> equivalent.



## Progress against 2025 targets

**1.5%** reduction in energy intensity

**7.5%** renewable electricity consumption



# WATER MANAGEMENT

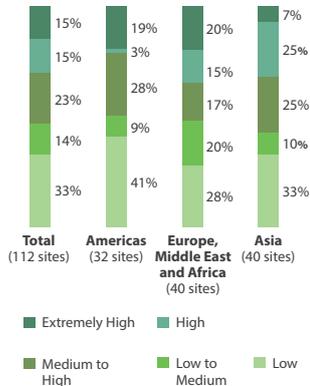


FOR MORE INFORMATION

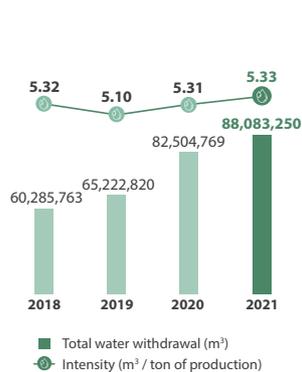
At IVL, we are committed to responsible water usage and sustainable water management in our operations, ensuring compliance with all necessary applicable legislation. We undertake water risk assessments, both the risks and opportunities, that we must manage across our operations on a yearly basis.

## 2021 Water Stress Assessment

(% of IVL's operations identified in water stress areas using the AQUEDUCT Water Risk Tool)

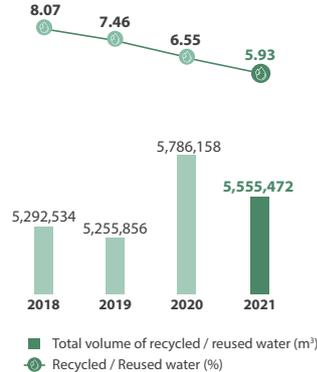


## Total Water Withdrawal



Note: 5.33 m<sup>3</sup> / ton of production for 2020 and 2021 reporting scopes

## Total Recycled / Reused Water



## 2021 Highlights



**US\$ 1.8 million CAPEX** investment in **Water Consumption Reduction Projects**



**5 sites** have zero wastewater discharge



We conduct a global water sensitivity study using WRI's AQUADUCT 3.0 Water Risk Tool and prepared a water stress analysis report including 5 categories- water stress, drought, riverine flood, coastal flood and seawater rise, to see its impact to our operations.



\* Base year 2020

### 2025 Target

**10%** reduction in water intensity\*

### 2030 Target

**20%** reduction in water intensity\*



**Progress against 2025 targets**

**0.48%** increase in water intensity

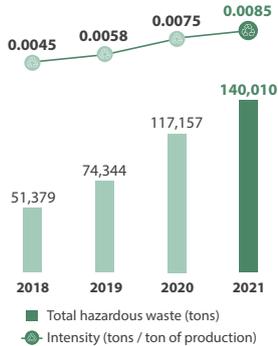
# WASTE MANAGEMENT



FOR MORE INFORMATION

Our focus approaches are waste minimization, reuse, recycle and recovery which are more sustainable than conventional landfill or dumpsite disposal. Furthermore, we conducted waste diversion to landfill in order to maximize waste utilization, limit new processed waste generation, and promote the circular economy.

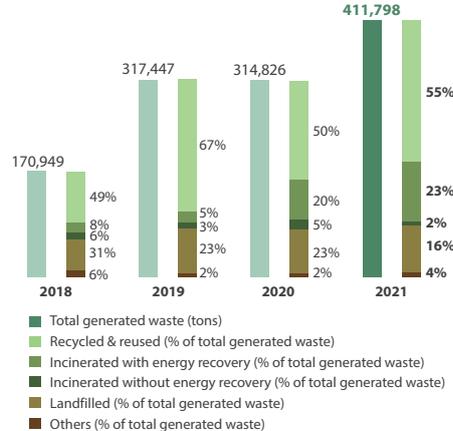
## Total Hazardous Waste



Note: 0.0085 tons/ton of production for 2020 and 2021 reporting scopes

## Total Waste

Generated, recycled & reused, incinerated (with and without energy recovery), landfilled, and others



## 2021 Highlights



Total waste intensity  
**0.0234** tons / ton of production



**55%** of total waste were recycled and reused



**23%** of total waste goes to incineration with energy recovery

**2025/2030 Target**



**90%\*** waste diverted from landfill



**Progress against 2025 targets**

**78%\*** waste diverted from landfill

\* including waste incinerated with energy recovery



**Indorama Polyester Industries PCL (Rayong), an IVL business in Thailand, received a certificate of Zero Waste to Landfill (ZWL-DIW:2021).**

The certificate was granted by the Deputy Permanent Secretary of Thailand's Ministry of Industry. Zero Waste to Landfill (ZWL) is part of ISO14001, which is related to environmental management. Applying the zero waste management standard will enable IVL to materialize our commitment to sustainability.



# EMPOWERING OUR PEOPLE AND COMMUNITIES



**Mr. Kanit Si**  
Independent Director  
Member of the Sustainability and  
Risk Management Committee

**“Our overriding priorities are employee safety and achieving ESG goals that reflect our support for education, well-being and the environment.”**

# CORPORATE SOCIAL RESPONSIBILITY



IVL's CSR activities are aligned with and support the shared value concept by facilitating and engaging the global community, leveraging strengths in collaboration, raising awareness and developing the value chain. In developing our CSR priorities, we create value in support of society, our environment, the economy, as well as the communities where we operate.

## CSR PERFORMANCE 2021\*

### SOCIAL CONTRIBUTIONS\*\*



Total in-kind Giving:  
**US\$200,981**

Total Management Overhead:  
**US\$46,392**

### CSR ACTIVITIES



Time Volunteered by Employees:  
**9,493 hours**

Estimated Employee Cost of Volunteering:  
**US\$210,969**

### RESULTS AND OUTCOMES



#### RECYCLING EDUCATION

- 2,751 people educated
- 28 schools, universities, and organizations participated
- Expanded to 3 countries in 2021: Poland, Indonesia, and Ghana



#### WELL-BEING

- Over 260 initiatives support the well-being and health of local communities.
- 18 initiatives support vulnerable groups and groups with disabilities.
- 10 sports initiatives to promote both mental and physical health for children.
- 28 initiatives provide basic needs to local communities.



#### ENVIRONMENT

- 24 organizations promoted environmental developments and recycling.
- 15 initiatives promoted biodiversity programs and environmental stewardship.
- 18.8 tons of post-consumer PET bottles collected.
- 28.95 tCO<sub>2</sub>e reduced by recycling PET.

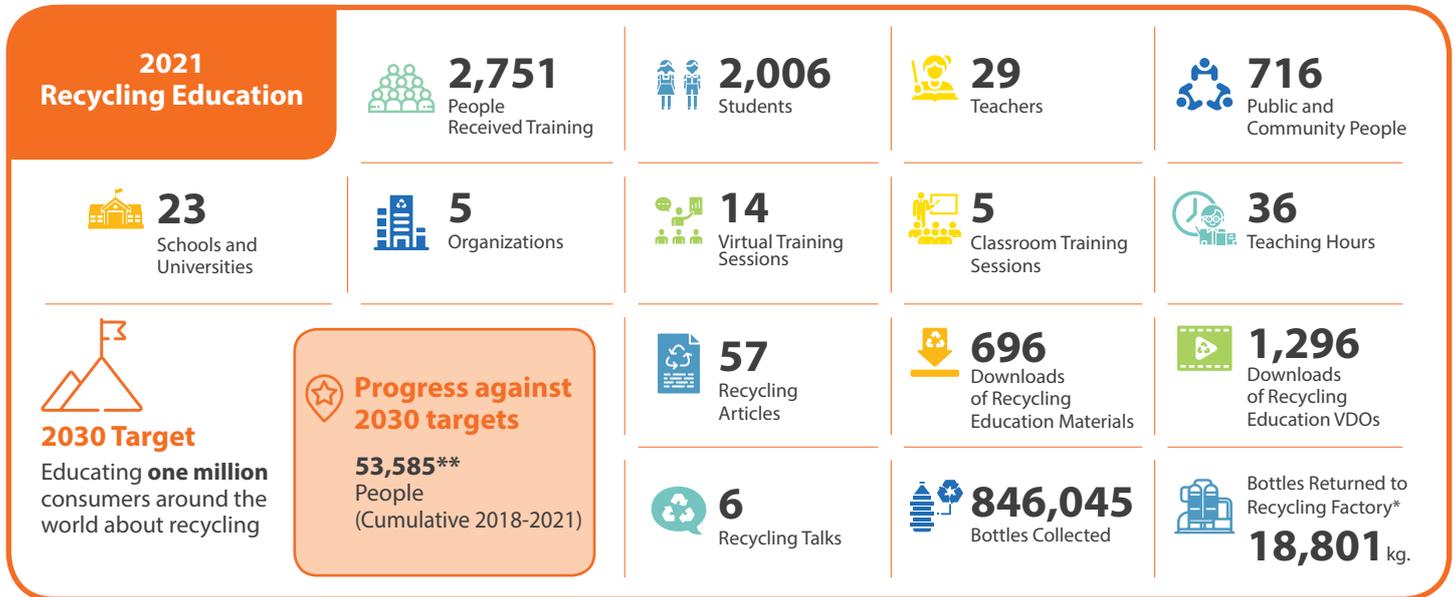
\* The above information was gathered from 82 sites as of 28 February 2022.

\*\* The figure on social contributions is excluded from the COVID-19 fund and IVL Foundation.

# RECYCLING EDUCATION



We have conducted a recycling educational program as part of our recycling business since 2018 to convey the importance of recycling PET. This program helps children understand that they can play a part in driving a circular economy. We have extended our collaborations with various institutions, including schools, universities, companies and organizations, to improve awareness and benefit communities around the world.

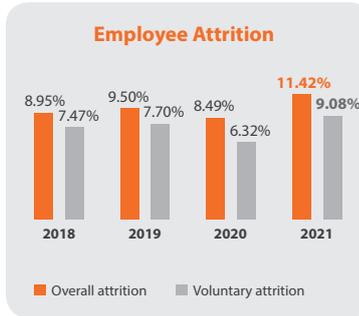
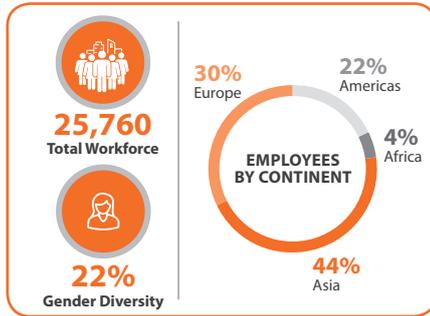


\* Only bottles returned to Indorama Polyester Industries Public Company Limited (Nakhon Pathom), Thailand  
 \*\* COVID situation affected to number of people received training in last 2 years.

# INVESTING IN OUR PEOPLE



We support and encourage our staff in their career development and promote a corporate culture that nurtures growth and innovation. Our HR strategy delivers value to the business and creates positive employee experiences. Our approach is focused on developing effective leaders who contribute to our strengths as an organization and our long-term performance. Leadership development is one of IVL Group's five strategic priorities, and an important enabler of success. We continually attract qualified and talented personnel and nurture our workforce, so they are ready to take on new challenges.



## 2021 Highlights

- 2.19%** increase in our headcount
- 76.20%** employee engagement (NPS)
- 11.42%** overall attrition rate
- 41.89%** of our employees are covered by collective bargaining agreements
- 708,106** total training hours
- 29.92** average training hours
- US\$ 2.4 million** total training costs



### IVL's Culture Awards

Initiated in 2021 to recognize employees and teams that exemplify IVL's core principles, the awards focus on two categories: Change Enabler and Leadership for piloting with plans to expand to additional categories.

Change enablers are people who influence, coach and communicate with others to change processes at IVL for the better. Leaders help to drive results, energize others, champion change, and focus on customers.

### Target

About **1,000** leadership positions involved in succession planning by 2023

**3,500** leaders involved in the leadership development curriculum by 2024

### Progress against targets

**266** leadership positions

**1,633** leaders

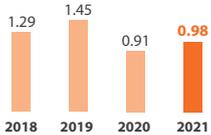
# OCCUPATIONAL HEALTH & SAFETY

Our core values are focused on the safety of our workforce and the maintenance of responsible operations. We are achieving our target of making significant improvements in how we manage, integrate, implement, and utilize health and safety initiatives across IVL. Our workforce and contractors are covered by safety protocols which are routinely audited across IVL's activities.



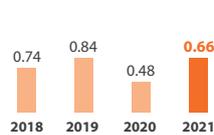
## Total Recordable Injury Rate: TRIR

(Cases/200,000 man-hours)



## Lost Time Injury Frequency Rate: LTIFR

(Cases/200,000 man-hours)



Process Safety	Tier 1		
	2020	2021	
No. of Events	18	15	↓17%
Rate (Cases/200,000 man-hours)	0.064	0.047	↓27%

## 2021 Highlights

**67%**

ISO 45001:2018/  
OHSAS 18001:2007 certification  
compared with 2020 reporting scope

A total of **45 sites (41%)**  
attained the goal of  
“zero-accidents” in 2021

**Launched its Injury and  
Illness Prevention Program (I2P2)**  
systematically analyze incident  
trends and implement controls

### Building EHS Capacity

- 3** Group Share Events,
- 3** Regional Virtual Meetings and
- 3** Process Safety Training Sessions  
*(Apart from regular trainings provided each year)*

### Progress against 2025 targets

LTIFR  
**0.66** cases per 200,000 man-hours

## THE GOLDEN SAFETY RULES

PERMIT TO WORK

HOT WORK

ENERGY ISOLATION

CONFINED SPACE ENTRY

WORKING AT HEIGHTS

LIFTING OPERATIONS

OPERATION OF VEHICLES

### EHS Excellence Awards 2021

The EHS Excellence Awards recognize an individual or team (EHS or non-EHS) that has demonstrated a conscious effort to reduce risk, drive improvements in safety or environmental programs, lead others to do the same, or otherwise champion a strong safety or environmental compliance culture.

### 2025 Target

LTIFR  
**<0.5** cases per 200,000 man-hours

# OPERATIONAL EXCELLENCE AWARDS



FOR MORE INFORMATION



Underway since 2017, this award is based on stellar performance across 10 criteria covering: Financial Performance, Operational Performance, and Sustainability Performance (environment, health and safety) and Customer and Employee Satisfaction. The best Business Units are identified by benchmarking their performance across these criteria and are awarded at the annual Group Management Conference (GMC).

## PET Division Winners



Asia Pet (Thailand) Limited/Indorama Polymers Public Company Limited, Lopburi - Thailand



Indorama Petrochem Limited (PET), Rayong - Thailand

## Packaging Vertical Winners



Petform (Thailand) Limited, Lopburi (Closure) - Thailand



Petform (Thailand) Limited, Rayong - Thailand

## IOD Segment Winner



Indorama Ventures Oxides Ankleshwar Private Limited - India

## Aromatics Division Winner



Indorama Ventures Química S.L.U., San Roque - Spain

## Fibers Segment Winner



Performance Fibers (Kaiping) Company Limited - China

## Recycling Business Winner



Indorama Ventures Sustainable Solutions Fontana, Inc. - US

## DATA REPORTING, VERIFICATION AND REPORT ASSURANCE

This report was prepared in adherence with the **Global Reporting Initiative (GRI) standards** core option and the International Integrated Reporting Council (IIRC)'s International **Integrated Reporting <IR> Framework 2021**.

### 100%

Reporting Certification and Assurance in accordance with **the GRI Standards, <IR> Framework and AA1000AS** by an independent auditor.

### 100%

GHG Accounting, Verification and Assurance in accordance with **ISO 14064-1 and ISO 14064-3** by an independent auditor.

## CONTACTS AND FEEDBACK



sustainability@indorama.net



Sustainability Report 2021



FOR MORE INFORMATION



Annual Report 2021  
(Form 56-1 One Report)



FOR MORE INFORMATION



Indorama Ventures - ESG Profile



FOR MORE INFORMATION



## CELEBRATE WITH US

Since 2011, we have achieved

# 75 billion PET bottles

recycled on 24 March 2022 and counting

with a total reduced GHG emission of **2.50 million tons**.



Please visit our website  
for the real-time bottle recycling counter



### INDORAMA VENTURES PUBLIC COMPANY LIMITED

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Sustainability Report  
Executive Summary 2021



THIS SUSTAINABILITY REPORT EXECUTIVE SUMMARY  
WAS PRINTED ON ECO-FRIENDLY PAPER (PS GREEN).  
THE TEXT IN THE REPORT WAS PRINTED USING NATURAL SOY INK.

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