

**SHIFTING
TOWARDS**



GENERATION

SUSTAINABILITY REPORT 2022



SUSTAINABILITY REPORT 2022

This year's "Shifting Towards the NEXT Generation" report highlights IVL's three businesses, integrated value chain, and post-COVID growth, resilience, and sustainability plans.

NEXT represents different business segments, with the X symbolizing diversity and inclusion in purple, and the brown background representing IVL's 2022 implementation of a bio-based feedstock plan.

The report also emphasizes segment performance and contributions to achieving the 2025 and 2030 targets, highlighting our collective pursuit of sustainability excellence.

Member of **Dow Jones Sustainability Indices**

Powered by the S&P Global CSA

Indorama Ventures Public Company Limited
Chemicals

**Sustainability
Yearbook Member**
S&P Global ESG Score 2022

80 /100

As of February 7, 2023.
Position and Score are industry specific and reflect exclusion
screening criteria. Learn more at spglobal.com/esg/yearbook

S&P Global

Sustainable1

A member of the S&P Global
Sustainability Yearbook 2022
Listed in the DJSI-World and Emerging
Markets Indices for the fourth and sixth
consecutive years respectively
in the Chemicals sector.

IVL was ranked in the 96th percentile.



The first Thai company to received the
"Asia Responsible Enterprise Award 2022"
in the Circular Economy
Leadership category.

KEY SUSTAINABILITY RECOGNITIONS AND AWARDS IN 2022

FOR MORE
INFORMATION



Achieved the 99th percentile
in an assessment of
basic chemical companies



Achieved an ESG Risk Rating
in the 5th percentile among 227
commodity chemical companies
(1st percentile = lowest risk)



FTSE4Good
#1 constituent in the FTSE4Good
Index Series
(ESG score 4.5 out of 5)



Achieved an A rating



Achieved a B rating
in the CDP's Climate Change
Assessment



Achieved a #1 rank
among 54 global
chemical companies



Winner
"Top Sustainability Advocates
in Asia"



Winner
"Best Sustainable Product"
with our DejaTM product



Highly Commended
"Circular Transition"



Received the first "AMCHAM
Corporate Social Responsibility
Excellence Recognition 2022"
from the American Chamber of
Commerce in Thailand



Highly Commended
SET Sustainability Awards
for companies with market capital
beyond THB 100 billion



2022 Low Carbon and Sustainable
Business Awards



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DEPUTY GROUP CEO AND GROUP CHIEF FINANCIAL OFFICER MESSAGE

"THE FUTURE BELONGS TO THOSE WHO EMBRACE SUSTAINABILITY AND FOCUS ON ITS SUCCESS, ALONGSIDE SOLID BUSINESS PRACTICES AND A GROWTH MINDSET.

WITH OUR TRACK RECORD OF EXECUTING GROWTH SUSTAINABLY, INDORAMA VENTURES IS PROUD TO BE A LEADER IN THE CHEMICALS INDUSTRY AS WE MOVE TO CREATE A BETTER WORLD THROUGH OUR COMMITMENT TO CIRCULARITY, INTEGRITY AND INNOVATION."



Following our strong performance last year, it is with deep gratitude to our teams around the world that once again 2022 was a record year for Indorama Ventures. Our excellent results are a testament to the company's geographically diversified and integrated portfolio, backed by our people's efforts and resilience. Our cutting-edge chemistry is at the center of our customers' daily necessities, with 70% of our products being integral components found in food and beverage packaging, home furniture, and personal care products. Indorama Ventures strives to lead the chemicals industry as a forward-thinking organization focused on sustainability, in alignment with our purpose of "reimagining chemistry together to create a better world."

LEVERAGING INNOVATION FOR SUSTAINABILITY

Our efforts in driving innovation and circularity within our product portfolio have been fruitful. Our Deja™ carbon-neutral pellets were awarded the Best Sustainable Product Award at the Chemical Week Sustainability Awards 2022. We also took the first place in the ChemScore ranking

for product safety for the second consecutive year. We are pleased to be included in the Dow Jones Sustainability Indices (DJSI) - World and DJSI Emerging Markets for the fourth and sixth consecutive years respectively.

We have an ongoing commitment to sustainability, backed by precise and ambitious goals and an established ESG framework. Our sustainability goals ensure value creation and protection, while sustainable practices support new avenues of growth, such as through advanced recycling, for example.

NEXT-GENERATION PARADIGM SHIFT

The polyester value chain links Indorama Ventures' global, integrated footprint, and connects all our businesses. Polyester is fully circular, which means sustainability potential is built into our business model. Our 'Vision 2030' is about adding to our industry leadership in sustainability, including through increasing our recycling capacity, introducing more circular feedstock into our products, and increasing resilience throughout our business.

In 2022, we continued investing in new sustainable technologies, with an ambition to use more bio-based and circular materials as feedstock. As we shift towards the future of circularity, we are partnering with Carbios, a green industrial biotech company, to build France's first PET bio-recycling plant, which will have the capacity to process 50,000 tons of PET waste per year. We also partnered with Polymateria, a London-based innovator, to introduce biodegradable hygiene products such as face masks to the market. The biotransformation technology employed in the products presents a new way of addressing plastic waste.

Expanding our recycled PET capacity will fortify our leadership position in our largest business segment. Around half of the world's PET today is recycled, and this will continue to grow as collection improves. In 2022, we launched our newest recycling facility in the Philippines in partnership with Coca-Cola. More plants are planned as we build towards our commitment to recycle 750,000 tons of post-consumer PET bottles by 2025, and 1.5 million tons by 2030, for an investment of US\$ 1.5 billion.

To be a purposeful leader in sustainability, we established Indorama Ventures Investments & Holdings (IVIH), our start-up business incubator that invests in businesses that drive advancements in recycling, including bio-based chemicals and polymers, renewable feedstock, and biodegradable polymers. We have already identified 30 projects with the potential to deliver on these commitments.

STRONGER PERFORMANCE, GREATER INNOVATION

In 2022, we reported a 31% year-on-year increase in Core EBITDA to US\$ 2.3 billion. Our Combined PET segment recorded a robust Core EBITDA of US\$ 1.3 billion, driven by our integrated business model and rising demand for recycled PET. The acquisition of Ngoc Nghia Industry in Vietnam bolstered our packaging portfolio. We also acquired an 85% equity stake in UCY Polymers, a Czech Republic-based PET plastic recycler.

The integration of the strategic Oxitenno acquisition in 2022 resulted in a 94% year-on-year EBITDA growth of our Integrated Oxides and Derivatives (IOD) segment. This was due to the addition of Oxitenno's High-Value-Added (HVA) surfactants portfolio, complemented by our combined R&D strength and efficiencies driven by Project Olympus, our operational and digitalization excellence program.

Our Fibers segment achieved a Core EBITDA of US\$ 212 million in 2022. This was lower than the previous year due to geopolitical events such as the Russia-Ukraine conflict and the energy crisis in Europe, which delayed a recovery in our Lifestyle and Mobility verticals. Nonetheless, the Hygiene vertical posted steady results and, moving forward, we plan to increase our R&D expenditure for personal care, hygiene, and safety products. We also acquired a wool spinning business in Italy and Poland to support the sustainable growth in our Fibers segment.

TAKING SWIFT ACTION FOR HEALTH & SAFETY

Our highest priority is the safety of our employees and communities, and we are committed to ensuring a safe working environment in all our operations. In 2022, we reinforced safety performance processes alongside our environmental performance, with a strict emphasis on developing assurance and capability as part of our Environmental, Health and Safety (EHS) culture in all our sites.

Despite our overall strong safety performance, we experienced some incidents. An accident resulted in a contractor tragically passing away while repairing a bulldozer at PT Indorama Petrochemicals (PTIP) in Indonesia. Indorama Polyester Industries Public Company Limited in Nakhon Pathom, Thailand, experienced a leak of a common heat transfer fluid that was successfully contained within 10 minutes. The event was handled swiftly, followed by a thorough investigation and pre-emptive equipment changes. In the beginning of 2023, a fire at the PTA production plant of Indorama Ventures Quimica S.L.U. in Spain, was contained quickly, with minor disruptions to operations. We are committed to continuously improving our EHS performance.

A SUSTAINABILITY-CENTRIC FUTURE

We believe the future belongs to those who embrace sustainability and focus on its success, alongside implementing sound business practices and a growth mindset. With our track record of sustainable growth, Indorama Ventures is proud to be a leader in the chemicals industry as we create a better world through our commitment to circularity, integrity and innovation.

DILIP KUMAR AGARWAL
Deputy Group Chief Executive Officer and
Group Chief Financial Officer



CHIEF STRATEGY OFFICER MESSAGE

"THE AGGRESSIVE DECARBONIZATION
OF OUR BUSINESS BY 2030 WILL
BENEFIT OUR CLIMATE AND SETS
THE STAGE FOR A NEW GROWTH
CHAPTER AT IVL."



As we make headway in regard to sustainability, it is crucial that we remain agile and responsive by thoroughly assessing our potential risks and opportunities. To that end, IVL strives to maintain a holistic understanding of the local, national, regional, and global external environment, thus enabling us to take proactive measures to ensure that our business persists in being adaptable and sustainable.

EMERGING TRENDS AND ITS IMPLICATIONS

We persistently monitor significant trends that may pose risks or benefits to our business, including the European Energy crisis, Carbon Tax Analysis including the EU Emissions Trading Scheme (ETS), climate change, water scarcity, and biodiversity loss. Although the challenges of inflation and an unsteady economy may test our sustainability efforts in 2023, we remain well-prepared to address these challenges via operational excellence and digitalization projects, as well as decarbonization projects.

A JOURNEY OF OPERATIONAL EXCELLENCE

Increased production costs due to fluctuating demand and supply have urged us to initiate operational excellence programs, such as Project Olympus and Project Titan. In 2022, Project Olympus delivered impressive EBITDA gains of US\$ 475 million, thanks to our robust procurement and supply chain initiatives. This initiative seeks to boost the production capacity at our facilities, thereby sustaining the timely supply of high-quality products to our customers.

Apart from operational excellence, IVL's senior leadership is focused on integrating digitalization into our operations to enhance business productivity and growth. To achieve this goal, IVL's Aligned Systems and Processes (A.S.A.P.) project has progressed to the second phase, covering 23 entities across Combined PET, Fibers, and IOD, with over 1,100 users. Combined with IVL 4.0, the A.S.A.P project is aimed at standardizing the company's data, processes, and practices on a globally integrated digital core platform. Additionally, the company has also successfully implemented SAP S/4HANA, our flagship Enterprise Resource Planning software, in our IOD segment and Combined PET sites in the Americas.

TOWARDS NET ZERO CARBON

To mitigate the impacts of climate change, we have introduced a comprehensive six-pronged decarbonization strategies, focusing on progressively phasing out coal, procuring renewable energy, and more. Synonymous with our approximately 900 climate change adaptation projects. In addition, we diligently work with our top suppliers to reduce our GHG Scope 3 emissions and support their efforts to achieve their and our carbon footprint reduction goals.

We will carry on weaving ESG principles into our business strategy, as it would not only meet the growing expectations of our customers and stakeholders, but also strengthen our business in terms of resilience and adaptability in the face of external challenges such as climate change and geo-political events. We are convinced that by promoting our ESG agenda at IVL, we can make progress and enhance our sustainability excellence.

UDEY PAUL SINGH GILL
Chief Strategy Officer

Remark: In the preparation of Mr. Udey Gill's retirement end of April 2023, Sanjay Ahuja becomes Group Chief Strategy & Transformation Officer as of February 1st, 2023.





CHAIRMAN OF THE ESG COUNCIL MESSAGE

"IVL IS APPLYING AN INTEGRATED APPROACH TO SUSTAINABILITY BY ADDRESSING ESG FACTORS IN OUR DAY-TO-DAY OPERATIONS, FUTURE INVESTMENT, PRODUCTS PORTFOLIO, AND SUPPLY CHAIN MANAGEMENT."



IVL strongly believes that sustainability is a mindset that drives everything we do as a business, with an aim to positively impact the environment, society, and economy. To further substantiate our position as an ESG thought leader, I attended the World Economic Forum (WEF) Annual Meeting 2023 to share our insights on IVL's efforts in sustainable manufacturing, renewable energy, and sustainable financing. This engagement would support the WEF's efforts to establish a more sustainable and resilient world by the end of the decade.

SECURING SUSTAINABLE FINANCING

To further advance our sustainability-related endeavors, particularly our large-scale decarbonization projects, we have secured multiple sustainable financing from the likes of Bank of China and Siam Commercial Bank in 2022, amounting to approximately US\$ 1.1 billion, resulting to US\$ 2.4 billion in total (2018-2022). Most of these loans are tied to specific sustainability targets, and the loans from these aforementioned banks in particular are linked to our DJSI score, which quantifies our sustainability performance.

PROPELLING OUR ENVIRONMENTAL PROGRESS

In 2022, we recorded a 3.32% renewable electricity consumption towards our 2025 target of 10%; reduced greenhouse gas intensity by 3.84% towards our 2025 ambition of 10%; and diverted 72% of hazardous waste away from landfills towards our 2025 goal of 90%.

Significant strides were made in 2022 in regard to our recycling and circularity efforts, attested by our positive results. In particular, we recycled 15.4 billion PET bottles into PET flakes, signifying a 8% year-on-year growth. Apart from our co-investment commitment with Carbios and the launch of PETValue Philippines, we established 3 new recycling facilities in Poland, the Philippines, and France this year. This solidifies our progress towards achieving our recycling targets by 2025 and 2030. Additionally, to achieve our target of 26% circular feedstocks by 2030, we are devoted to investing US\$ 7 billion in sustainability capex including decarbonization, recycling and biomass projects by 2030.

Beyond that, a comprehensive six-pronged decarbonization strategies has been established to expedite our efforts in reducing our carbon footprint. We continue to undertake green projects in our operations that help minimize environmental impacts. Additionally, we have installed on-site solar units across 15 sites worldwide and are exploring Virtual Power Purchase Agreement (VPPA) opportunities in Europe and in the USA.

PROTECTION OF NATURE AND BIODIVERSITY

We also broadened our environmental focus to include biodiversity and recognize its interconnectedness with climate change. We are evaluating both impacts and dependencies of our sites on biodiversity, and developing a strategic plan to protect biodiversity.

POSITIVELY IMPACTING PEOPLE ACROSS OUR VALUE CHAIN

Our social highlights this year have been focused on supplier engagement and employee empowerment. Early this year, our Sustainable Supply Chain Collaboration Program was launched to manage ESG supply chain risks and support decarbonization efforts throughout our value chain. As part of our commitment to the Roundtable on Sustainable Palm Oil (RSPO), we upgraded our Code of Conduct to a Responsible Sourcing Policy that includes palm oil and its derivatives.

In regard to employee empowerment, we proudly support the Women's Empowerment Principles (WEPs) and the UN Global LGBTI Standards of Conduct. We also formed a DEI committee in 2022, which aims to embed diversity, equity and inclusion principles into our work culture and throughout our entire talent lifecycle, from recruitment to retention. Furthermore, the Indorama Management Council (IMC) actively participates in talent management, assessing the career progression of our Top 200 executives and providing valuable insights on promising talents. Over the next 3 years, we will also offer on-campus leadership communication training through INSEAD to our 3,000 executives.

Through these efforts, IVL sets the seal on ensuring every person within our value chain is empowered and upskilled. Simultaneously, we continue to uphold high standards of occupational health and safety, protect human rights throughout our value chain, and maintain excellent customer relationship management, evident by the 264 collaboration projects for sustainable product innovations.

BUILDING ESG RESILIENCY

To promote a strong sustainability culture at IVL, we are improving our ESG governance and introducing tailored ESG strategies for each business segment, in alignment with our overarching Sustainability Framework and targets. IVL has also re-identified the top sustainability risks according to the ESG Council's priorities, which include the GHG and energy management risk, climate change adaptation risk and supply chain management risk. We are in the process of finalizing specific mitigation strategies and key risk indicators to address these risks, thus ensuring that our business operations align with our sustainability goals and contribute to a more sustainable future. Furthermore, we are launching our flagship Sustainability Academy, which will educate our leaders and employees.

KEEPING SUSTAINABILITY AT THE FOREFRONT

Our sustainability efforts were reflected by the various recognitions we garnered in 2022, including listed in the Dow Jones Sustainability Indices (DJSI), a winner of "Best Sustainable Product" from S&P Chemical Week Sustainability Awards, the "Top Sustainability Advocate in Asia" award from Asia's Corporate Leadership and Sustainability (ACES) Awards, and the "Highly Commended in Circular Transition Award" from Reuters. Our Gold Recognition Level with EcoVadis demonstrates our best-in-class performance through continued improvements in sustainability practices, alongside our B rating under the Carbon Disclosure Project, symbolizing our efforts in disseminating vital information to prevent climate change.

As a global chemical company, we hold ourselves accountable to meet the needs of today, and those of future generations. Driven by our purpose, I am confident in our capability to add value to the entire chemical ecosystem while contributing towards a more eco-friendly, circular, and sustainable future for all.

YASH LOHIA
Chairman of the ESG Council



CHIEF SUSTAINABILITY OFFICER MESSAGE

"SUSTAINABILITY HAS CEMENTED ITS ROLE IN BOTH PROTECTING AND CREATING VALUE AT IVL. TOGETHER WITH CUSTOMERS, SUPPLIERS, PARTNERS AND OUR PEOPLE, WE ARE REALIZING THE FULL POTENTIAL OF THIS WINNING FORMULA."



Contributing to our global growth and diversification over the past three decades, sustainability has become embedded in our DNA allowing us to help our customers, suppliers, partners, people and communities thrive. For Indorama Ventures, ESG delivers both value protection and value creation.

Our Vision to be a world-class sustainable chemical company making great products for society will only be realized by generating inclusive, sustainable and profitable growth. Transparency is key as we continue to build trust within and indeed beyond our value chain.

As an expression of that transparency, this Sustainability Report provides useful and comprehensive insights into our progress, detailing how we are achieving our goals, including our efforts to reach net zero. It demonstrates both the breadth and depth of our commitment.

Through an integrated, holistic approach, we prioritize value protection, which involves a range of aspects such as decarbonization, climate change adaptation, plant reliability, encouraging strong relationships with our suppliers, customers, communities, and other stakeholders. By safeguarding these relationships and addressing any associated risks, we are building a stronger sustainable foundation for our operations which in turn, contributes to the long-term well-being of our stakeholders and employees worldwide.

As a companion to value protection, our sustainability strategy is squarely focused on value creation.

We are committed to a full range of initiatives that drive business success, reduce our carbon footprint and institutionalize sustainable best practices. This includes procuring renewable energy, promoting diversity and investing in innovative solutions like advanced recycling and bio-feedstocks.

Sustainable product development plays a central role in our strategy as we work closely with customers to create products that are low carbon, climate-friendly, and circular. Value creation can also be seen in our strong track record in sustainable finance the benefits of which are tied to our 2025 and 2030 performance targets around GHG, renewables and recycling. This is an important and growing area for Indorama Ventures which is increasing in its rigour and conditions, allowing only true leaders to participate.

Engaging in sustainability thought leadership is another important facet of our strategy given our increased operational presence around the world. We strive to be at the forefront of sustainability advancements, actively participating in discussions, sharing knowledge, and driving positive change within our industry.

By actively engaging as a sustainability thought leader, we contribute to the broader sustainability agenda while demonstrating the effectiveness of our strategy and maybe even inspiring others to take meaningful action.

Looking ahead, I am motivated and optimistic about the positive role we can play and the significant impacts we can achieve in addressing some of the most pressing environmental challenges facing the world today, specifically around the circular economy.

Our integrated approach, which combines value protection and value creation in a mutually reinforcing framework, is a winning formula for the long-term sustainability of our business.

Indorama Ventures is full of incredibly talented and hard-working people and the Sustainability Team is no exception. I would like to recognize their contributions to our sustainability success in 2022. Their efforts permeate both the production of this report and the results within.

I look forward to working together to further build on our momentum and amplify our efforts to achieve greater sustainability milestones in 2023 and beyond.

ANTHONY M. WATANABE, PH.D.
Chief Sustainability Officer





IVL'S KEY ESG HIGHLIGHTS 2022 (YoY COMPARISON)



ENVIRONMENT



Total energy consumption
122.2 million GJ

YoY Change

+5.7%

Total energy intensity
7.29 GJ / ton of production

+4.1%

Total renewable energy consumption
1.33 million GJ

-44.2%

Total renewable electricity consumption
3.32%

-4.2%



Total water withdrawal intensity
5.19 m³ / ton of production

YoY Change

-2.8%

Total recycled / reused water
7.2%

+1.3%



GHG emissions

GHG emissions (Scope 1) intensity
0.4296 tCO₂e / ton of production

YoY Change

-1.5%

GHG emissions (Scope 2) intensity*
0.1556 tCO₂e / ton of production

-0.4%

GHG emissions (Scope 1&2) intensity*
0.5852 tCO₂e / ton of production

-1.2%

* Location-based



Hazardous waste intensity
0.0093 tons / ton of production

YoY Change

+9.4%

Waste diverted from landfill**
72%

-6%

** including waste incinerated with energy recovery

RECYCLING



YoY Change



Recycling of post-consumer PET bale input
342,961 tons

+8%

1,934,253 tons
(From 2011 - Dec 2022)



Equivalent to
15.4 billion PET bottles

+8%

87 billion PET bottles
(From 2011 - Dec 2022)

CIRCULAR FEEDSTOCKS



Bio-based feedstock:
1.24%
against IVL external feedstock



Recycled feedstock
(Post-consumer PET bale input):
5.25%
against IVL PET feedstock



SOCIAL

HUMAN RESOURCES

Total Employees*

30,201

Female

24.64%

Employee Net Promoter Score

75.85% (NPS)

Average Training

30.66 hours

Overall Employee Attrition

13.71%

* Includes temporary employees

YoY Change

+17%

+3%

-0.35%

+3%

+2.29%

CORPORATE SOCIAL RESPONSIBILITY

Total CSR contribution

US\$ **2.34** million

Total in-kind giving

US\$ **472,446**

22,864

Volunteer hours

Recycling education

199,787

people trained

YoY Change

+41%

+2.4
times

+2.4
times

+72
times

HEALTH AND SAFETY

Total Recordable Injury Rate: TRIR

0.82

cases per 200,000 man-hours

-16%

Lost Time Injury Frequency Rate: LTIFR

0.51

cases per 200,000 man-hours

-23%



ECONOMIC & GOVERNANCE



CORPORATE GOVERNANCE POLICY AWARENESS CAMPAIGN (CGPAC) IMPLEMENTATION

86%

Employee attendance

HUMAN RIGHTS DECLARATION

100%

Signed by business Heads and site Heads

CUSTOMER SATISFACTION STUDY*

84.82%

Customer Satisfaction Index

78%

Customer Retention Rate (CRR)

48

Net Promoter Score (NPS)

* A formal customer satisfaction study is conducted every other year as part of our group sustainability strategy. This study was conducted in 2022.

FINANCIAL HIGHLIGHTS

YoY Change

Total Sales Volume

14.65 million tons

-1%

Total Revenues

US\$ **18.715** billion

+28%

Core EBITDA

US\$ **2,278** million

+31%

Core Net Profit after Tax and NCI

US\$ **986** million

+44%

Operating Cash Flow

US\$ **2,224** million

+111%

Core Earnings per Share

THB **6.02**

+THB
2.26

TRIS
Rating

AA-

FOR MORE
INFORMATION





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BUSINESS AND VALUE CHAIN OVERVIEW



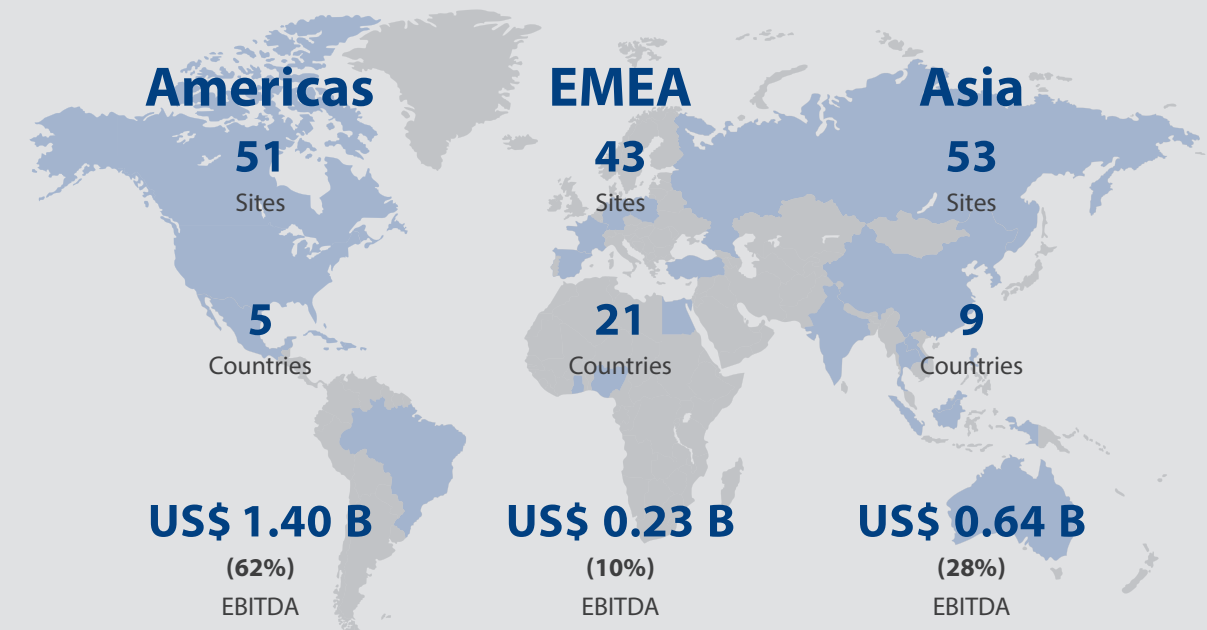
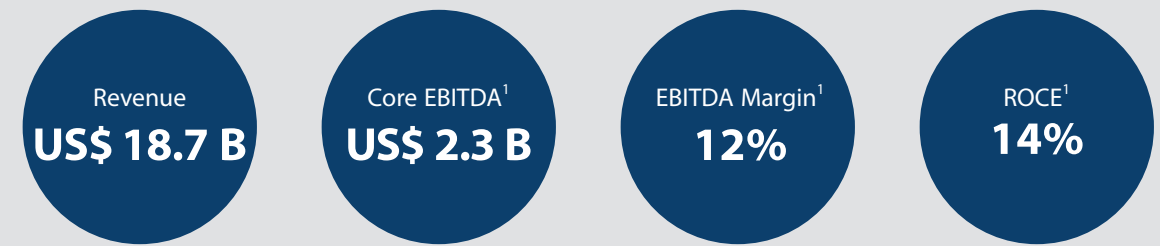
IVL AT A GLANCE

[GRI 2-1, 2-2, 2-6, 3-3]

Established in 1994, Indorama Ventures is a global chemical company, the world's largest PET producer, and Europe's leading PET recycler. As of 2022, our organization has an established presence at 147 operational sites in 35 countries across six continents, offering an extensive portfolio of products to meet the unique needs of our valued clientele. We are proud to serve our customers across three key business segments, namely Integrated Oxides and Derivatives (IOD), Combined PET, and Fibers. Additionally, our 20 recycling facilities worldwide serve as a testament to our unwavering commitment to sustainability and environmental stewardship.

OUR PLATFORM

- 1 Integrated and diverse portfolio
- 2 Inter-connected businesses through raw materials, customers and R&D
- 3 Leading position in attractive and growing end markets



Note: ⁽¹⁾ 2022 Core financials

FOR MORE
INFORMATION

30,201*



Total
Employees

24.64%



Female

147**

Sites

6

Continents

35

Countries

20

Recycling
Facilities

27

R&D
Centers

* Includes temporary employees

** The Sustainability Report 2022 consists of data from 141 sites. Further details are provided under "About this Report".

DELIVERING VALUE WORLDWIDE

- Delivered 14.65 million tons of products to consumers and end markets
- Recycled 87 billion PET bottles (2011-2022)
- Reduced 2.7 million tCO₂e GHG emissions from PET recycling since 2011
- Secured US\$ 1.1 billion in sustainable financing in 2022, resulting in a total of US\$ 2.4 billion sustainable financing since 2018



OVERVIEW OF IVL'S OPERATIONS

Oxiteno, Brazil

In April 2022, we completed the acquisition of Oxiteno, a leading integrated surfactants producer in Latin America, resulting in the expansion of our high-value surfactants portfolio and our IOD business. The acquisition includes 11 manufacturing plants, five R&D centers, an experienced management team, expertise in green chemistry innovation, and a strong environmental governance record.

UCY Polymers, the Czech Republic

In February 2022, we completed a deal for an 85% equity stake in the Czech Republic-based PET plastic recycler, UCY Polymers CZ s.r.o. (UCY), boosting Europe's plastic collection and recycling ambitions. As a result of the investment, we will recycle over 1.6 billion PET beverage bottles in the Czech Republic by 2025.

Carbios, France

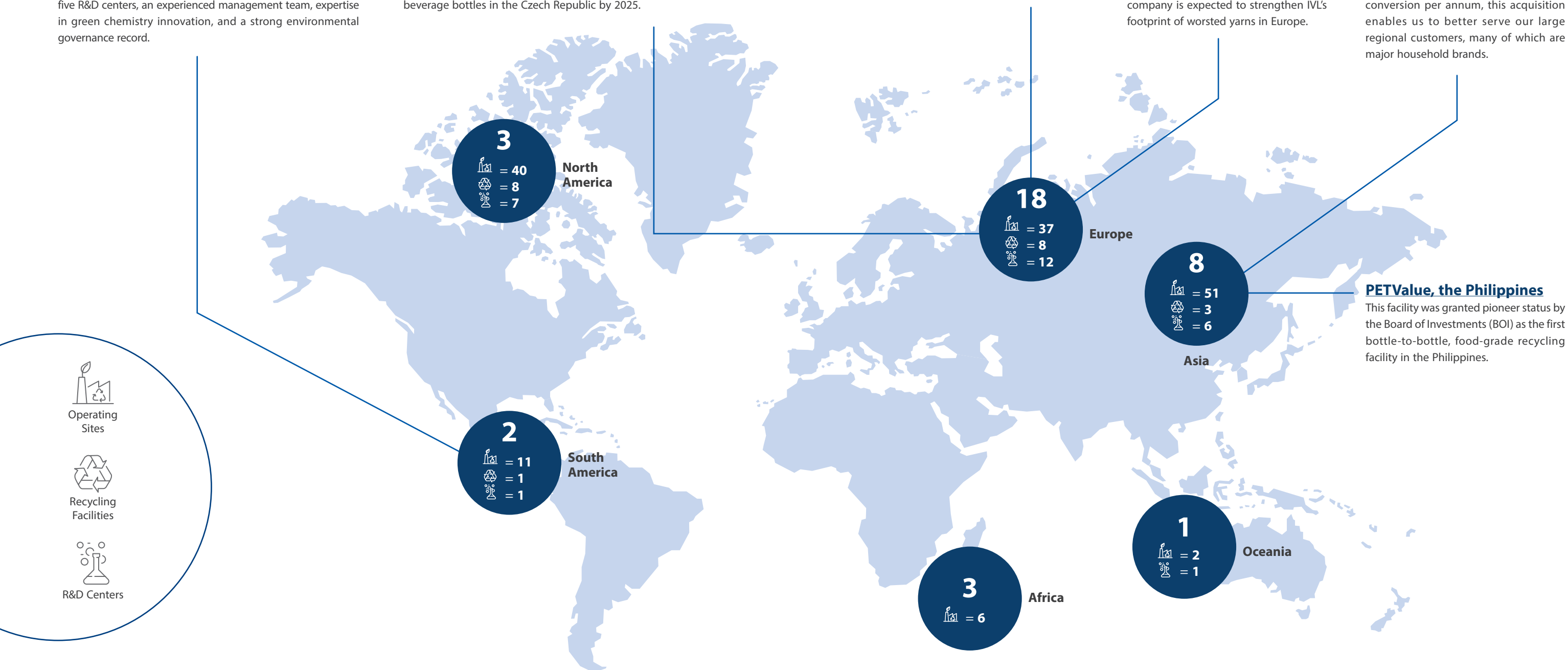
Set to launch in 2025, this bio-recycling facility will have a processing capacity of 50,000 tons of PET waste per year and create 150 direct and indirect new jobs.

Filatura Tollegno, Italy

Acquired in July 2022, Filatura Tollegno is an Italian company active in the yarn dyeing business in Italy and spinning and top dyeing business in Poland. The company is expected to strengthen IVL's footprint of worsted yarns in Europe.

Ngoc Nghia Industry, Vietnam

Acquired in April 2022, Ngoc Nghia Industry is a market leader in PET, preforms, and closures in Vietnam. With a production capacity of 76,000 tons of PET conversion per annum, this acquisition enables us to better serve our large regional customers, many of which are major household brands.



PETValue, the Philippines

This facility was granted pioneer status by the Board of Investments (BOI) as the first bottle-to-bottle, food-grade recycling facility in the Philippines.

North America

- Canada
- Mexico
- The United States

South America

- Brazil
- Uruguay

Africa

- Egypt
- Ghana
- Nigeria

Oceania

- Australia

Asia

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

Europe

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



BUSINESS SEGMENTS AND PRODUCTS

[GRI 2-6, 3-3]

IVL delivers high-quality, innovative and safe products worldwide across our three main business segments:



IOD

Our IOD business is a key part of our chemical intermediates and surfactants value chain, serving diverse markets such as Home and Personal Care, Agrochemicals, and Coatings. We are transitioning towards downstream specialty surfactants, reinforced by our partnership with Oxiteno. Surfactants play a vital role in reducing energy and water usage, while agrochemicals help increase crop yield and reduce land use.



COMBINED PET*

Our PET business is an integral part of our polyester value chain and is mainly used as raw materials for various applications, including beverage containers, food packaging, and household products. An essential material in the transition to a circular economy, PET can also be integrated into adjacent businesses, such as Specialty PET and Packaging.



FIBERS**

Our fibers and yarns are used in various segments, such as Mobility and Automotive, Home and Apparel, and Hygiene and Medical. We are a leading global supplier of safety, comfort, and performance in the tire and automotive safety sectors. As a reliable apparel supplier, we provide high-quality fibers and yarns across major growth markets, combining style and function. As a trusted manufacturer of hygiene and medical textiles, we provide safety and comfort to millions of people worldwide.

* Combined PET – Feedstock, PTA, PET, Packaging, Recycling

** Fibers – Hygiene, Lifestyle, Mobility and Wool

Attractive End Markets

Home & Personal Care
Agrochemical



Coating



Oil & Gas



Attractive End Markets

Food & Beverage



Consumer Goods



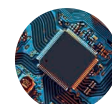
Automotive



Pharmaceuticals

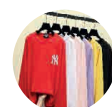


Electrical & Electronics



Attractive End Markets

Personal Care



Medical



Industrial



Apparel



Home Interior



Industrial



Tires



Airbags



Industrial

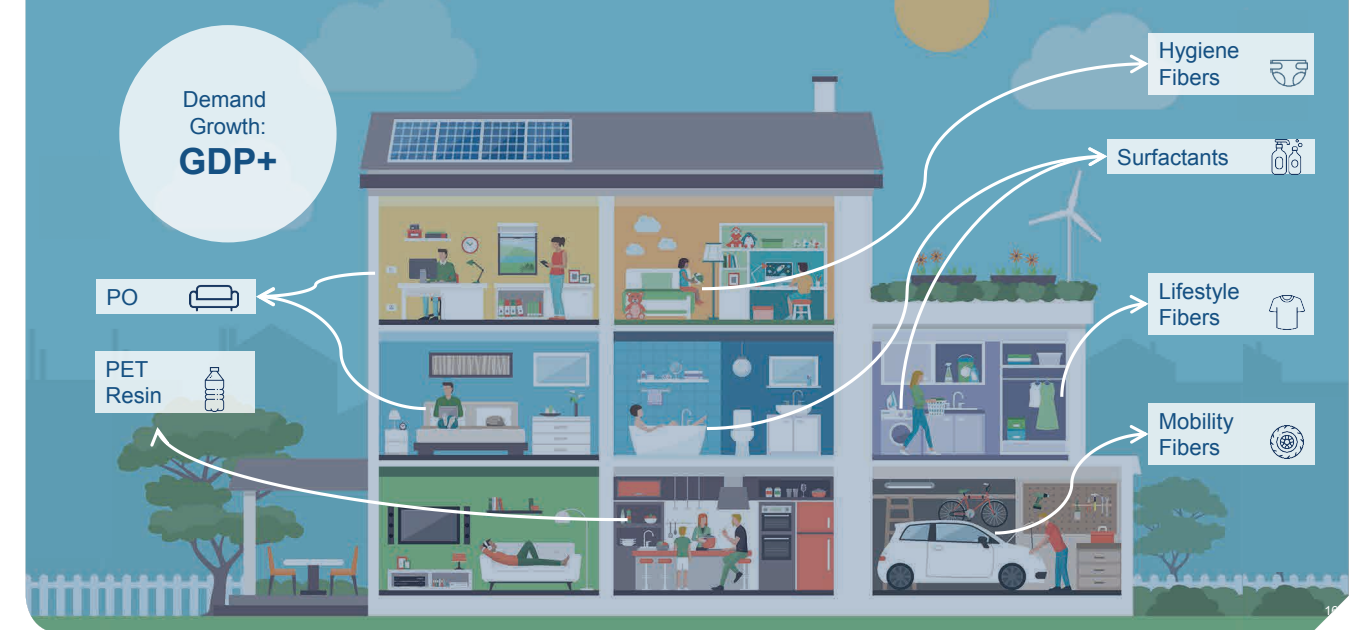


FOR MORE
INFORMATION

FOR MORE
INFORMATION

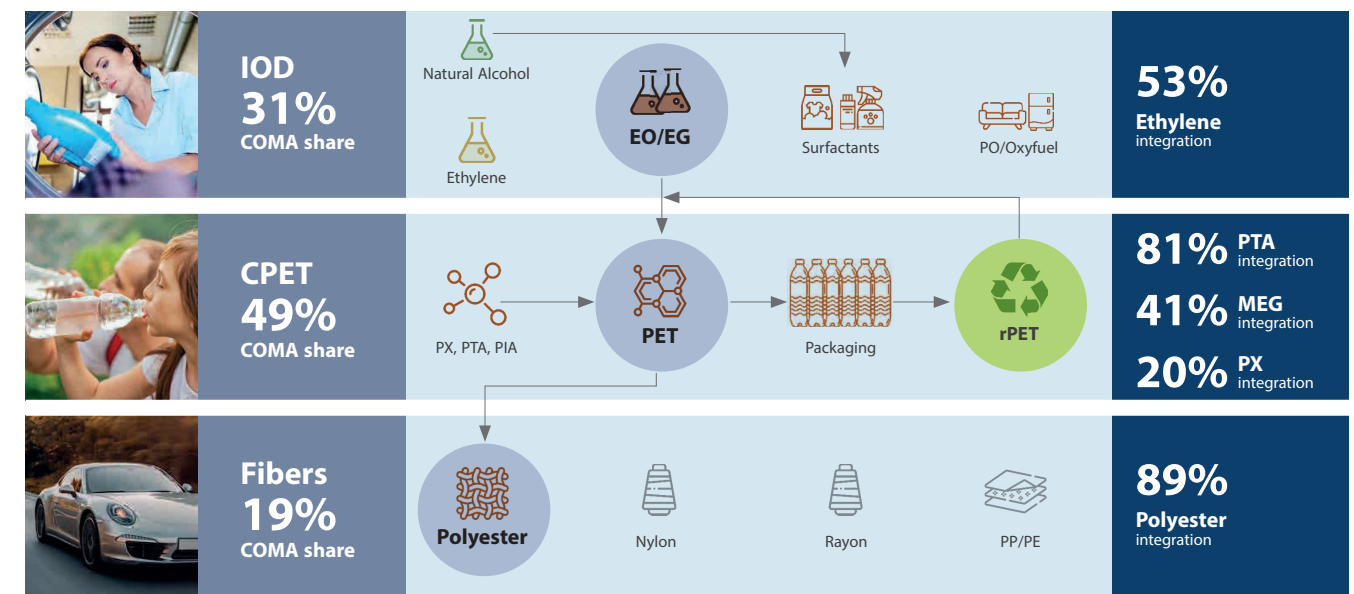
FOR MORE
INFORMATION

OUR CHEMISTRY TOUCHES EVERYDAY LIVES



OUR GLOBAL PLATFORM IS VERTICALLY INTEGRATED WITH A DIVERSIFIED PRODUCT PORTFOLIO

We have established a highly integrated business model, allowing us to seamlessly connect our three business segments. By connecting our upstream and downstream operations, we are able to optimize our supply chain, leading to greater cost-competitiveness and minimal wastage. As a result, we have achieved a 66% increase in our overall Contribution Margin (COMA) in the past two years.





STRATEGIC ACHIEVEMENTS Progressing Towards 2025 and Beyond

IVL is focused on driving sustainable business growth, which we plan to realize via external mergers and acquisitions, as well as internal operational and digital transformation programs. While striving to achieve both our financial and sustainability goals, we continue to embed ESG principles into our business strategy, as well as uphold our culture of innovation and continuous improvement.

1 Driving Mergers & Acquisitions for Disciplined and Sustainable Growth

In 2022, we expanded our global presence establishing a more resilient and adaptable supply chain. Our acquisitions encompassed all our three business segments, namely, Oxitenio (IOD), Ngoc Nghia Industry (Combined PET), and Tollegno Wool (Fibers).

Our partnership with Oxitenio has contributed to solid year-on-year growth of 93.6% for our IOD segment. We attribute these results to our combined R&D capabilities, which have advanced product innovation towards downstream specialty surfactants, as well as the execution of Project Olympus to digitize our manufacturing processes.

Additionally, numerous collaboration projects were implemented to expand our Combined PET business. We established PETValue Philippines through a joint venture with Coca-Cola Beverage Philippines, Inc., resulting in the first food-grade, bottle-to-bottle recycling plant in the country, with a yearly recycling capacity of nearly two billion PET plastic bottles. Furthermore, we took part in a co-investment commitment with Carbios, a green industrial biotech company, to build France's first PET bio-recycling plant. Finally, we acquired an 85% equity stake in the Czech Republic-based PET plastic recycler, UCY Polymers.

Having acquired approximately 60 companies over the past two decades, we have developed an effective methodology for recognizing and integrating our acquisitions based on strict performance criteria. As we venture into adjacent businesses, we strive to maintain the same level of rigorous discipline that has proven successful in the past to ensure the responsible and sustainable expansion of our business.

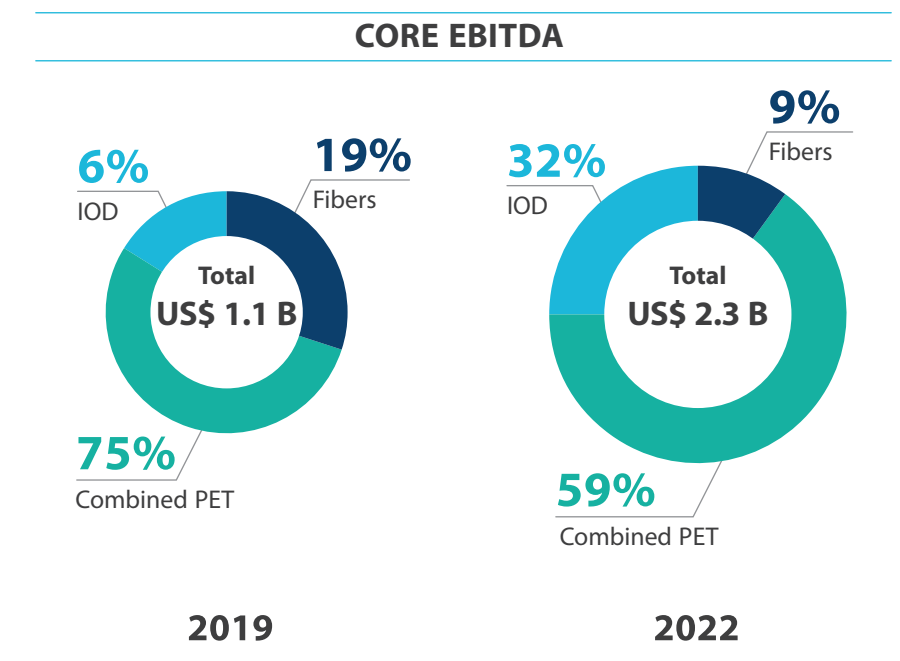
2 Enhancing Competitiveness via Cost Transformation and Digitalization Initiatives

Through Project Olympus, our cost transformation program, we secured EBITDA gains of US\$ 475 million due to our effective procurement and supply chain initiatives. This program is expected to unlock over US\$ 670 million by 2025. Project Titan was initiated to address operational challenges at our top 25 manufacturing sites, accounting for 80% of our portfolio. Both these programs aim to grow production capacity at our facilities, thereby, sustaining the rapid supply of high-quality products to our customers.

Finally, we fully implemented our flagship Enterprise Resource Planning software, A.S.A.P S/4HANA, in our Combined PET Americas and IOD legacy business. This software will provide an important boost to our IT systems integration, streamline processes, and enhance data analytics, resulting in better cost-savings and faster decision-making.

3 Developing Tailored Strategies for our Business Segments

Over the past three years, we have increased our Core EBITDA by 98.6%, thanks to our strategic acquisitions, product portfolio integration, cost transformation programs and R&D investments. The strategies moving forward for our three main business segments are summarized in Business Segments' Key ESG Highlights 2022 section, pg. 28-33.

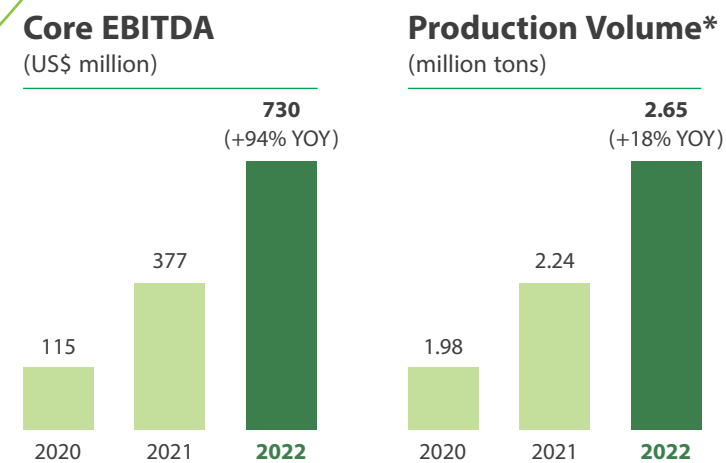




INTEGRATED OXIDES AND DERIVATIVES (IOD)

KEY ESG HIGHLIGHTS 2022

Historical Financial & Business Performance



* Excluding inter-company activities

Market Leader for Ingredients in Home Care, Personal Care, Agrochemicals, Coatings, and Oil & Gas Fields Chemicals

Market Leadership

#1

Non-ionic surfactants
producer in
the Americas

#1

EO producer in the
Americas

#1

Fabric and home care
ingredients provider in the
Americas

#2

Ethoxylation company
globally

Home & Personal Care

Laundry liquids, detergents, surface cleaners,
body care, haircare, toiletries, cosmetics

US\$ 28 B / +7%
market value / market growth



Coatings & Resources

Paint, coating, drilling, extraction, fracking,
enhance oil recovery

US\$ 4 B / +4%
market value / market growth



Crop Solutions

Adjuvants, active ingredients

US\$ 1.4 B / +3%
market value / market growth



Strategies, Focus Areas and Targets

Long-Term Outlook

- Attractive market potential of 2.9% CAGR from 2020 to 2030 for the surfactants market¹**
- Acquisition of Oxiteno enables IVL to capture 5% of the global surfactants market (valued at US\$ 40 billion)**

a. Home and Personal Care

Increased hygiene awareness post-COVID-19 is driving customer demand towards detergents and soap-related products

b. Coatings and Resources

Urbanization is leading to a rise in global oil production for transportation use

c. Crop Solutions

Global population growth is leading to an increased production of crops

¹ Source: IVL Analysis, Vision 2030

Medium-Term Strategic Focus Areas

1. Maximize IOD Synergies:

- Operational excellence
- Digitalization of manufacturing processes
- Geographical expansion to India, Southeast Asia, Middle East, Africa and Europe

2. Promote Customer Centric Innovations:

Focus on specialty and niche surfactants in the downstream business, which is expected to deliver higher COMA margins

3. Develop Sustainable Product Offerings:

Focus on developing sustainable solutions (e.g. bio-based surfactants, biodegradable crop solutions), leveraging the combined R&D strengths with Oxiteno

Short-Term Targets

1. Financial:

- US\$ 0.8 to US\$ 0.85 million Core EBITDA by 2024
- US\$ 100 million in cost-savings synergies by 2025
- 25-45% COMA margin from 2023 onwards

2. Innovation and Sustainability:

- 50% of new products launched by 2025 and beyond classified as sustainable
- 15% of revenue from sustainable products by 2025

2022 Highlights & Achievements

ENVIRONMENT

GHG EMISSIONS

0.8128 tCO₂e / ton of production
Scope 1 intensity

0.1281 tCO₂e / ton of production
Scope 2 intensity*

0.9408 tCO₂e / ton of production
Scope 1 and 2 intensity*

* Location-based

ENERGY

14.14 GJ / ton of production
Intensity

3.08%
Renewable electricity

WATER

8.20 m³ / ton of production
Intensity

WASTE

78.6%
Waste diversion from landfill**

** including waste incinerated with energy recovery

HEALTH AND SAFETY

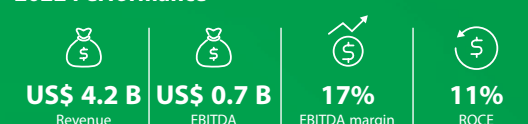
TOTAL RECORDABLE INJURY RATE: TRIR

0.262
cases per 200,000 man-hours

LOST TIME INJURY FREQUENCY RATE: LTIFR

0.109
cases per 200,000 man-hours

2022 Performance⁽¹⁾



Note: ⁽¹⁾ Core Financials

INNOVATION

VITALITY INDEX*

22.1% 2022 Actual | **22%** 2022 Target

US\$ 28.0 million
R&D Spending

8
R&D Centers

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

CUSTOMER SATISFACTION*

84.11%
Customer Satisfaction Index (CSI)

84%
Customer Retention Rate (CRR)

46
Net Promoter Score (NPS)

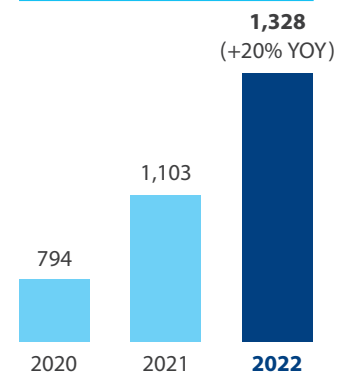
* A formal customer satisfaction study is conducted every other year as part of our group sustainability strategy. This study was conducted in 2022.



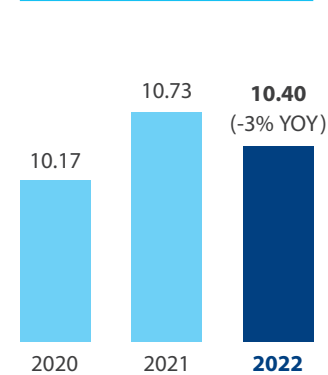
KEY ESG HIGHLIGHTS 2022

Historical Financial & Business Performance

Core EBITDA
(US\$ million)



Production Volume*
(million tons)



* Excluding inter-company activities

Strategies, Focus Areas and Targets

Long-Term Outlook

The PET industry is expected to experience a strong growth trajectory (+3.5% CAGR from 2020-2030)¹

1. Virgin PET

- Demand potential for PET has yet to be realized in emerging markets
- New applications will further stimulate demand from developed markets
- Abundant conversion opportunities across applications from other plastics

2. Recycled PET

- Consumer demand for sustainable products is growing stronger (>10% CAGR for rPET global demand growth from 2020 to 2025)¹
- Technology advancements expected to support growth

¹ Source: IVL Analysis, Vision 2030

Medium-Term Strategic Focus Areas

1. Enhance Capacity:

- Broaden geographic recycling footprint in emerging markets

2. Improve Operational Efficiency:

- Expand products into home and personal care, as well as pharmaceuticals

3. Promote Circularity and Innovation:

- Invest US\$ 7 billion in sustainability CAPEX including decarbonization, recycling and biomass projects by 2030

Short-Term Targets

1. Financial:

- US\$ 1.4 - 1.5 billion Core EBITDA

2. Innovation:

- 27% Vitality Index in 2022
- 10% revenue from sustainable products under the Deja™ brand by 2025

3. Circularity:

- 0.75 million tons of post-consumer PET bale input per year by 2025
- 1.5 million tons of post-consumer PET bale input per year by 2030

Leading Global Producer of PET and Recycled PET

Market Leadership

#1

PET producer globally

#1

PIA producer in western markets

#1

rPET producer globally

The only integrated player in Europe

A fully integrated player in North America

Packaging leadership in emerging markets

1

Delivered strong revenue and Core EBITDA performance, driven by a well-integrated product portfolio

3

Key acquisitions include:

- 100% equity stake in Vietnam-based Ngoc Nghia Industry to expand our packaging portfolio
- 85% equity stake in the Czech Republic-based PET plastic recycler, UCY Polymers

2

Established three new recycling facilities in Poland, the Philippines and France:

- PETValue Philippines is the country's first food-grade, bottle-to-bottle recycling plant
- France's first PET bio-recycling plant will be constructed via a co-investment commitment between IVL and Carbios

4

Deja™ brand won the Best Sustainable Product Award at the Chemical Week Sustainability Awards 2022

2022 Highlights & Achievements

ENVIRONMENT

GHG EMISSIONS

0.2789 tCO₂e / ton of production
Scope 1 intensity

0.1041 tCO₂e / ton of production
Scope 2 intensity*

0.3829 tCO₂e / ton of production
Scope 1 and 2 intensity*

* Location-based

ENERGY

4.23 GJ / ton of production
Intensity

2.79%
Renewable electricity

WATER

3.55 m³ / ton of production
Intensity

WASTE

49.8%

Waste diversion from landfill**

** including waste incinerated with energy recovery

Remark: Combined PET includes PET, packaging, and recycling

HEALTH AND SAFETY

TOTAL RECORDABLE INJURY RATE: TRIR

0.747
cases per 200,000 man-hours

LOST TIME INJURY FREQUENCY RATE: LTIFR

0.347
cases per 200,000 man-hours

2022 Performance⁽¹⁾



Note: ⁽¹⁾ Core Financials

INNOVATION

VITALITY INDEX*

27% 2022 Actual | **31%** 2022 Target

US\$ 4.4 million
R&D Spending

3
R&D Centers

* Revenue generated from the sales of products developed during the last five years. CPET Vitality Index is from Specialty Chemical only.

CUSTOMER SATISFACTION*

85.30%
Customer Satisfaction Index (CSI)

78%
Customer Retention Rate (CRR)

52
Net Promoter Score (NPS)

* A formal customer satisfaction study is conducted every other year as part of our group sustainability strategy. This study was conducted in 2022.

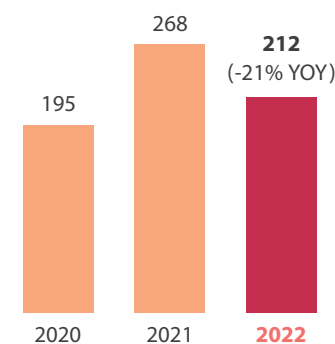


FIBERS

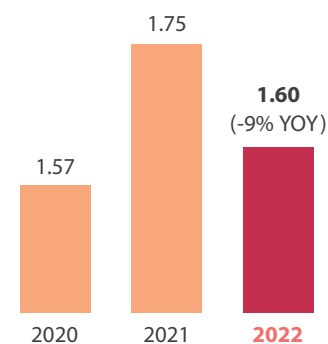
KEY ESG HIGHLIGHTS 2022

Historical Financial & Business Performance

Core EBITDA
(US\$ million)



Production Volume*
(million tons)



* Excluding inter-company activities

Market Leader in Lifestyle, Mobility and Hygiene Fibers

Market Leadership

Lifestyle

#1

in PET staple fibers
ASEAN market

Mobility

#2

in airbag
yarns

#2

in tire cord
fabrics

Hygiene

#2

in BiCo
fibers

Partnering with our Customers in their Innovation & Sustainability Efforts

Customer Targets



Future Growth Paths

Enhance circularity in textiles
with advanced recycling

Deploy innovation solutions:

- Biodegradable PET fibers
- Advanced BreathAir® products
- Biotransformation hygiene fibers
- Medical fibers
- Fibers from advanced recycling and bio-sources

Highlights and Achievements

1. Acquired Tollegno 1900's Wool assets in Italy and Poland, a leading Italian manufacturer of fabrics and yarns.
2. Hygiene business delivered steady results across the globe, demonstrating the essential nature of these products.
3. Invested US\$ 6 million in Polymaterial to utilize their biotransformation technology in making biodegradable hygiene products, such as face masks.

Strategies, Focus Areas and Targets

Long-Term Outlook

Attractive market potential of 3-4% CAGR from 2020 to 2030

1. **Mobility** (+4.1% CAGR¹)
Tire and airbag demand projected to rise due to growing light vehicle production
2. **Lifestyle** (+3.5% CAGR¹)
Growing affluence and urbanization around the world, promoting demand for functional improvements in lifestyle products
3. **Hygiene** (+3.5% CAGR¹)
The COVID-19 pandemic further reinforced hygiene awareness in emerging markets

¹ Source: IVL Analysis, Vision 2030

Medium-Term Strategic Focus Areas

1. **Enhanced Value Chain Capacity:**
 - Hygiene: Addition of a new non-woven production line in Avgol India
 - Lifestyle: Expansion of recycle yarn capacity in Rayong
 - Mobility: Investment in spinning equipment in Mexico
2. **Develop Sustainable Product Offerings:**
Partnership with Polymateria to manufacture biodegradable hygiene products, such as wet wipes
3. **Promote Customer-Centric Innovations:**
Increase in R&D expenditures for personal care, hygiene and safety products

Short-Term Targets

1. **Financial:**
 - US\$ 0.55 to US\$ 0.6 million Core EBITDA by 2024
 - US\$ 25 million fixed cost reduction by 2025
2. **Sustainability:**
 - 22% Vitality Index in 2022
 - 3% of revenue from sustainable products by 2025
 - 10% of revenue from sustainable products by 2030

2022 Highlights & Achievements

ENVIRONMENT

GHG EMISSIONS

0.4972 tCO₂e / ton of production
Scope 1 intensity

0.5368 tCO₂e / ton of production
Scope 2 intensity*

1.0339 tCO₂e / ton of production
Scope 1 and 2 intensity*

* Location-based

ENERGY

10.78 GJ / ton of production
Intensity

4.42%
Renewable electricity

WATER

8.54 m³ / ton of production
Intensity

WASTE

93.3%
Waste diversion from landfill**

** including waste incinerated with energy recovery

HEALTH AND SAFETY

TOTAL RECORDABLE INJURY RATE: TRIR

1.135
cases per 200,000 man-hours

LOST TIME INJURY FREQUENCY RATE: LTIFR

0.798
cases per 200,000 man-hours

2022 Performance



INNOVATION

VITALITY INDEX*

22%
2022 Actual

23%
2022 Target

US\$ 9.9 million
R&D Spending

16
R&D Centers

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

CUSTOMER SATISFACTION*

84.15%
Customer Satisfaction Index (CSI)

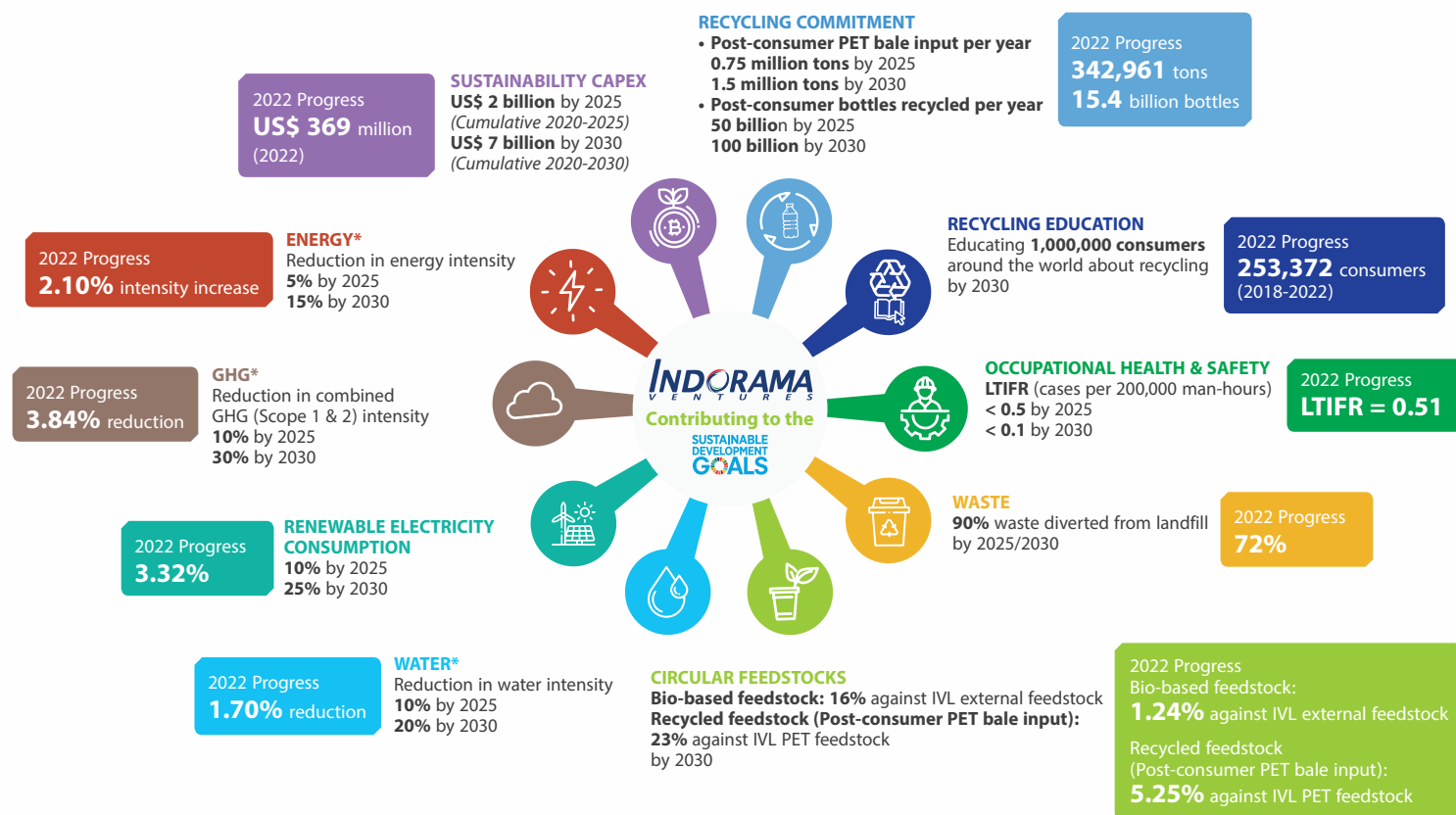
75%
Customer Retention Rate (CRR)

42
Net Promoter Score (NPS)

* A formal customer satisfaction study is conducted every other year as part of our group sustainability strategy. This study was conducted in 2022.



IVL'S TARGETS AND PERFORMANCE



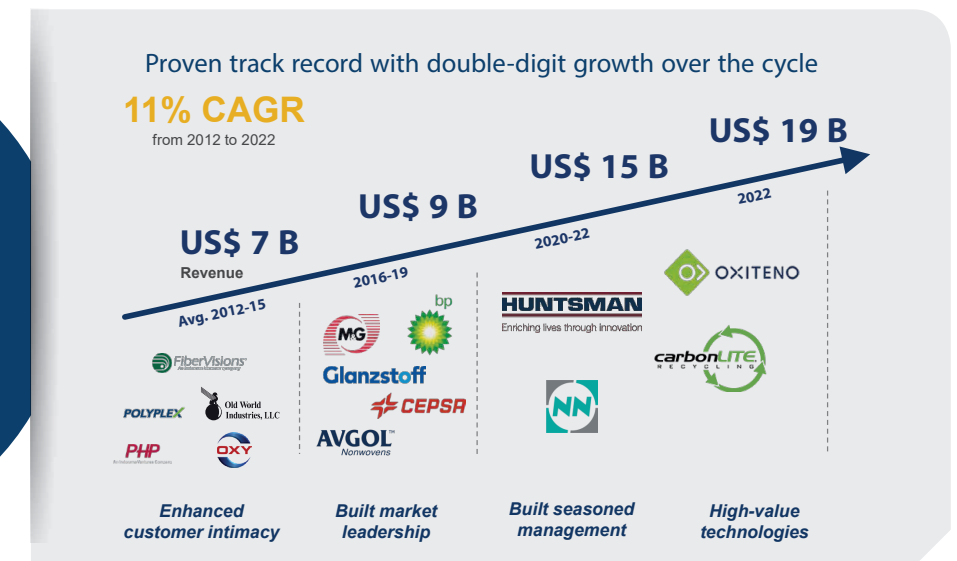
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INFORMATION

OUTLOOK TOWARDS 2024

In navigating the second year of our three-year business plan, we are closer to achieving our goals in driving economic growth, improving efficiencies, and increasing productivity, by leveraging our global footprint and high levels of integration across our three business segments. We achieved a Return on Capital Employed (ROCE) of 12%

in 2022, which is a slight decline compared to 12.2% in 2021. Despite the global economic downturn, we are on track to secure our targeted growth of 15+% ROCE by 2024, which will create US\$ 5-6 billion in free cash flow for our future business expansion.

Transformative
growth driven by
60+
successful
acquisitions



Project Olympus

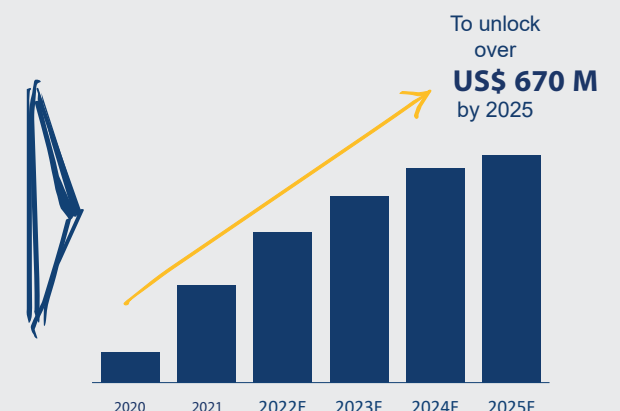
Since its launch in 2020, Project Olympus has been our overarching cost transformation program, laying the foundation for cost-efficiency initiatives. Today, we are pleased to report US\$ 475 million in savings putting us in close proximity to our target of US\$ 610 million run-rate cost and revenue efficiency gains by the end of 2023. We are well-positioned to achieve this target, and expecting to unlock US\$ 670 million by 2025.

However, Project Olympus goes beyond just financial gains. We are creating a culture of operational excellence and continuous improvements, ingraining it into our DNA as a company. By doing so, we will not only achieve our cost-saving goals but also strengthen our ability to continuously improve and innovate in all aspects of our operations, leading to sustained success and sustainable growth for years to come.

Enhancing competitiveness

Systematic approach to continuous cost management

Project Olympus





CHAPTER 2: OUR SUSTAINABILITY APPROACH

IVL's Approach to Sustainability	38
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Risks, Opportunities, and Our Future Outlook	46
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IVL'S APPROACH TO SUSTAINABILITY

IVL has always placed a strong emphasis on sustainability as a fundamental principle, with a vision to become a world-class sustainable chemical company making great products for society. This vision is backed by a sustainability strategy that is aimed at creating a brighter future for people and the planet while ensuring the resilience of our business.

We have taken deliberate steps to incorporate sustainability into every aspect of our operations while considering the interests of our stakeholders. The Company identifies issues that are relevant to our business through strategic engagement with stakeholders and by integrating their input into our decision-making processes.



SUSTAINABILITY STRATEGY AND FRAMEWORK

To achieve our sustainability goals, we use a corporate sustainability strategy and sustainability framework that sharpens our focus and aligns our efforts with the needs of our stakeholders. By taking a holistic approach to sustainability, we strive to create value for our stakeholders while minimizing our environmental impact and contributing to social progress. In this way, we are working towards a brighter and more sustainable future for all.

In order to align our sustainability framework more closely with IVL's Vision 2030 and mission statement, as well as our vertically integrated and interconnected business segments, we revised our strategic sustainability priorities in 2022 to better position ourselves for future growth. This year, we also developed ESG strategies for each of our business segments to accelerate our sustainability journey. The purpose of these segment-specific plans is to ensure adherence to corporate sustainability targets and incorporate ESG concepts into their everyday operations. This will make our operations more sustainable and further enable environmental sustainability, social empowerment, improved governance, and compliance management.



OUR CONTRIBUTIONS TO THE UN SDGs

IVL has outlined five key focus areas to contribute to the SDGs – Recycling and the Circular Economy, Climate Change and Energy, Environmental Stewardship, Health Safety and Well-being, and CSR and Collaborations. Given the nature of our business, we believe we can have the greatest impact on these areas and grow our business while creating positive change. These activities help us align with 13 of the 17 SDGs, totaling 39 targets.

The progress we have made in our contributions to the UN SDGs has been monitored throughout the year and publicly reported in our Sustainability Report 2022, IVL SDGs Reports and in the SDGs section on our website.



RESPONSIBLE GOVERNANCE AND COLLABORATION FOR SUSTAINABILITY



Since 2019, we have been a member of UN Global Compact and Local Network Thailand.



We are proud to be part of the World Economic Forum Alliance of CEO Climate Leaders. The alliance is committed to ambitious climate action.



We are proud to be part of the Ellen MacArthur Foundation's New Plastic Economy initiatives and made a global recycling commitment.

In support of

WOMEN'S EMPOWERMENT PRINCIPLES

Established by UN Women and the UN Global Compact Office

Signatory to the UN Women's Empowerment Principles (WEP).



Committed to set SBTs, recalibrating our plan and its alignment with SBT guidelines, and joining the Expert Advisory Group (EAG) for the chemical sector.



We have been a signatory to the TCFD since 2020.



We are an active member and our GCEO, Mr. Alope Lohia, is on the ACC board.



IVL is a Regular member of the ACC which represents a set of diversified organizations in the field of chemistry and innovation. IVL US subsidiaries adhere to the 'Responsible Care' program and seeking certification by end of 2022.



The federation promotes and supports industries focused on developing sustainable growth in their industrial operations



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



Received an "Excellent - 5 Star" CG score by the Thai Institute of Directors (IOD) for the 10th consecutive year.









Renewed our certification with the Private Sector Coalition Against Corruption (CAC), Thailand.



SUSTAINABLE VALUE CREATION

Sustainable value creation ensures that businesses operate in a way that benefit not only their immediate stakeholders but also society and the environment over the long-term. This approach enables us to remain competitive in an ever-changing market. In pursuing sustainable practices, we are reducing our environmental impacts, improving our reputation, and positively impacting the world – creating a legacy that benefits future generations.

Input				Outcome			
Capital		Indicators	2022	Indicators	2021	2022	YoY change
 Financial	IVL is committed to creating value for our stakeholders by acquiring and utilizing funds to operate and grow as a leading global sustainable chemical company.	Total equity (THB million)	200,885.4	Total revenue (US\$ million)	14,629	18,715	↑
		Total current assets (THB million)	215,707.8	Core EBITDA (US\$ million)	1,743	2,278	↑
		Total current liabilities (THB million)	202,200.4	Core earnings per share (EPS)	3.76	6.02	↑
		Sustainable financing (US\$ million)	1,070.00				
 Manufactured	We are constantly seeking new merger and acquisition opportunities to strengthen our supply chain. Thanks to our extensively interconnected global footprint, we are able to maintain our operations in the face of unforeseen disruptions.	Operating sites	147	PET bottles recycled (billion)	14.3	15.4	↑
		Number of countries (with operations)	35	PET bale input (tons)	317,064	342,961	↑
		Recycling facilities	20	ISO 14001 Certification (%)	79	78	↓
		CAPEX of GHG and Energy projects (million)	11.3	Renewable Electricity Consumption (%)	7.5	3.32	↓
 Natural	We are committed to creating value for our stakeholders while being mindful that this may incur unavoidable costs to the environment. We, therefore, remain steadfast in our decarbonization strategies in our pursuit of achieving net zero carbon emissions.	Total materials consumption (million tons)	16.75	Reduction in total energy intensity (%)	1.5	(+)2.1	↑
		Total water consumption (m ³)	86,910,325	Reduction in combined GHG (Scope 1 & 2) intensity (%)	3	3.32	↑
		Total energy consumption (GJ)	122,147,400	GHG reduction from renewable energy consumption (tons)	143,175	74,906	↓
		Renewable energy consumption (GJ)	1,332,498	Water intensity (m ³ / ton)	5.33	5.19	↓
 Human	Our people are the fundamental element in ensuring our success. This is the reason we take a proactive approach to building the essential skills and capabilities of our workforce, enabling them to achieve even bigger accomplishments.	Total workforces	30,201	Water reused and recycled (%)	5.93	7.2	↑
		Total training expenditures (US\$ million)	3.59	Hazardous waste intensity (ton / ton)	0.0085	0.0093	↑
		Average training hours	30.66	Waste diverted from landfill (%)	78	72	↓
		New Health and Safety standards released	31	Retention rate (%)	88.58	86.29	↓
 Social and Relationship	We understand that being trusted by our stakeholders is crucial to our continued success. We are, therefore, committed to continuing our engagements through our recycling education programs, promoting safety and well-being across all our operations, and maintaining positive relationships with our suppliers.	Total CSR contributions (US\$ million)	2.34	Leadership positions involved in succession planning	266	791	↑
		Total number of CSR activities	590	Leaders involved in the leadership development	1,633	3,381	↑
		Total volunteer hours	22,864	TRIR (cases per 200,000 man-hours)	0.98	0.82	↓
				LTIFR (cases per 200,000 man-hours)	0.66	0.51	↓
 Intellectual	Maintaining our position as a market leader requires constant innovation in our technologies and processes, as well as the development of sustainable products that minimize our environmental impacts.	Total R&D spending (US\$ million)	42.4	Customer satisfaction index (CSI) (%)	86.16	84.8	↓
		R&D spending per business segment		Customer retention rate (CRR) (%)	92	78	↓
		- IOD	28	Net promoter score (NPS)	57	48	↓
		- Combined PET	4.4	Total recycling education beneficiaries (People)	2,751	199,787	↑
		- Fibers	9.9				
		Total R&D employees	355	Vitality index (%)			
		Total R&D centers	27	- IOD*	22	22.1	↑
				- Combined PET	31	27	↓
				- Fibers	23	22	↓
				Total new products	696	> 472	↓
				Collaborative projects with customers, suppliers, academia	212	264	↑

OUR VALUE CREATION MODEL

This report marks the fourth year that we have utilized the International Integrated Reporting Council's (IIRC) value creation model, which has provided us with a comprehensive framework to outline our sustainability performance and impact. By adopting this model, we have been able to better understand our impacts and dependencies on various forms of capital, and the ways to manage them sustainably. Additionally, the model has enabled us to make more informed decisions, increase transparency and accountability, and ultimately create value for all stakeholders.

Note : Vitality Index achievement in 2022 stating the result was based on volume.



VALUE CREATION PROCESS

Our Vision

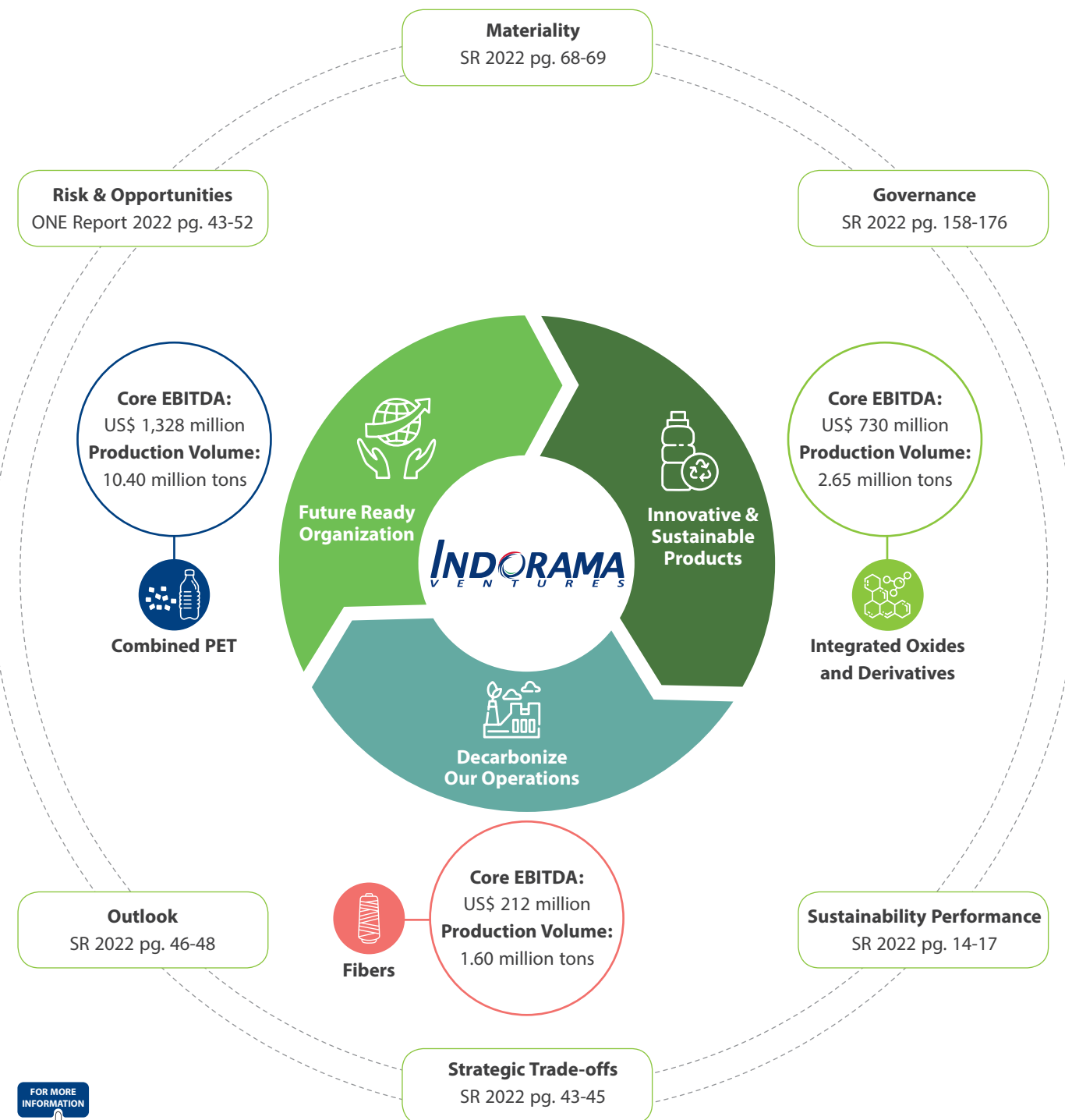
To be a world-class sustainable chemical company making great products for society.

Our Mission

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

Our Business Model

Geographically diversified, interrelated, and integrated.



STRATEGIC TRADE-OFFS

Making strategic trade-offs is critical to ensuring that we make more effective decisions about resource allocation and prioritize our strategic objectives to better position ourselves for the future. As part of our integrated thinking efforts, the Board and group executive committee continuously assess the availability and quality of capital inputs and strike a balance between short-term gains and long-term ambitions to create sustainable value for all stakeholders. Below are three examples of the interconnections between our six forms of capital, highlighting any trade-offs made and the rationale behind our decisions.

Impacts on Capital in 2022

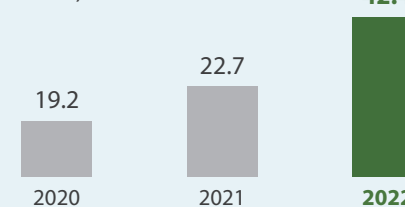
Interconnections between Innovation Expenditure, Market Share, and Sales Volume

- Financial Capital Input (R&D expenditure)
- Financial Capital Output (Core EBITDA % increase)
- Manufacture Capital Input (Innovation centers/Research facilities)
- Intellectual Capital Output (Patents applied and granted)

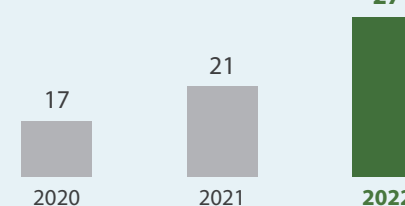
IVL possesses a robust R&D platform with 27 R&D centers globally. We recognize the strategic importance of conducting research to develop innovative products, and are meticulous in our approach to ensure that the return on investment is meaningful for our future positioning. Our strong commitment to providing innovative solutions and sustainable products to our customers is reflected in our Vision 2030 agenda. With various high-value businesses that require R&D, we invested US\$ 41.6 million in research and development in 2022.

We capitalize on our R&D expenditure ensuring that products or processes are technically and commercially feasible, with probable future economic benefits. By fostering innovation and encouraging our people to proactively transform risks into opportunities, we produce game-changing products and ideas that fundamentally improve the way people live and work. This has helped us become the largest ethylene oxide producer in the Americas, the largest PET staple fiber producer in ASEAN, and the largest PET producer globally.

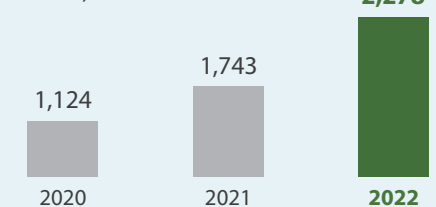
R&D Expenditure (US\$ million)



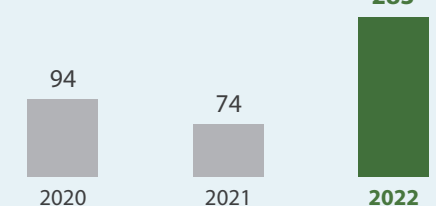
Innovation Centers/ Research Facilities



Core EBITDA (US\$ million)



Patents Applied and Granted





Impacts on Capital in 2022

Interconnections between Short-term financial profitability vs Long-term value creation

- Financial Capital Input
(Investment in Critical Decarbonization projects)
- Manufactured Capital Output
(Production volume)
- Natural Capital Output
(Energy consumption)
- Natural Capital Input
(Percentage of renewable energy mix)

IVL recognizes that our energy consumption needs grow in tandem with our production capacity and volume, which may have a negative impact on the environment. However, to achieve sustainable growth while ensuring a minimal environmental footprint, we have increased our utilization of renewable energy and invested approximately US\$ 11.3 million in energy and GHG reduction projects. Among them is the use of renewable energy sources and reducing our overall consumption levels as we increase our production levels.

While these investments will incur a significant cost for us in the short term, we believe that they will generate cost-savings and broader positive impacts on the environment in the longer term. This will also serve as a risk mitigation strategy by increasing our resilience in the face of climate change. Please refer to pg. 89-100 for our efforts in decarbonization and pg. 50 for our SPT goals.



Impacts on Capital in 2022

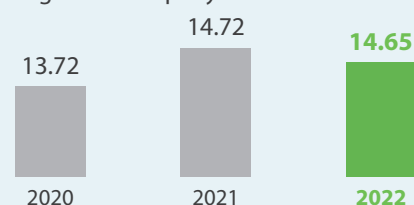
Interconnections between Business Strategy and Environmental Impacts

- Natural Capital Input Materials consumption
(million tons)
- Manufactured Capital Output PET recycling
facilities
- Natural Capital Output PET bottles recycled
(billions)
- Manufactured Capital Output
(Production volume)

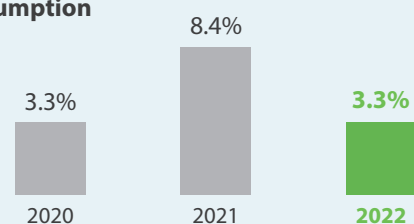
As we continue to build our portfolio of sustainable products to offer innovative solutions that meet the needs of our customers, our raw material consumption is expected to increase. To mitigate our environmental impact, we have adopted a circular business model and are committed to developing new products with a lower environmental footprint throughout the product life cycle, such as those made from higher proportions of bio-based feedstocks or recycled PET materials. This aligns with our Vision 2030 target to consume 23% recycled PET feedstock against IVL PET feedstock.

One of our sustainable products, the Deja™ Carbon Neutral Pellet, is made from locally sourced recycled PET, PTA, and IPA feedstock, making it an eco-friendly option for customers. Furthermore, IVL has obtained approvals from the European Food Safety Authority (EFSA), Food Safety and Standards Authority of India (FSSAI), and the Thai Food and Drug Administration (FDA Thailand) to recycle PET and other polymers into food packaging. This enables us to offer our recyclable and recycled packaging materials in larger markets, contributing to a more sustainable future.

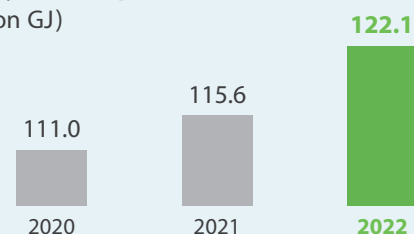
Production Volume* (million tons)
*excluding inter-company activities



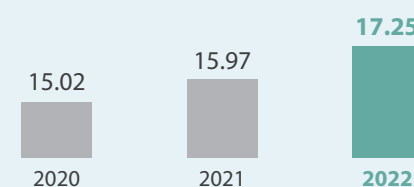
Renewable Electricity Consumption



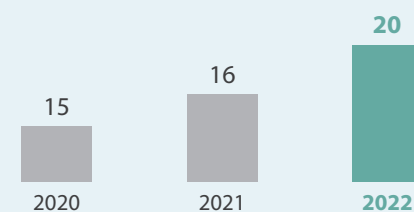
Energy Consumption
(million GJ)



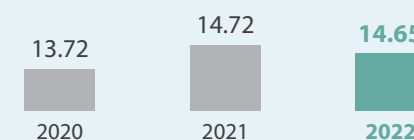
Total Materials Consumption
(million tons)



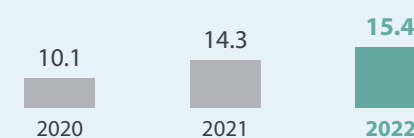
PET Recycling Facilities



Production Volume* (million tons)
*excluding inter-company activities



PET Bottles Recycled
(billions)





RISKS, OPPORTUNITIES, AND OUR FUTURE OUTLOOK

[GRI 201-2]

Risk management is integral to IVL's business strategy, as national and global risk factors could potentially impact our business in the short, medium, and long term. We are well-informed of the external environment at the local, national, regional, and global levels, and proactively adapt so that our business remains agile and sustainable. Supported by robust governance and risk management mechanisms, we are able to manage risks and take advantage of the opportunities arising from micro and macro influences.

The top three emerging risks that we identified are aligned with our material sustainability topics. For more information about other risks and our risk management mechanisms, please refer to pg. 102-103 in our 2022 Annual Report and pg. 168-173 in this Sustainability Report.

External Factors and Outlook	Potential Risks and Impacts	Mitigating Actions and Opportunities	Risk Rating	Link to Material Topics
1 Slowdown in global economic growth <ul style="list-style-type: none">Potential global recession indicated by the surge in energy prices in Europe, along with rising interest rates due to persistent, unprecedented inflationGeopolitical instability arising from the Russia-Ukraine conflict, US-China strategic competition, and China's zero-COVID policy imply pressure on margins and shifting political environments, which are less favorable to businesses	<ul style="list-style-type: none">Softening demand among end-use markets, resulting in an inventory imbalanceIntensification of trade conflicts could affect commodity prices, challenging our industryProlonged economic slowdown implies inability to maximize profitability across the business value chainCost of imports may increase due to the weakening of Asian currencies against the US\$ dollar	<ul style="list-style-type: none">IVL's widespread geographic footprint and balanced portfolio are well-established through regional supply chains, serving resilient end marketsDiversification of both supply and end markets to build business resilienceConsolidated financial scenario planning for a strong financial position and cash flowProcurement excellence and supply chain BCP	<p>Likelihood: Certain</p> <p>Impact: Major</p>	<p>Risk and Crisis Management</p> <p>Supply Chain Management</p>

External Factors and Outlook	Potential Risks and Impacts	Mitigating Actions and Opportunities	Risk Rating	Link to Material Topics
2 Increased market competition <ul style="list-style-type: none">Global PET demand growth in 2023 is forecast to be slower than pre-COVID growth, while strong demand destruction is expected in Eastern Europe due to the Russia-Ukraine conflictDue to maturing regulations and environmental commitments, the demand for R-PET may outpace supply, increasing production costs and competition for supplyDeclining virgin PET prices, coupled with challenges in the collection and sorting of recycled content are also expected to challenge some sectors to potentially step away from R-PET	<ul style="list-style-type: none">Global capacity growth leads to declining utilization rates and lower R-PET marginsIncreasing competition for R-PET supplySurging energy prices increases PET production costs, especially in EuropeDropping freight rates will increase imports from cost-advantaged regions and affect market share in North America and Europe	<ul style="list-style-type: none">Increasing demand for R-PET due to the worldwide focus on reducing plastic waste and increasing circularity points to growth for PETExpansion of global facilities by 2025 is expected to increase IVL's market shareSustainable investment opportunities to attain complete plastic circularity by 2050Leveraging supply flexibility to enable the rerouting of available raw materialsImplementation of procurement excellence and leveraging digital solutions, expanding supply chain team bandwidth and capabilitiesDeveloping USP, such as IVL's Deja™ Carbon Neutral pellets, the world's first carbon-neutral virgin PET resins	<p>Likelihood: Likely</p> <p>Impact: Moderate</p>	<p>Supply Chain Management</p> <p>Post-consumer PET Bottles Recycling and Plastic Waste</p> <p>Customer Relationship Management</p> <p>Sustainable Products</p> <p>Product Stewardship (including product toxicity)</p> <p>Innovation Management</p>
3 Climate change <ul style="list-style-type: none">Significant changes in weather patterns have increased the frequency and severity of natural disasters, such as the hurricane season in the US and floods in Thailand. This poses operational risks as extreme climate events will adversely affect IVL's production facilities and operations	<ul style="list-style-type: none">Business interruption and physical damage to facilities will lead to a loss of business incomeLoss of production time to rebuild, repair, or replace damaged or destroyed propertySupply chain disruptions due to natural disasters at source countries and unreliable logistic networks	<ul style="list-style-type: none">Establishment of the climate change adaptation steering team and identification of climate change adaptation related projectsIdentify climate change adaptation related projects and other options to reduce overall climate riskImprovements in disaster recoveryProtection against physical loss or property damage through insurance	<p>Likelihood: Likely</p> <p>Impact: Moderate</p>	<p>Risk and Crisis Management</p> <p>Supply Chain Management</p> <p>Decarbonization</p> <p>Climate Change</p> <p>Renewable Energy</p>



SUSTAINABILITY RISK MITIGATION PLAN

Sustainability risk management is crucial to ensure we operate in a sustainable and responsible manner. IVL takes robust measures to identify, assess, and mitigate environmental and social risks associated with our operations to avoid severe consequences, such as non-compliance with regulations, reputational damage, financial loss, and penalties. To address various sustainability risks and challenges, we have formulated a range of actions to improve our sustainability performance, which are scheduled for implementation by the end of 2023.





SUSTAINABLE FINANCE

Sustainable financing has become an increasingly important tool for us to achieve our goals. By leveraging financing mechanisms that prioritize sustainability, we gain access to capital and other resources needed to drive significant progress towards our ambitions and targets. Sustainable financing helps to accelerate our growth towards a more sustainable future and contributes to the United Nations Sustainable Development Goals (UN SDGs).

To this end, IVL has established a Sustainability-Linked Finance Framework in alignment with the International Capital Markets Association (ICMA) and the Sustainability-Linked Loan Principles (SLLP), which are consistent with the Sustainability-Linked Bond Principles (SLBP) published by the Loan Market Association (LMA).

FOR MORE
INFORMATION

The proceeds acquired through this framework are earmarked for several specific purposes, including sustainability initiatives, decarbonization projects, and investments in recycling. Additionally, the financial characteristics of our debt instruments are linked to selected Sustainability Performance Targets (SPTs).



Our SPTs

Our 2022 Performance

10%* GHG intensity reduction by 2025
**2020 as the base year*



Reduced GHG emissions intensity by
3.84% compared to the 2020 baseline

750,000 tons of post-consumer PET
bale input per year by 2025



Recycled **342,961** tons
(Achieved 46% of our 2025 target)

25% renewable electricity consumption
by 2030



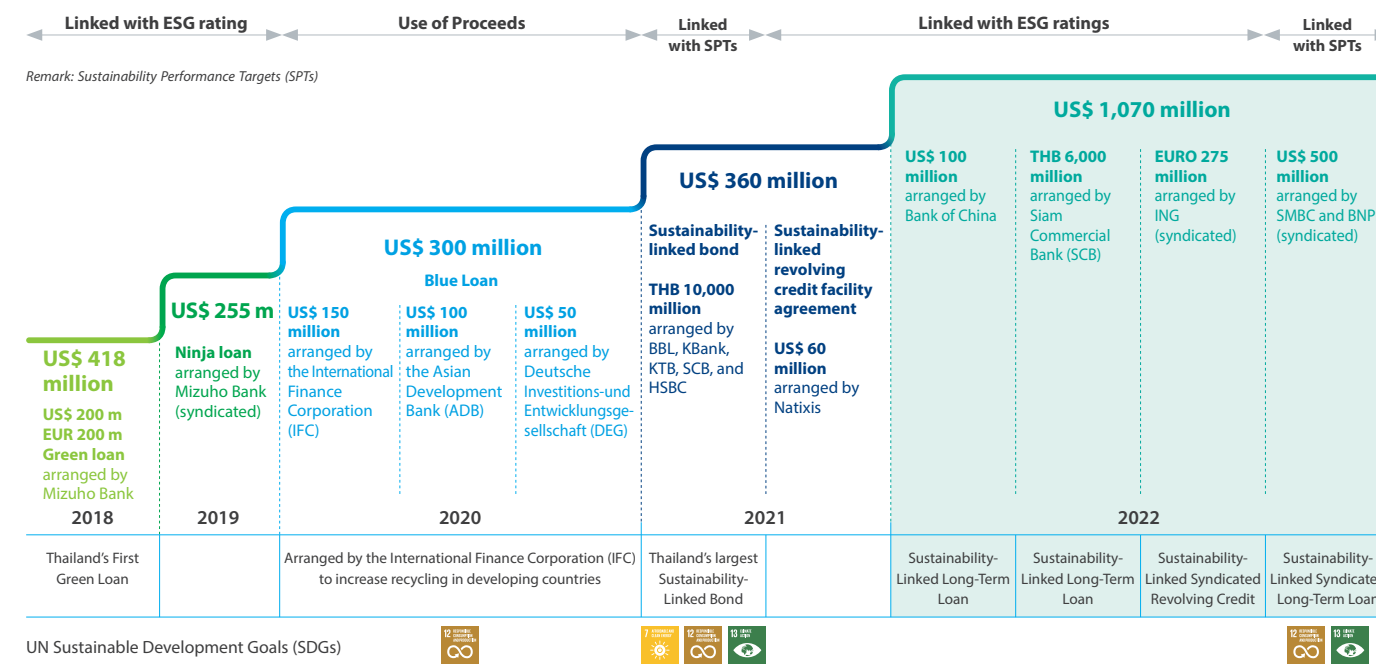
Our renewable electricity consumption
currently stands at
3.32%

The sustainable financing supports our company's expansion in line with our strategy for Vision 2030, which takes Environmental, Social, and Governance (ESG) factors into account.



TOTAL US\$ 2.4 billion

(2018-2022)



In 2022, we secured an additional US\$ 1.1 billion in sustainable financing from financial institutions, which include Siam Commercial Bank (SCB) and ING Bank. To ensure accountability, the loans were structured in such a way that liquidity is linked to future performance, while interest rates will remain low for several years provided that we attain an outstanding ESG score based on S&P Global.

As a global leader, IVL has secured approximately US\$ 2.4 billion through sustainable financing instruments as of the end of 2022. With these funds, we will increase our post-consumer PET recycling capacity, expand renewable electricity uptake, invest in decarbonization projects (including energy efficiency improvements, GHG reduction, and new technologies) and support sustainability initiatives within our operations.



ROADMAP TOWARDS A SUSTAINABLE FUTURE

We are committed to achieving our 'Vision 2030', which aligns with our purpose statement of "Reimagining Chemistry Together to Create a Better World". Our vision outlines our focus to decarbonize our operations, create innovative and sustainable products, and become a future ready organization. As we move forward, we have already taken the following steps to support our vision in 2023.

Vision 2030: Progress and Highlights for 2022

Decarbonize our Operations

- Target of 26% circular feedstocks against IVL's entire feedstock by 2030
- Investing US\$ 4.7 billion in circular feedstocks to replace fossil fuel-based feedstock to achieve our target
- Kickstarting projects at our Port Neches site to capture CO₂ from an ethylene oxide (EO) facility for sequestration and carbonates consumption, and at our IVPM site in Mexico to capture and convert CO₂ into liquid purified CO₂ for food-grade applications
- Expanding recycling capacity worldwide through our 85% acquisition of UCY Polymer in the Czech Republic, and our co-investment in Carbios, a green industrial biotech company based in France
- Investing US\$ 7 billion in Sustainability CAPEX, including decarbonization, recycling, and biomass projects, will require huge investments in talent, time, and money – in response, a dedicated taskforce was formed to explore, prioritize, and materialize projects

Innovative & Sustainable Products

- Global regulatory and legislative actions have opened up new markets of close to 1.5 billion people in Thailand and India, and also promoted PET's intrinsic recyclability in the US and Europe
- Integration of Oxitenio has enhanced our international downstream platform, unlocking synergies
- The success of our strategic acquisition in Vietnam further encourages us to tap into new markets in the packaging vertical and customer-centric opportunities, thus boosting our specialty business portfolios of PET, PIA and NDC
- Consolidating our footprint and augmenting product innovations to promote personal care, hygiene, and safety while enabling superior performance

Future Ready Organization

- Strategically engaging more than 40% of our top raw material suppliers that contribute roughly 70% of our raw material spend to encourage decarbonization in our value chain
- Advancing to the next level of M&A excellence
- Implementing an enhanced BCM operating model to drive business resiliency
- Nurturing our next generation of leaders and managing our ever-growing talent pool
- Capturing significant transformations through our digitalization step-up, with US\$ 475 million in savings from our Project Olympus

SUSTAINABILITY HIGHLIGHTS AND ACHIEVEMENTS OF 2022

2022 SUSTAINABILITY ACHIEVEMENTS AND CONTRIBUTIONS TO THE SDGs

To achieve true business success, it is important to create value not only for the organization itself, but also for the environment and society as a whole. This is the reason that we have integrated the UN SDGs into our business practices ensuring that our investment decisions and strategic operations focus on areas where we can have meaningful impacts. By aligning our products and conduct with the SDGs, we are able to drive innovation, create new market opportunities, and most importantly, demonstrate our commitment to people and the planet.







We closely monitor and report on our progress in contributing to the SDGs through the IVL SDGs Report and in the SDGs section of our website. For further information on how our materiality is linked to the SDGs, please refer to pg. 68 of this report.

Sustainable Financial Growth

Initiative	Target	Result in 2021	Result in 2022	Contribution to the SDGs
Making sustainable investments to grow our business	Sustainability CAPEX: US\$ 2 billion by 2025 US\$ 7 billion by 2030	-	US\$ 369 million	
Securing sustainable finance to fund our operations	Sustainable financing supports our company's expansion in line with our strategy for Vision 2030	US\$ 1.3 billion	US\$ 2.4 billion	
Strengthening our capabilities through investment in R&D	Increase Vitality Index and new product innovation	US\$ 22.7 million	US\$ 42.4 million	
Investing in our recycling facilities	US\$ 1.5 billion total investments by 2030	16 recycling facilities in 2021	20 recycling facilities in 2022	
Driving efficiency in our business through Project Olympus	US\$ 610 million run-rate cost saving	US\$ 291 million in cost saving	US\$ 475 million in cost saving	








Decarbonization and Environmental Commitment

Initiative	Target	Result in 2021	Result in 2022	Contribution to the SDGs
Reducing GHG emissions	Reduction in combined GHG (Scope 1 & 2) intensity: 10% by 2025 30% by 2030	3.0% reduction	3.84% reduction	
Strengthening our recycling efforts	Bottles recycled per year: 50 billion by 2025 100 billion by 2030	14.3 billion bottles recycled	15.4 billion bottles recycled	
Diverting PET bale input from oceans and landfills	PET bale input diverted from oceans and landfills per year: 0.75 million tons by 2025 1.5 million tons by 2030	222,288 tons of PET bale input diverted	342,961 tons of PET bale input diverted	
Improving water management	Reduction in water intensity: 10% by 2025 20% by 2030	0.48% increase	1.70% reduction	
Increasing the utilization of renewable electricity	Renewable electricity consumption: 10% by 2025 25% by 2030	7.5% of energy consumed	3.32% of energy consumed	
Diverting waste from landfill	90% waste diverted from landfill by 2025/2030	78% waste diverted	72% waste diverted	



Well-being of Employees and Communities

Initiative	Target	Result in 2021	Result in 2022	Contribution to the SDGs
Respecting human rights in our operations	Zero human rights violations	Declaration on Human Rights signed by 90% of Business Heads and 92% of Site Heads in 2021	Declaration on Human Rights signed by 100% of Business Heads and 100% of Site Heads in 2022	
Building capacity within our workforce	About 1,000 leadership positions involved in succession planning by 2023	266 leadership positions	791 leadership positions	
	3,500 leaders involved in the leadership development curriculum by 2024	1,633 leaders	3,381 leaders	
Creating a safe working environment	Zero accidents in IVL's sites	41% of our sites	54% of our sites	
Ensuring safety and well-being of our employees and contractors	LTIFR per 200,000 man-hours: < 0.5 cases by 2025 < 0.1 cases by 2050	0.99 case per 200,000 man-hours	0.51 case per 200,000 man-hours	
Collaborative efforts to preserve our environment	Educating 1,000,000 consumers around the world about recycling by 2030	53,585 consumers educated (cumulative 2018-2021)	253,372 consumers educated (cumulative 2018-2022)	





CHAPTER 3: MATERIALITY

Stakeholder Engagement	58
Engagement with the United Nations	62
Major Industry Associations, Memberships and Collaborations	66
Materiality Assessment 2022	68



STAKEHOLDER ENGAGEMENT

[GRI 2-28, 2-29, 3-3]

IVL is committed to open and transparent communications with all stakeholders, including clients, investors, suppliers, and government officials, to keep them well-informed of our sustainability efforts, and we prioritize understanding their perspectives and priorities, which we consider when shaping our strategies. Internationally, we support the United Nations Global Compact (UNGC) to align our efforts with universal principles and participate in industry associations to establish industry-wide standards. In addition, we collaborate with the academic community and other groups to explore innovative solutions to address our sustainability challenges.

Our goal is to build trust and enhance our reputation as we strive towards a more sustainable future together. To guide our stakeholder relationships, we established internal policies and use feedback surveys, grievance processes, and employee training outcomes to support these interactions. We compile the results of these interactions, which are crucial for our ongoing improvement, and present them to relevant leaders within the organization for further action and follow-up.



We Listen

We reach out to, listen to, receive feedback and address the concerns of individuals and organizations impacted by our activities throughout the year.



We Engage

We engage and collaborate with our stakeholders to build long-term, meaningful, and mutually beneficial partnerships.

Our Stakeholder Engagement Approach



We Report

Sustainability disclosures are produced based on material issues identified by stakeholders in relation to broader sustainability contexts.

Employees

Focus Areas:

- Prioritizing health and well-being to provide a safe and healthy workplace for employees
- Developing our talent pipeline by offering regular training, promoting diversity and inclusion, and providing opportunities for career growth
- Prioritizing fair wages and benefits, working hours, and labor standards, and ensuring ethical sourcing practices

Metrics and Measures in Assessing the Quality of Stakeholder Relationship:

- Health and safety metrics
- Training and development metrics
- Employee retention and turnover metrics
- Employee Engagement

Our Response:

- Employee Engagement pg. 129
- Providing a Safe Workplace pg. 138-155
- Investing in our People pg. 122-137
- Workplace Human Rights, pg. 134-135

Customers

Focus Areas:

- Creating sustainable products that meet customer expectations which could potentially lead to increased sales revenue and improved customer relations
- Initiating collaborative projects with customers to develop new products
- Prioritizing decarbonization efforts, recognizing that this is vital for the business and for humanity
- Recycling post-consumer PET bottles and other plastic waste supports our sustainability efforts and those of our customers, in addition to serving as a starting point for future sustainability initiatives

Metrics and Measures in Assessing the Quality of Stakeholder Relationship:

- Vitality index metrics
- Sustainable product portfolio metrics
- Customer satisfaction metrics

Our Response:

- Pushing Boundaries to Meet the Needs of Customers pg. 110-117
- Supporting Sustainable Growth, pg. 72-73
- Advancing Towards Net Zero Carbon, pg. 88-107
- Driving Circularity, pg. 80

Communities

Focus Areas:

- Community development (good health and well-being, social needs)
- Raising awareness on plastic waste and PET circularity
- Educating communities (STEM and plastic waste separation and recycling)
- Environmental preservation surrounding our areas of operations
- Local community engagement

Metrics and Measures in Assessing the Quality of Stakeholder Relationship:

- Community engagement and outreach metrics
- Social grievances metrics - community grievance
- Environmental and social impact metrics
- Social contribution metrics

Our Response:

- Giving Back to Our Communities, pg. 148-155
- Driving Circularity, pg. 80



Suppliers and Vendors

Focus Areas:

- Responsible sourcing by suppliers (ESG compliance)
- Supplier assessment and engagement
- Decarbonization in IVL's supply chain would support in the reduction of scope 3 emissions
- Supplier capacity building to meet IVL's ESG practices and compliance

Metrics and Measures in Assessing the Quality of Stakeholder Relationship:

- Supplier ESG assessment
- Performance metrics (ESG and GHG)
- Supplier engagement

Our Response:

- Engaging Our Suppliers, pg. 118-121
- Advancing Towards Net Zero Carbon, pg. 88-107
- Sustainable Supply Chain Management, pg. 98

Bankers, Investors and Fund Providers

Focus Areas:

- Sustainable finance
- Demand for sustainable products is increasing and expected to continue growing
- Climate-related issues (net zero, water scarcity, biodiversity) are the most significant threat to the survival of economic and social activities, and a critical concern shared by both IVL and its stakeholders
- Commitment to the SDGs (e.g. climate actions, post-consumer PET bottle recycling, and plastic waste) while simultaneously enhancing IVL's own operations to effectively address this issue
- ESG ratings and scores

Metrics and Measures in Assessing the Quality of Stakeholder Relationship:

- Debt-to-equity ratio
- Return on investment (ROI) and ROCE
- Credit rating
- Stock price and dividends
- Investor relations
- Innovation and growth metrics
- Sustainability and ESG metrics

Our Response:

- Advancing Towards Net Zero Carbon, pg. 88-107
- Supporting Sustainable Growth , pg. 72-73
- Robust Governance, pg. 158-177

Government and Regulators

Focus Areas:

- Compliance (regulatory, environmental and social)
- Licenses to operate
- Political contributions
- Trade associations and memberships
- rPET regulation approval
- Carbon tax and plastic tax, Carbon Border Adjustment Mechanism (CBAM)

Metrics and Measures in Assessing the Quality of Stakeholder Relationship:

- Sustainability and environmental metrics
- Government body engagement - adhoc
- Public hearing through EIA and community engagement
- Community impact
- Intellectual property and patent metrics (trademark and innovation)

Our Response:

- Robust Governance, pg. 158-177
- Major Industry Associations, Memberships, and Collaborations, pg. 66
- Driving Circularity, pg. 80
- Managing our Environmental Impact, pg. 99
- EHS Management and Compliance Systems, pg. 140-141

Consultants

Focus Areas:

- Carbon credit and plastic credit
- Significant carbon footprint and decarbonization activities in compliance with regulations, maintain IVL's reputation, achieve operational efficiencies, and be a responsible operator
- Bio-based feedstocks and advanced recycling technology
- Sustainable products and IVL's LCA together with structured innovation management to support long-term product innovation and sustainability targets
- Customer satisfaction survey
- Supply chain collaboration program
- Cybersecurity
- Knowledge management

Metrics and Measures in Assessing the Quality of Stakeholder Relationship:

- Number of projects engaged with consultants
- Value creation from projects (e.g. cost effectiveness, expertise)
- Professionalism (e.g. responsiveness, communication, availability, timeliness)
- Compliance and NDA
- Recurrence of utilizing their services

Our Response:

- Advancing Towards Net Zero Carbon, pg. 88-107
- Supporting Sustainable Growth, pg. 72-73
- Pushing Boundaries to Meet the Needs of Customers, pg. 110-117
- Engaging Our Suppliers, pg. 118-121
- Managing Cybersecurity Risks, pg. 174-177





Thought Leadership: Key highlights on IVL's role in responding to global challenges

ENGAGEMENT WITH THE UNITED NATIONS

[GRI 2-28, 2-29]

As a participating member of the UNGC, we have embraced its 10 principles, which has helped us to adopt and advance more responsible business practices and deliver positive sustainability outcomes for ourselves and our stakeholders. We are actively involved in the Global Compact Local Network in both Brazil and Thailand, and our Communication on Progress (CoP) is available on our website in addition to the UNGC website.



Advocating for Sustainable Finance

At the CEO Forum on Sustainable Finance hosted by the UNGC Network Thailand on February 9, 2023 in Bangkok, Deputy Group CEO and Group CFO, Mr. DK Agarwal, represented IVL along with CEOs and senior executives from other leading Thai companies to share their insights on sustainable financing and SDG commitments.

Mr. Agarwal highlighted how IVL's sustainability commitments, including decarbonization, CO₂ capture, and PET recycling, have resulted in positive financial impacts, such as cost optimization and positive returns on capital employed, and a lower carbon tax. These efforts have also contributed towards increased access to sustainable finance loans amounting to US\$ 2.5 billion through Green Loans, Blue Loans, and Sustainability-linked Loans.

Following the forum, Mr. Agarwal met with Ms. Sanda Ojiambo, the Assistant Secretary-General and CEO of the UNGC, to discuss a potential partnership to promote sustainable finance, including the need to enhance plastic collection infrastructure globally.



Sustainable Finance

In support of

WOMEN'S EMPOWERMENT PRINCIPLES

Established by UN Women and the
UN Global Compact Office

Diversity, Equity, and Inclusion (DEI)



We are a signatory and supporter of the **Women's Empowerment Principles** and apply **UN Global LGBTI Standards of Conduct** to promote gender equality, women's empowerment, and diversity and inclusion in the workplace, marketplace, and community. We also actively tackle any forms of discrimination or unfair treatment that may disrupt the development of a healthy work environment.

IVL celebrates the LGBT+ community as an integral part of our workplace culture, prioritizing inclusivity and respect for diversity. As part of this effort, we are actively promoting equality and acceptance in the workplace and beyond across all our businesses.

SDGs

Showcasing our efforts to achieve the SDGs



In 2022, IVL met with the Chief of Outreach and Engagement, Ms. Sue Allchurch, and the Manager of Fundraising and Sponsorships, Mr. Maxell MacKenna, at the UNGC's headquarters in New York to explore potential collaborative opportunities in the Supply Chain Pilot Program. This program reinforces the success of net zero ambitions and the SDGs by promoting sustainable practices within supply chains. We also shared our SDGs Report with the UNGC during this meeting, highlighting our contributions that align with the UN SDGs.

Our activities have a significant impact on the SDGs, and we work together with the Global Compact Local Network to promote the benefits of PET plastic waste separation and recycling, and the circular economy as crucial tools for achieving the SDGs. We also publish our SDGs Report annually to communicate our progress and achievements in this area.



PET Back to PET - ASEAN Speaks by Maybank:

Mr. Yash Lohia, Chairman of the ESG Council, shared his ideas and plans for recycling PET instead of sending it to landfills. He emphasized the importance of collaboration from all sectors to drive the transition to a circular economy at ASEAN Speaks by Maybank, a platform featuring valuable insights from market analysts, economists, and thought leaders on topics ranging from business, technology, sustainability, and other important issues.



Post-consumer PET Bottles Recycling and Plastic Waste

Advancing Climate Change with the World Economic Forum



IVL is a proud signatory of the World Economic Forum's Alliance of CEO Climate Leaders, which encourages governments to set ambitious goals and remain on track with their commitments as aligned with the Paris Agreement. This includes reducing green premiums, investing in a fair transition, and harmonizing reporting and disclosure standards.

IVL's Group CEO, along with over 100 other CEOs, formed an influential network and community to accelerate climate action within their respective value chains and markets. IVL is actively supporting two key initiatives – the World Economic Forum's Global Plastic Action Partnership (GPAP) and the Ellen MacArthur Foundation's Plastic Initiative. IVL is also collaborating with the global climate action NGO, Waste and Resources Action Programme (WRAP), through enhanced knowledge exchange and stakeholder collaboration.

Since 2018, these three organizations have been conducting national-level activities across more than twenty countries with a common vision for a circular economy for plastics, in addition to sharing their learnings and best practices to further advance these efforts.

Climate Change



Sharing Valuable Insights on a Global Stage at the World Economic Forum 2023

Mr. Yash Lohia, Chairman of the ESG Council, shared his insights on IVL's sustainability commitments, vision, and strategy as a global sustainable chemical company.

He highlighted IVL's leadership in sustainable financing, exemplified by the issued THB 10 billion triple-tranche Sustainability-Linked Bond, which showcased our commitment to sustainable growth. This bond, the largest of its kind in Thailand and the first offered to both institutions and high-net-worth investors, demonstrates our commitment to sustainable growth, capital optimization, and gives investors an opportunity to contribute to the positive transformation of the chemical industry.

Mr. Yash Lohia also discussed how we continue to support two regional initiatives related to clean energy- the Smart Power Program and the Corporate Clean Energy Alliance, which we are co-chairing to further develop effective renewable energy policies in Asia. We also support global brands such as Adidas, Nike, and Mars, as well as other developers of renewables.

Sustainable manufacturing plays a crucial role in safeguarding our planet and people. IVL is committed to fulfilling this global responsibility by developing the necessary infrastructure to support a circular economy for packaging. We strive to embed sustainability into every aspect of our business and operations, reflecting our purpose of reimagining chemistry to create a better world.





MAJOR INDUSTRY ASSOCIATIONS, MEMBERSHIPS AND COLLABORATIONS

[GRI 2-28, 2-29]

IVL engages in collaborative efforts with a range of external alliances, partners, and industry experts to address global sustainability challenges collectively. Additionally, we participate in numerous industry associations and cultivate partnerships both the company-wide and segment level.



GLOBAL

- United Nations Global Compact (UNGC)
- World Economic Forum (WEF)
- Global Plastic Action Partnership (GPAP)
- Task Force on Climate-related Financial Disclosures (TCFD)
- Ellen MacArthur Foundation (EMF)
- Responsible Care (RSPO)
- The Recycling Partnership (TRP)

EUROPE

- The Committee of PET Manufacturers in Europe (CPME), Europe
- European Man-Made Fibres Association (CIRFS), Belgium
- Industrievereinigung Chemiefaser e.V. (IVC), Germany
- World Economic Forum (WEF), Switzerland
- Plastics Recyclers Europe (PRE), Europe
- American Fuel and Petrochemical Manufacturers (AFPM)
- International Association of the Nonwoven Fabrics Industry (EDANA), Europe
- The European Organization for Packaging and the Environment (EUROPEN)

AMERICAS

- Americas Fiber Manufacturing Association (AFMA), USA
- Association of Plastics Recyclers (APR), USA
- PET Resin Association (PETRA), North America
- National Association for PET Container Resources (NAPCOR), USA, Canada and Mexico
- Operation Clean Sweep (OCS), USA
- American Chemistry Council (ACC)
- Association of the Non-woven Fabric Industry (INDA)
- Association of Postconsumer Plastic Recyclers (APR)
- Associacao Brasileira da Industria do PET (ABIPIPET)
- Association of Ghana Industries (AGI)
- Associacao Brasileira da Industria Quimicas, Brazil
- Asociacion de Combustibles Eficientes de Latinoamerica, Mexico
- Asociacion de Industrias Quimicas del Uruguay, Uruguay
- American Fuel & Petrochemical Manufacturers, USA
- Council for LAB/LAS Environmental Research, USA

ASIA

- The Federation of Thai Industries (FTI), Thailand
- Thai Beverage Industry Association (TBA), Thailand
- Global Compact Network Thailand (GCNT), Thailand
- Indian Chamber of Commerce (ICC), India

FOR MORE
INFORMATION

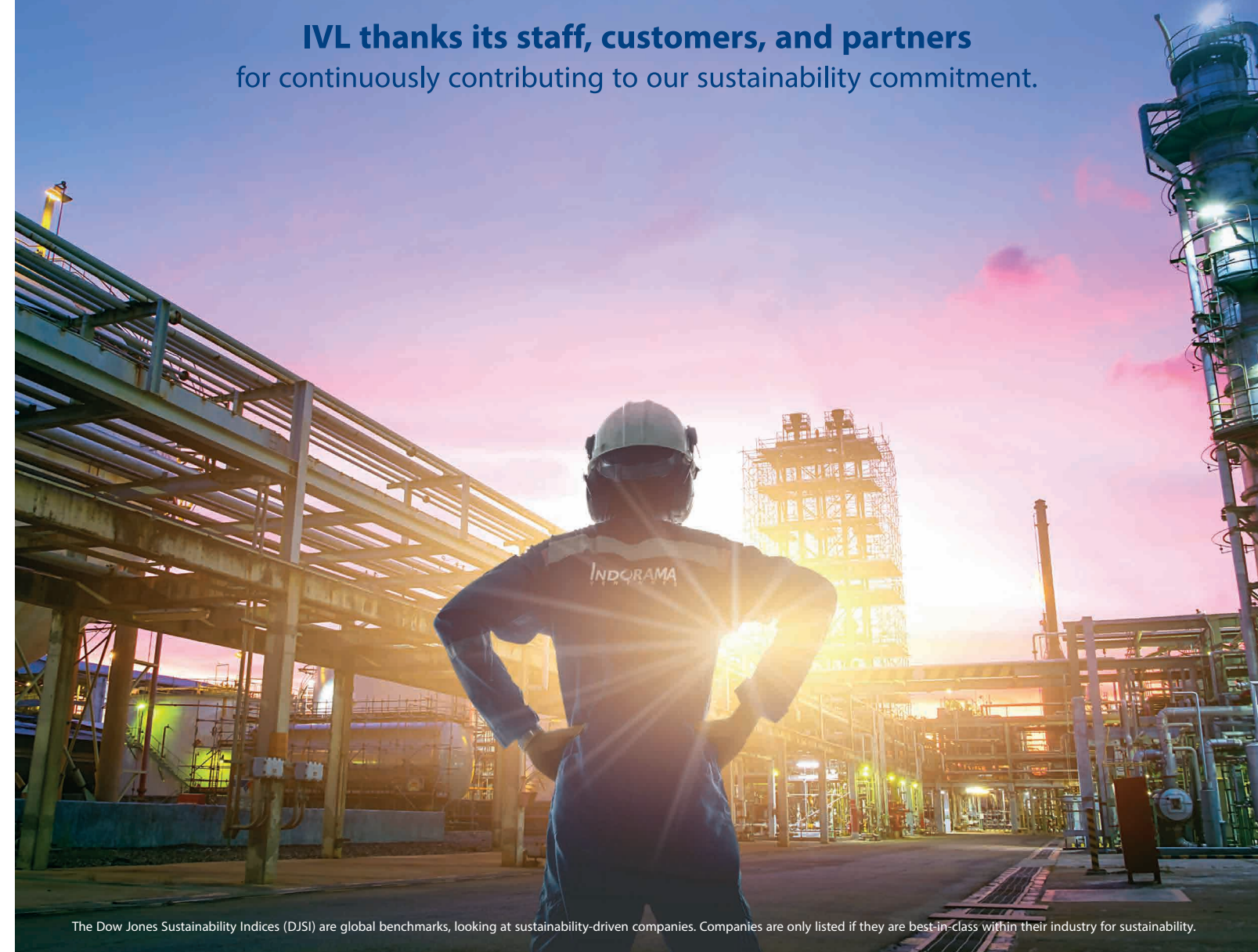


Member of
**Dow Jones
Sustainability Indices**
Powered by the S&P Global CSA



COMMITTED TO
A SUSTAINABLE FUTURE
ACHIEVED 96TH PERCENTILE,
with a score of 80/100 in the 2022 S&P Global Corporate
Sustainability Assessment in the Chemicals Industry.

IVL thanks its staff, customers, and partners
for continuously contributing to our sustainability commitment.



The Dow Jones Sustainability Indices (DJSI) are global benchmarks, looking at sustainability-driven companies. Companies are only listed if they are best-in-class within their industry for sustainability.



MATERIALITY ASSESSMENT 2022

MATERIALITY ASSESSMENT PROCESS

[GRI 3-1, 3-2, 3-3]

We conduct materiality assessments on a biennial basis to ensure that our business strategy addresses stakeholder concerns, and that our disclosures continue to reflect our stakeholders' interests. Our materiality assessment approach is aligned with the Global Reporting Initiative (GRI) Standards, and the concept of double materiality has been integrated in our materiality assessment process.

In 2022, IVL Group conducted a materiality assessment in accordance with the GRI standards and its double materiality approach to identify and reassess the key economic, environmental, social and governance topics that significantly impact our business and our stakeholders. These topics were identified through a review of relevant sustainability ratings and standards, industry trends, as well as stakeholder interests.

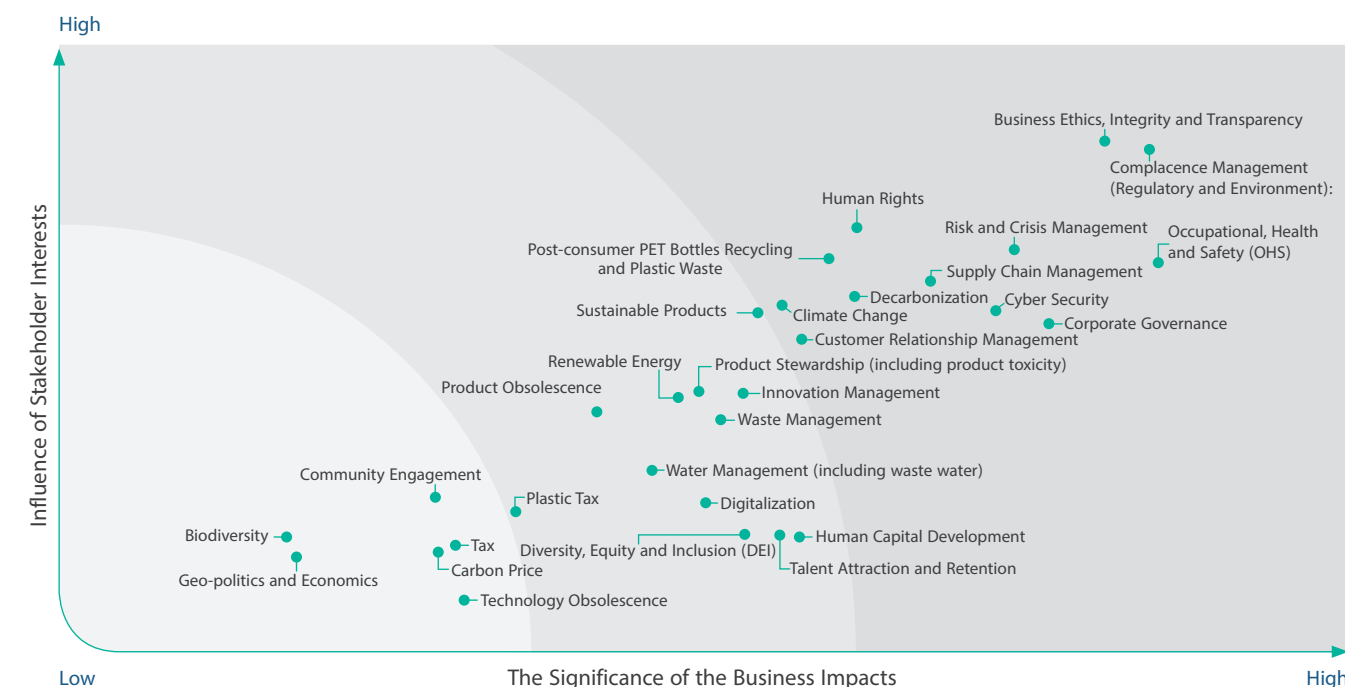
As part of this materiality assessment exercise, we engaged internal and external stakeholders, including employees, customers, consultants, communities, suppliers, business partners, governments and regulators, bankers, investors, and fund providers to collate their input for our materiality matrix. Out of 30 topics that were identified as relevant to our business and stakeholders, we determined 18 topics to be material, with 10 of these being deemed highly material.



MATERIALITY ASSESSMENT OUTCOMES

[GRI 3-2, 3-3]

Our observations indicate that our internal and external stakeholders continue to prioritize governance matters, including business ethics, regulatory compliance, and corporate governance. Furthermore, our materiality assessment has established that cybersecurity has become more significant compared to our 2020 materiality matrix, likely due to digitalization efforts across our business. In addition, climate change remains a material topic for the Group, which supports the ongoing decarbonization efforts across our value chain.



Our comprehensive framework, robust governance structure, and sustainability targets are instrumental to our commitment in making decarbonization a key focus area. We firmly believe that sustainable products not only offer significant business opportunities but also contribute to a better future for all.

Therefore, this year, we are focusing on critical areas such as renewable energy, innovation, waste management, and water management. Our emphasis on renewable energy is motivated by our conviction that it can positively impact our overall sustainability and meet the expectations of our stakeholders. We recognize the importance of

effective innovation management to remain competitive, responsible waste management for the proper disposal of hazardous and non-hazardous waste, and water management for the efficient use of water, as our production requires substantial amounts of it. We are pleased to report that our stakeholders have expressed increasing satisfaction with our progress in decarbonization, human rights, and sustainable products. As a result of this progress, we have redirected our attention towards these areas this year.

Moving forward, we will continue to integrate the findings into our sustainability priorities, management, business strategy, and disclosures.





CHAPTER 4: ENVIRONMENTAL PROGRESS

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Note: - 2020 and 2021 environmental data has been restated using a more stringent definition and methodology.
- 2020 baseline was adjusted for an alignment.



SUPPORTING SUSTAINABLE GROWTH

INNOVATION ACROSS OUR PORTFOLIO

[GRI 3-3, 203-1, 203-2]

As a global chemical company, IVL is committed to driving innovation and circularity within our product portfolio to maintain a competitive edge while ensuring sustainable business growth. In line with this commitment, we have invested nearly US\$ 42.4 million in R&D in 2022, marking an impressive 83% increase from the previous year. This underscores our steadfast commitment towards creating ongoing value creation through product and process innovation.

Apart from the development of sustainable products, innovation also plays a pivotal role in supporting our climate and environmental goals. Through novel product design and packaging, as well as the use of circular feedstocks across our products, we actively address critical societal issues and global challenges, such as the diversion of plastic waste from landfills and the reduction of our global carbon footprint.

INPUT		OUTPUT		IMPACT	
Total R&D (US\$)	US\$ 42.4 million	Number of new products launched	> 472	Vitality Index	
• IOD*	US\$ 28.0 million			• IOD**	22.1%
• Combined PET	US\$ 4.4 million	Number of new patents applied and granted	283 (1,735 as of Dec 2022)	• Combined PET	27%
• Fibers	US\$ 9.9 million	Numbers of collaborative projects with academia, customers and suppliers	264	• Fibers	22%
Number of R&D facilities	27			Bio-based feedstock consumption	1.24% against IVL's external feedstock
Number of R&D employees	355			Customer Satisfaction Index	84.82%
				Customer Retention Rate	78%
				Net Promoter Score	48
* R&D Spending (OPEX)					
** The 2022 Vitality Index was measured based on the volume sold of products developed during the last five years, comprising the downstream IOD business without EOAs.					
Number of recycling facilities	20	Number of PET bottles recycled	15.4 billion	Recycled PET feedstock consumption	5.25% against IVL's PET feedstock
		Total post-consumer PET bale input	342,961 tons	GHG emissions reduction via recycling	0.34 million tCO ₂ e

Our Approach to Innovation

A robust and effective innovation management system is essential for achieving sustained success in today's competitive marketplace. At IVL, our innovation management system prioritizes the continuous evaluation and refinement of our existing systems, processes, and products to drive incremental yet impactful improvements. By refining our process and operational efficiencies, we not only enhance our performance but also contribute to improved energy and water saving measures, thus supporting the success of our Decarbonization Strategies.

In line with our "Innovation Management Focus" strategy, we embrace an open innovation approach by closely collaborating with internal and external stakeholders. The diversity of perspectives and expertise among our stakeholders continues to result in unique ideas and insights, enabling us to improve various aspects of our products, processes, and business models. Through this approach, we are accumulating valuable technologies, intellectual property, and R&D capabilities to drive the next phase of innovation, particularly in meeting the increased sustainability needs of our customers.



Open Innovation Approach		
Type of Collaboration	Initiatives in 2022	Impacts Achieved in 2022
Internal Collaboration	<ul style="list-style-type: none">Expanded our global presence with the establishment of 6 new R&D facilitiesWelcomed 141 talented individuals to our R&D teamInstilled a culture of continuous improvement throughout our entire value chainEmbraced diversity in our workforce, thus encouraging the development of more innovative products	<ul style="list-style-type: none">Launched more than 472 new productsApplied for over 275 patentsCelebrated the granting of 777 patents this year, leading to an impressive total of 1,735 patents in our portfolio
External collaboration	<ul style="list-style-type: none">Collaborated with 131 suppliers of raw materials to procure bio-based solutions and ISCC certified polymers	<ul style="list-style-type: none">Engaged in over 264 collaborative projects with customers, universities, research institutes, and suppliers



Stakeholder Collaboration for Innovation



LICENSING COLLABORATION FOR INNOVATION

This year, IVL entered into a license agreement with Shandong Binhua New Material Co., Ltd. to build and operate a co-production unit in China for Propylene Oxide (PO), t-Butanol (TBA), and Methyl t-Butyl Ether (MTBE). At the core of this project is IVL's world-leading and innovative MTBE 'single-step' reaction technology, which simplifies the production process, thereby reducing operating costs while increasing MTBE yield.



The new facility is expected to produce significant amounts of propylene, butane isomerization, synthetic ammonia, propylene oxide, and MTBE, leading to substantial growth in our IOD segment. We expect this technology to be more efficient and environmentally friendly compared to the traditional two-step process, leading to sizeable cost savings.

FOR MORE
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SOCIAL INNOVATION AND ENTREPRENEURSHIP CHALLENGE

In early 2022, we launched the Challenge, inviting companies, universities, associations, research institutes, and startups to propose innovative solutions that mitigate the social challenges faced by communities near our operations and support local development through sustainable, creative, and efficient projects.



A total of 33 projects were registered, of which 10 were selected for the second phase. Two finalists were selected to present their ideas at Pitch Day to the heads of Innovation, Sustainability, Supplies, and Process Technology. The winner of the first edition was the startup Toca, which received a prize of US\$ 19,187 and will be supported by our Innovation and Sustainability team for 12 months to implement their pilot project, "Renova Mamona."

FOR MORE
INFORMATION

Developing Green Chemistry

We place a strong emphasis on developing safer and greener chemicals, continuously exploring opportunities to innovate new sustainable products that contribute to a better world. At IOD, innovation and sustainability are integral in our strategy and business vision, which is why we actively work with partners across the value chain, from suppliers to consumers, to develop more sustainable products and services.

We incorporate everyday sustainable and innovative initiatives into our approach to chemistry, ensuring efficient and reliable management of our product portfolio and operations. Our decisions are based on pillars and targets outlined in our 2030 Sustainability Strategy Plan, which embed sustainability into all stages of our processes. This approach enables our business teams to offer a complete range of innovative and sustainable solutions to customers in our core markets, ultimately contributing to their long-term success.

IOD has set clear targets for the evolution of our sustainable product portfolio. We aim to derive:

- 15% of our revenue from sustainable products by 2025
- at least 50% of new products launched must be classified as sustainable

We will deliver on these targets through our Innovability (Innovation + Sustainability) approach which is guiding our new developments and product launches. The following examples highlight some of the initiatives already underway in support of IOD and our sustainable product portfolio targets, among many others in progress:

ULTRAFILM 5000:

A 100% renewable
coalescent with no
VOC emissions

ALKEST LV 1400:

A 100% renewable
and readily
biodegradable
hard surface
cleaner

PUREACT SLMI-85:

A solution for
mild sulphate-free
shampoo that
offers better
stability

OXIFLOW F1700:

A rheological
modifier for
concentrated
liquid clothes
detergent

Surfonic Bio product line:

Biosurfactants
with multifunctional
active action for
gentle cleaning

IOD will increasingly offer sustainable alternatives to commodities currently produced from fossil raw materials. Our focus on renewable raw materials and sustainable solutions will strengthen our sustainability roadmap, reduce our environmental impacts, while simultaneously meet the evolving needs of our customers.

Oxiteno wins the 2022 Kurt Politzer Award A 100% natural and biodegradable green solvent



Oxiteno was honored with the Kurt Politzer Technology Award by the **Brazilian Chemical Industry Association (ABIQUM)** for its outstanding achievement in the category of "100% natural and readily biodegradable green solvent, safe for human health and the environment" (ALKEST LV 1400).

This prestigious award serves as a catalyst to promote research and innovation within the chemical industry in Brazil, recognizing projects that exemplify the inventiveness and creativity of companies, startups, and researchers in the country.



INNOVATION FOR THE ENVIRONMENT

By spearheading the development of innovative products with positive environmental impacts, IVL remains at the forefront of the global chemical industry's transition to one of circularity.

SURFOM ULV 8 INNOVATIVE ADJUVANT FOR DRONE-BASED CROP PROTECTION PRODUCT APPLICATIONS

SURFOM ULV 8 is a non-ionic surfactant blend to optimize drone-based crop protection product applications, primarily to enhance the deposition of active ingredients and droplet coverage. This application method reduces water usage and waste from packaging and raw materials, making it an eco-friendly choice for farmers.



ALKEST LV 1400 NATURAL, ECO-FRIENDLY CLEANING SOLVENT

ALKEST LV 1400 is a readily biodegradable solvent derived from 100% natural raw materials. Its lipophilic properties enable improved interaction with oily soil, resulting in exceptional performance in cleaning and degreasing, particularly for I&I and household hard cleaning applications.

In addition to its non-flammable profile, ALKEST LV 1400 can be classified as a VOC exempt solvent according to the California Air Resources Board (CARB) and the United States Environmental Protection Agency (EPA) Safer Choice program.



HOME CARE
AND I&I

OXIMULSION® 9000 APE-FREE SURFACTANTS SOLUTION FOR WATERBORNE COATINGS

The OXIMULSION® 9000 line facilitates the formulation of a stable alkyd emulsion, providing the opportunity to completely substitute solvents with water, leading to the development of water-based enamels used in architectural paints and coatings.

This product offers an excellent level of gloss and general properties in the final application, comparable to traditional solvent-borne enamels. At a great cost-benefit, water-based enamels eliminate VOC (volatile organic compound) emissions and the strong odors associated with solvent-based alternatives.



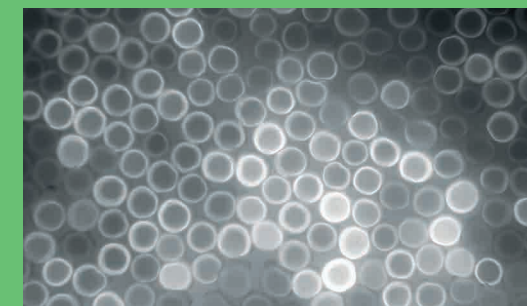
BICOMPONENT FIBERS

A new family of bicomponent fibers for bonding natural materials was introduced. These binder fibers are blended with natural materials such as wood fiber to create thermal and sound insulating panels through the application of heat and pressure. The binder fibers have a polyethylene outer layer with a recycled polymer core of polypropylene or polyester. Worth noting is that this product allows the use of PP and PET recycle streams (which are otherwise difficult to find applications for due to varying trace components), along with waste wood byproducts, to be combined into high value products for the construction market.



POLYPROPYLENE MONOCOMPONENT FIBER

Improvements in sustainability extend beyond the composition of the product to include the manufacturing processes employed by our customers. An intriguing development in fiber engineering at Indorama Ventures yielded a new polypropylene monocomponent fiber that provides carded nonwovens with a high degree of cushioning (combination of loft and resilience). This fiber is used in calendar-based thermal bonding processes to create a material that exhibits very similar characteristics to those produced by more energy intensive through-air oven-based processes.



BIO-BASED MATERIALS WITH FLAX AND PLA – FOR BETTER INDOOR AIR QUALITY, HEALTH AND WELL-BEING

Our surroundings have a significant impact on our well-being, on the air in the rooms and on our health. We spend most of our time indoors in closed rooms such as in apartments, offices or in transportation, where the air is 10x more polluted than outdoors.

Culture iN, located in MONTAIGU-VENDEE, France, has developed bio-based materials with flax and our PLA: Varian®. From this sustainable material, Culture iN produces acoustic, sound absorption panels that add to atmosphere and well-being.

Our German sites in Bobingen and Guben produce PLA staple fibers and filaments, which are made from 100% renewable materials. PLA gives off significantly lower CO₂ emissions and has a much lower energy consumption during the production of the raw material.





TECHNOLOGY DEVELOPMENT

SPS SINGLE PELLET SOLUTION

SPS at StarPET Inc. – Commercialization of a new approach to incorporating recycled content into Necessities packaging resins which uses 25-30% less energy than conventional extrusion recycling technologies deployed at other incumbent IVL Sites.



FOR MORE
INFORMATION

CiCLO BIODEGRADABLE TEXTILE TECHNOLOGY

CiCLO is a textile technology that promotes the biodegradation of synthetic fibers, thereby reducing synthetic microfiber pollution in the event that the products are discarded into the ocean, landfills and wastewater.



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BIOTRANSFORMATION TECHNOLOGY

This technology was further extended into three specific applications for nonwoven components, each removing the potential for persistent microplastics during their biodegradation pathway. The first to be released was a monocomponent polypropylene fiber, offering an essentially drop-in biodegradable alternative across a broad range of applications and uses. Following the release of monoPP, a polyethylene/polypropylene bicomponent staple fiber was made available for specific applications.



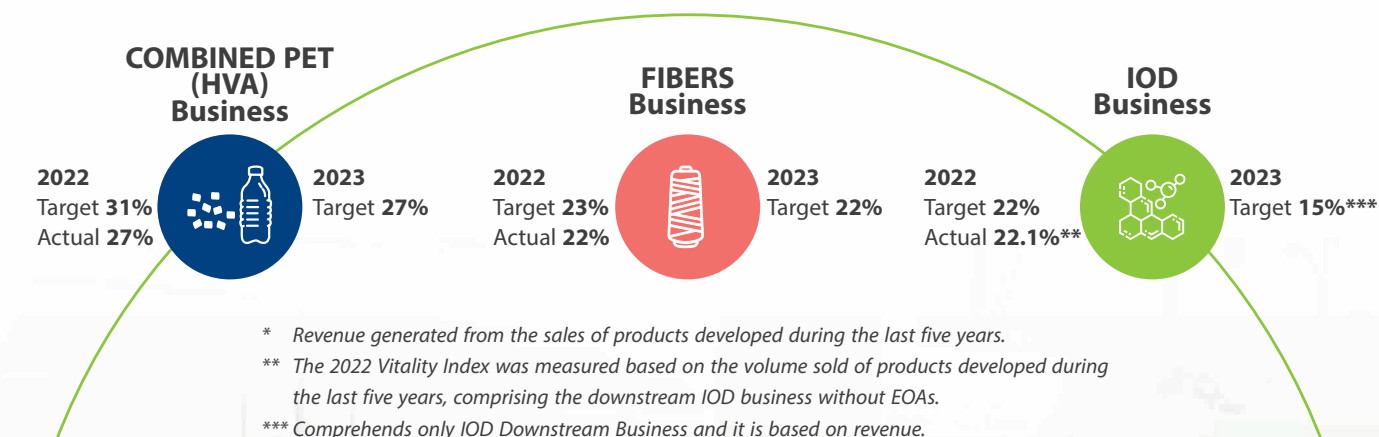
This fiber type allows for processes, such as carded, through air bond technology to now produce nonwoven materials that have a defined biodegradability behavior, including acquisition/distribution layers in absorbent hygiene products. In conjunction with the above fibers, the spunlaid nonwoven fabric portfolio was expanded to include meltblown materials, either standalone as a filter layer in applications, such as facemasks, or in multiple beam spunbond/meltblown/spunbond fabrics to gain higher barrier attributes.

Our Innovation Impact

IVL evaluates the success of our product innovation-related efforts using the Vitality Index metric, which measures the revenue earned from the sale of products developed within the past five years. A strong performance on the Vitality Index indicates our ability to effectively meet the demands of our customers while successfully bringing environmentally and socially sustainable products to the market.

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VITALITY INDEX*



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

** The 2022 Vitality Index was measured based on the volume sold of products developed during the last five years, comprising the downstream IOD business without EOAs.

*** Comprehends only IOD Downstream Business and it is based on revenue.



DRIVING CIRCULARITY

[GRI 3-3, 301-1, 301-2]

As the leading manufacturer of virgin PET plastics, we understand their role in abating GHG emissions by reducing food waste and developing renewable energy components. However, we acknowledge that poor plastic waste management practices have led to their accumulation in the environment. Therefore, a multi-stakeholder approach is needed to tackle plastic leakage and retain plastics in the economy, with recycled PET plastics playing a pivotal role.

		Vision 2030 Targets	2022 Progress Against Targets
Circular Feedstocks	Bio-based Feedstock	<ul style="list-style-type: none">16% bio-based feedstocks against IVL's entire feedstockCommitted to invest US\$ 4.7 billion to increase bio-based feedstocks to 2.4 million tons	<ul style="list-style-type: none">Consumed 1.24% against IVL's external feedstock
	Recycled Feedstock	<ul style="list-style-type: none">23% recycled PET feedstock against IVL's PET feedstockCommitted to invest US\$ 3.7 billion to implement advanced recycling technologies	<ul style="list-style-type: none">Consumed 5.25% against IVL's PET feedstock
Recycling		<ul style="list-style-type: none">Bottle recycling capacity: 50 billion by 2025 and 100 billion by 2030Post-consumer PET bale input: 750,000 tons by 2025 and 1,500,000 tons by 2030Committed to over US\$ 8 billion in expanding our global PET recycling capacity	<ul style="list-style-type: none">Recycled 15.4 billion, equivalent to 342,961 tons of PET bale inputIncreased PET recycling capacity to totaling 690,000 tonsEstablished 3 new recycling facilities in the Czech Republic, the Philippines, and France

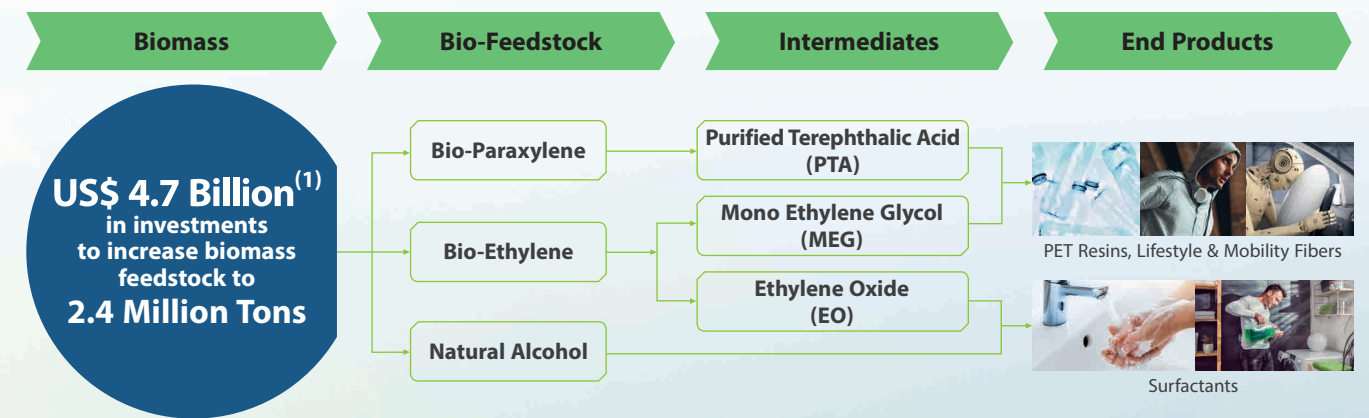
Circular Feedstocks

IVL is focused on the core foundations of our sustainable business that fit our bold Vision 2030 to invest significantly over the next eight years in recycling technologies and biomass feedstock.

On that note, we have made a firm commitment to invest US\$ 4.7 billion in order to elevate our biomass feedstock to 16% of IVL's entire feedstock by 2030. This strategic investment encompasses partnerships and collaborations with pioneering start-ups that specialize in green chemistry and innovative bio-based and circular raw materials. Through this concerted effort, we aim to reshape our product portfolio to effectively meet the ever-growing sustainability requirements of our valued customers.

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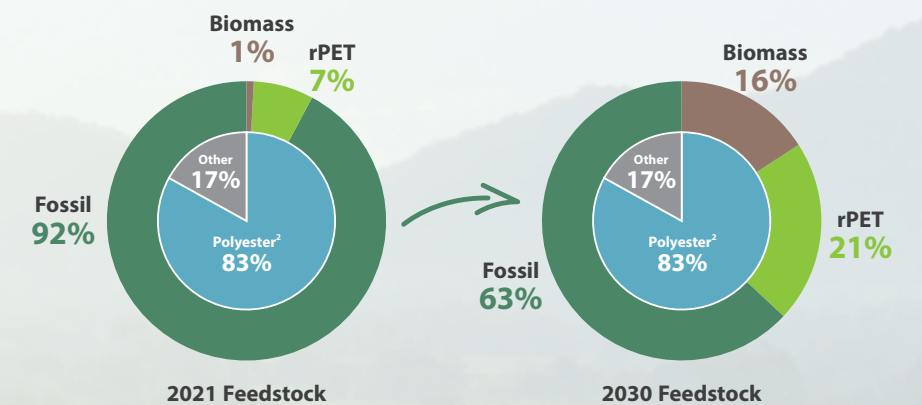
DECARBONIZING OUR PRODUCTS THROUGH BIOMASS



Note: ⁽¹⁾ Including investments in a natural alcohol plant which is part of the Oxiteno acquisition

Biomass

- Abundant, renewable, sustainable
- Enables more reduction in life-cycle emission
- Valorizes waste material



Note: ⁽²⁾ Polyester feedstock consisting of xylenes for PTA and ethylene for MEG



Overview of Circularity Across Our Value Chain

[GRI 301-1, 301-2]

At IVL, we take pride in our dedication to enhancing circularity throughout our value chain, primarily by producing recycled PET — a material that is ideal for the circular economy and enables customers to participate in a closed-loop system.



Procurement

- Upgraded our Supplier Code of Conduct policy to a “Responsible Sourcing Policy” which includes palm oil, palm kernel oil, and derivatives.
- Strengthen our ESG supplier assessment processes
- Increase consumption of circular feedstocks (bio-based and recycled feedstocks)

Design

- Develop sustainable and lightweight products that support composting and recycling, with customizable properties and functions for various applications
- Work with customers and suppliers on sustainable packaging development

Production

- Increase consumption of bio-based and recycled feedstocks
- Optimize material and maximize operational efficiency
- Increase renewable energy consumption from biomass
- Continue the Zero Waste to Landfill certification

Distribution & Consumption

- Provide quality recycling education to consumers through Waste Hero project
- Advocate for better legislation surrounding recycled PET and circular economy
- Collaborate with Bangkok Metropolitan Administration (BMA)

Collection

- Encourage effective recyclable waste collection system
- Participate the ReHubs program in Europe
- Partner with waste collection start up

Recycling

- Explore and invest in mechanical and advanced recycling technologies
- Established Indorama Ventures Investments & Holdings (IVIH) to drive mission on exploring bio-based and advanced recycling technologies
- Established 3 more recycling facilities in Poland, the Philippines, and France
- Teamed up with Carbios to construct the first industrial-scale enzymatic PET bio-recycling plant in France

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Upstream Usage of Circular Feedstocks

One important aspect of the circularity shift is the use of circular feedstocks in manufacturing, which involves the use of bio-based and recycled feedstocks. As part of our efforts, we established Indorama Ventures Investments & Holdings (IVIH), our start-up business incubator investing in start-up businesses that drive advancements in recycling, bio-based chemicals and polymers, renewable feedstock, and biodegradable polymers. We have already identified 30 projects with the potential to deliver on these commitments. Through the employment of circular feedstocks, IVL is able to reduce hazardous waste generation, fossil feedstocks consumption, and reduce greenhouse gas emissions, thus making it a key strategy for embracing circularity.

IDENTIFYING AND ADVANCING SUSTAINABILITY-LINKED TECHNOLOGIES AND INNOVATION THROUGH IVIH

Acting as a sustainable business incubator across:

In 2022, Indorama Ventures Investments & Holdings (IVIH), a fully-owned subsidiary of IVL, was established with a mandate to achieve our Vision 2030 ambitions related to advanced recycling, renewable feedstocks, decarbonization, and a circular economy.



Advanced
recycling



Bio-based chemicals/
polymers



Renewable
feedstock



Biodegradable
polymer

Circular feedstock projects



With 30 additional projects identified and being evaluated.



As of 31 December 2022

Downstream Recycling Initiatives



2022 RECYCLING HIGHLIGHTS

Launch of PETValue, Philippines' largest PET recycling plant in partnership with Coca-Cola



In 2022, we launched our PETValue bottle-to-bottle recycling plant in partnership with Coca-Cola Beverages Philippines. The facility is the first and largest food-grade, bottle-to-bottle recycling plant in the country. As part of The Coca-Cola Company's "World Without Waste" program, IVL will recycle about 2 billion used PET plastic bottles annually, creating 200 new job opportunities. The plant will process post-consumer bottles into flakes to produce recycled PET resin suitable for use in food-contact applications.



FOR MORE
INFORMATION



Carbios in partnership with IVL, to build a Bio-recycled PET manufacturing plant in France



Carbios, a French bio-tech company, and Indorama Ventures have teamed up to construct the first industrial-scale enzymatic PET bio-recycling plant in France. This plant will leverage Carbios' PET bio-recycling technology and will have the capacity to process 50,000 tons of PET waste per year, equivalent to 2 billion PET bottles or 2.5 billion PET trays. Expected to begin operations by 2025, the plant will also generate 150 job opportunities. Additionally, IVL may explore opportunities to employ Carbios' unique biological recycling process at other PET facilities in the future.



FOR MORE
INFORMATION





Stakeholder Partnerships for Circularity

Collaboration with external stakeholders across the value chain is crucial to address the systemic challenge of plastic waste mismanagement. The regulatory and legislative landscape surrounding the mismanagement of plastic waste and recycling is evolving, and we take pride in actively contributing to the circularity of PET within each region.

IVL engages with several external alliances, partners, and industry thought leaders to collectively seek solutions and address important global sustainability challenges. Notable collaborations include the WEF, Ellen MacArthur Foundation, and UNGC. Through these partnerships and our participation in industry associations and memberships, we strive to develop global solutions for sustainable PET plastic recycling and advocate for the expansion of recycling facilities, the adoption of innovative recycling technologies, and responsible recycling practices by consumers.

There are increasing regulatory and legislative actions related to plastic waste management and recycling. It is essential for us to clearly demonstrate that PET's intrinsic recyclability and our recycling strategy align with political actions on the circular economy and plastic waste reduction.

Asia

Indorama Ventures PCL. proudly played an active role in providing supportive scientific evidence about the circularity of PET in food-contact packaging. In 2022, the Food Safety and Standards Authority of India (FSSAI) and the Thai Food and Drug Administration (FDA Thailand) approved recycled PET (rPET) for use in food-contact applications. These developments will open markets of nearly 1.5 billion people – or 18% of the world's consumers – to our recyclable and recycled packaging materials.

Americas

In 2022 in the United States, four states passed Extended Producer Responsibility (EPR) schemes while seven states passed amendments to existing Deposit Return Schemes (DRS). At the federal level, the Recycling and Composting and Accountability Act, as well as the Recycling Infrastructure and Accessibility Act, were reintroduced, and discussions about a national bottle bill continue. IVL also participated in the Coalition to Advance Molecular Recycling, submitting comments to the Federal Trade Commission's "Green Guides," which update marketing and labelling guidance every 10 years.

We have successfully worked with our trade associations, PETRA and NAPCOR, to enhance their engagement with government officials. PETRA proactively meets with federal legislators and supports state collection bills, while NAPCOR has shifted its communications efforts to focus on customers. The Recycling Partnership (TRP) and the Association of Plastic Recyclers (APR) are working on EPR implementation in California, Colorado, Oregon and Maine.

The Biden Administration has announced the largest investment in recycling infrastructure by the federal government in 30 years. The Solid Waste Infrastructure and Recycling Grant Program includes US\$ 275 million for improvements to recycling and post-consumer materials management, while the Recycling and Education Outreach Grant Program has allocated US\$ 75 million to enhance community recycling programs. These initiatives will deliver more post-consumer PET and help improve the bale quality/yield in our US operations.

As members of the Plastics Division of ANIQ, the chemical industry association in Mexico, we collaborate on collection initiatives to educate consumers and policymakers about PET, and continue to champion the circular economy as members of ECOCE.

In Brazil, the PET industry association, ABIPET, will be releasing a Life-Cycle Assessment report widely used by the industry and customers. ABIQUIM, the chemical industry association in the country, continues to monitor and support the development of federal circular economy legislation.

Europe

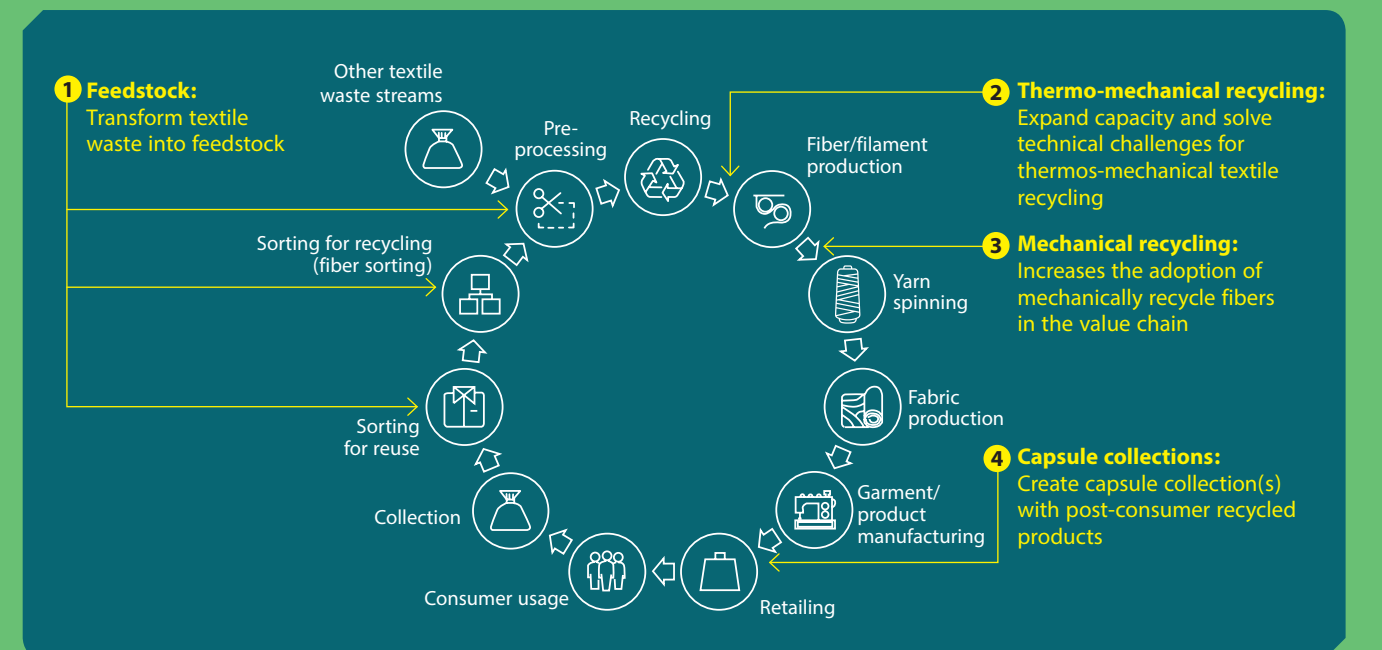
In 2022, the European Commission proposed a new Regulation on Packaging and Packaging Waste requiring all packaging to be recyclable or refillable by 2030. The regulation also introduces refill targets for beverages with a goal of 10% by 2030 and 25% by 2040. Additionally, it aims to increase the recycled content for plastic beverage bottles to 65% by 2040 and proposes mandatory deposit return schemes for PET beverage bottles in every member state by the end of 2028, if a 90% collection rate is not achieved. The EU has already passed a directive requiring the collection of nine out of 10 PET beverage bottles by 2029. These measures will not only increase the circularity of PET, but also promote consumer awareness of PET's sustainability as a material.

We continue our long-term partnership, through Plastics Recyclers Europe, with natural mineral water and soft drink producers, as well as Petcore Europe, regarding PET bottle design guidelines for recycling. This initiative fully supports a circular economy for the European PET value chain by evaluating PET bottle packaging solutions and technologies and facilitating an understanding of the effects of new innovations on recycling processes. We partner, also through Plastics Recyclers Europe, with the European PET value chain on the European Circular Plastics Alliance, an initiative that aims to boost the EU market for recycled plastics to 10 million tons by 2025.

At the global level, we engage with our peers on the circular economy through our yearly participation at the UN Climate Change Conference (COP) and UN Environment Program's work on a global plastics pollution prevention treaty.

IVL received the "International Textile Manufacturing Federation" Award in 2022 in the area of international collaboration in the textile industry through the project "ReHubs – Initiatives for fiber-to-fiber recycling in Europe"

Indorama Ventures participates in the project "Transform Textile Waste into Feedstock" which was developed by TEXAID, with the goal to establish scalable sorting facilities across Europe, the first one with a capacity of 50,000 tons by end of 2024. This will lead to reach a circular textiles economy in Europe by closing a technology gap to ensure high quality feedstock from non-wearable pre-and-post consumer textile waste to be sorted commercially at scale.



We received the "International Textile Manufacturing Federation" or ITMF Award in 2022 in recognition of progress in the area of international collaboration in the textile industry through the project "ReHubs - Initiatives for fiber-to-fiber recycling in Europe" in accordance with the values of the 17 SDGs of the 2030 Agenda for Sustainable Development.





ADVANCING TOWARDS NET ZERO CARBON

[GRI 3-3, 305-5]

In 2022, we publicly declared our commitment towards achieving Net Zero Carbon by 2050-2070, in alignment with our medium-term target of capturing a 30% reduction in GHG emissions intensity (Scope 1 and 2) by 2030. To support this effort, we committed US\$ 640 million by 2030 to lower our GHG emissions.

We believe that our comprehensive climate change strategy supports our overall business approach by future-proofing our business against risks associated with climate change, such as natural disasters. By proactively leveraging opportunities in emerging areas of the circular economy and renewable energy, we can maintain our position as the preferred vendor for customers, fulfill the climate expectations of our investors, and improve employee satisfaction. This, in turn, will lead us to a carbon-neutral future.

Our Progress on Vision 2030

Vision 2030 Sustainability Targets	2022 Progress	2025 Target	2030 Target
GHG (Scope 1 & 2) intensity reduction	3.84%	10%	30%
Renewable electricity consumption ¹	3.32%	10%	25%
Energy intensity reduction ²	2.10% intensity increase	5%	15%
Water intensity reduction ²	1.70%	10%	20%
Waste diverted from landfills ³	72%	90%	90%
Recycling			
• Post-consumer PET bale input (million tons)	0.34	0.75	1.5
• Post-consumer PET bottles (billion)	15.4	50	100
Circular feedstocks			
• Bio-based feedstock ⁴	1.24%	-	16%
• Recycled feedstock ⁵	5.25%	-	23%

Notes:

¹ Percentage of renewable electricity consumption against total electricity consumption

² In comparison to 2020 as the baseline year

³ Includes waste incineration with energy recovery

⁴ Percentage against IVL's external feedstocks

⁵ Percentage against IVL's PET feedstocks

Decarbonization Strategy Towards Net Zero



Our Decarbonization Strategy prioritizes our efforts to ensure that the rise in global temperatures remains well below 1.5°C by the end of the century, in accordance with the Paris Agreement. Prior to developing our Decarbonization Strategy, we engaged in thorough climate risk management guided by the TCFD framework, which identifies risks through short-term, medium-term, and long-term timeframes.

FOR MORE
INFORMATION

Our six-pronged Decarbonization Strategy was specifically designed to meet our 2025 and 2030 targets, in line with our aspirations for Net Zero Carbon. In the short-term, we plan to improve our operational efficiency, increase the procurement of renewable electricity, gradually phase out the use of coal at our operational sites, and expand our recycling capacity. In the medium-term, we intend to

enhance the procurement of circular feedstocks and explore the potential of Carbon Capture, Utilization and Storage (CCUS) technology. And as part of our long-term strategy, we will pursue natural capital solutions, such as carbon sequestration projects, to offset any unavoidable GHG emissions.



DECARBONIZATION STRATEGY

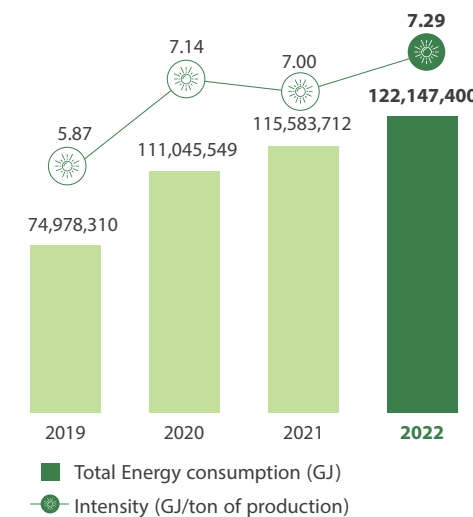
Type	Strategies	Projects / Initiatives in 2022
Short-Term	Improving Operational Efficiencies Investing in operational and energy efficiency projects to reduce emissions from our operations.	In 2022, 55 GHG and energy saving projects recorded a 34,858 tCO ₂ e reduction in GHG emissions and 413,476 GJ in energy savings.
	Energy Transition Decarbonizing IVL's energy consumption via onsite and offsite renewable electricity and by phasing out coal.	<ul style="list-style-type: none">• Renewable electricity: Installed onsite solar panels across 15 sites globally, whilst also exploring opportunities to launch Virtual Power Purchase Agreements (VPPAs) in Europe and the United States.• Coal phase-out: Coal phase-out was completed in November 2022 at one of our sites in Thailand, with a total CAPEX of US\$ 980,000.• Partnership: Partnered with the Corporate Clean Energy Alliance & Smart Power Program to support renewable energy developments and gain regulatory support from governments in Southeast Asia.
	Recycling Investing in and expanding recycling facilities to address plastic pollution and reduce lifecycle carbon emissions.	<ul style="list-style-type: none">• Invested in three new recycling facilities to increase our recycling capacity.• Exploring advanced recycling technologies to further reduce carbon emissions. <p>Please refer to the Driving Circularity section on pg. 80-87 for more details.</p>
Mid-Term	Circular Feedstocks Replacing fossil fuel-based feedstocks with bio-based and recycled feedstocks.	<ul style="list-style-type: none">• Replaced petrochemical-based feedstock with circular feedstock (bio-based and recycled feedstock). <p>Please refer to the Driving Circularity section on pg. 80-87 for more details.</p>
	Future Technologies Exploring opportunities for CCUS, green hydrogen and Renewable Natural Gas (RNG).	<ul style="list-style-type: none">• Exploring CCUS technologies in the United States and Europe.
Long-Term	Natural Capital Solutions Exploring partial and full ownership of carbon offsetting projects.	<ul style="list-style-type: none">• Developing our biodiversity strategy by understanding both our impacts and dependencies on the ecosystem.• Exploring investment opportunities across nature-based carbon sink projects, including forest preservation, and restoration initiatives.

IMPROVING ENERGY AND OPERATIONAL EFFICIENCIES

[GRI 302-1, 302-2, 302-3, 302-4, 305-5]

In our pursuit of Net Zero Carbon by 2050-2070, we consistently prioritize energy efficiency and conservation initiatives to further reduce energy consumption throughout our value chain. In 2022, we experienced an increase in energy intensity by 2.1% compared to 2020, primarily due to the lower operating rates in our assets, especially in Europe.

Total Energy Consumption



Energy Intensity (2020 baseline)

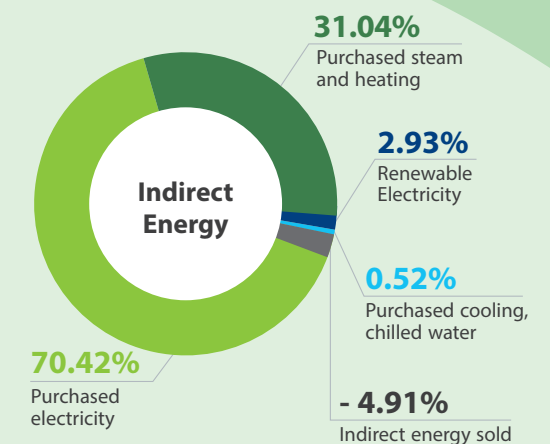
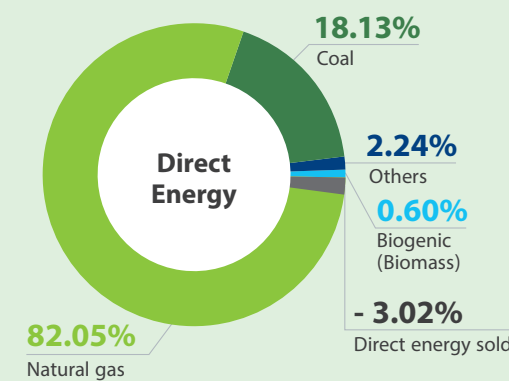
Targets

5% by 2025 and **15%** by 2030

Performance

In 2022, IVL recorded an intensity of **7.29** GJ/ton, an increase of **2.10%** from the 2020 baseline due to the lower operating rates in our assets especially in Europe.

Overall 2022 Energy Breakdown



Renewable Electricity Consumption

Targets

10% by 2025 and **25%** by 2030

Performance

In 2022, IVL consumed **3.32%** of renewable electricity.

FOR MORE
INFORMATION



Pilot heat-recovery project reducing carbon emissions at IVL in China

Performance Fibers (Kaiping), one of IVL's facilities in Guangdong Province, China, implemented a pilot heat-recovery project for one of its dipping lines, achieving a reduction in natural gas consumption by 25% during the two consecutive months of the trial's operations. Following this success, the site plans to expand the installation of the heat exchanger system for all four dipping lines. This innovative solution is the first of its kind in the tire cord fabrication industry.

This expansion is expected to result in significant annual savings of approximately US\$ 1.8 million and reduce 5,000 tCO₂ of GHG emissions annually. Not only is this a remarkable financial and environmental success, it also promotes creativity and innovation among IVL employees, and could be extended to other lines in the Fibers Mobility vertical.



Energy Savings Achieved in India

Indorama Ventures Oxides Ankleshwar Pvt Ltd (IVOAPL) has achieved a significant reduction in GHG emissions and energy use through various onsite energy savings initiatives by its Utility and Engineering teams. These initiatives resulted in a reduction of 585 tCO₂e/year in GHG emissions and a decrease in energy consumption by 2,345 GJ/year. The company's commitment to reducing energy use and improving operational efficiency was acknowledged at the National Energy Conservation Awards 2022, further supporting IVL's Vision 2030 to become a global sustainable chemical company.



2022 OPERATIONAL EFFICIENCY HIGHLIGHTS



Advanced Process Control (APC) improvements at IOD sites in the US and Brazil.



Optimization of purge points to reduce Propylene Oxide (PO) waste at our Port Neches site in the US.



Increasing electricity procurement in PTIPCI from PLN (Perusahaan Listrik Negara), Indonesia's national grid operator, and reducing coal-based electricity generation.

RENEWABLE ENERGY TRANSITION

[GRI 3-3, 302-4, 305-5]



2022 RENEWABLE ENERGY TRANSITION HIGHLIGHTS



15

Onsite/Offsite solar energy projects



209,242 MWh

Purchased renewable electricity via PPAs in the US and Europe



58%

ISO 50001:2011 and ISO 50001:2018 site certification

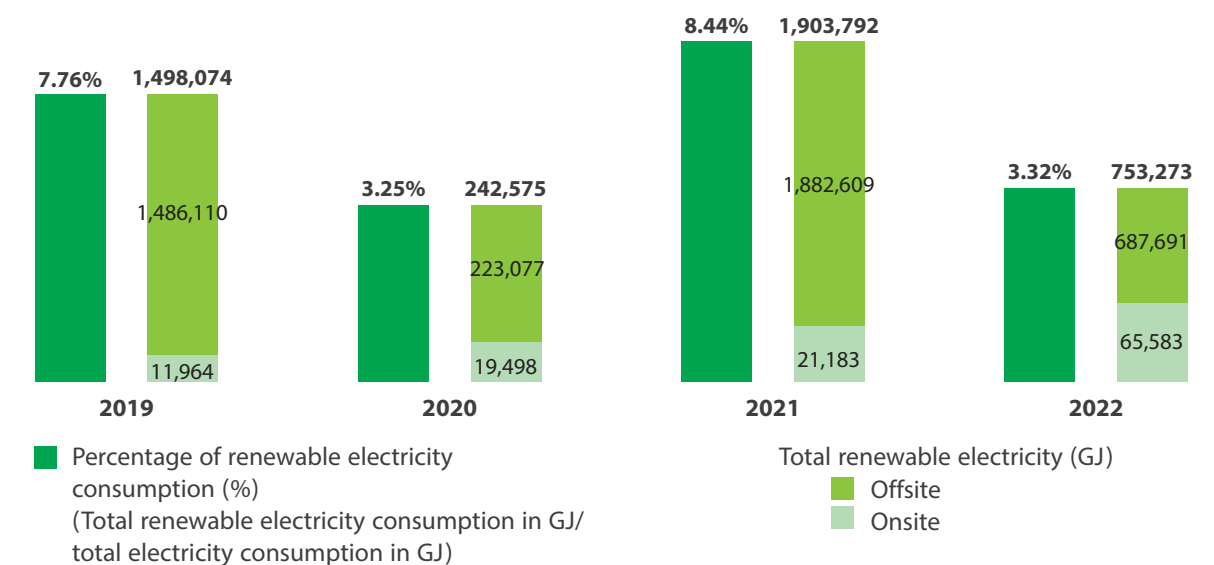


3.32%

Renewable electricity consumption (%)

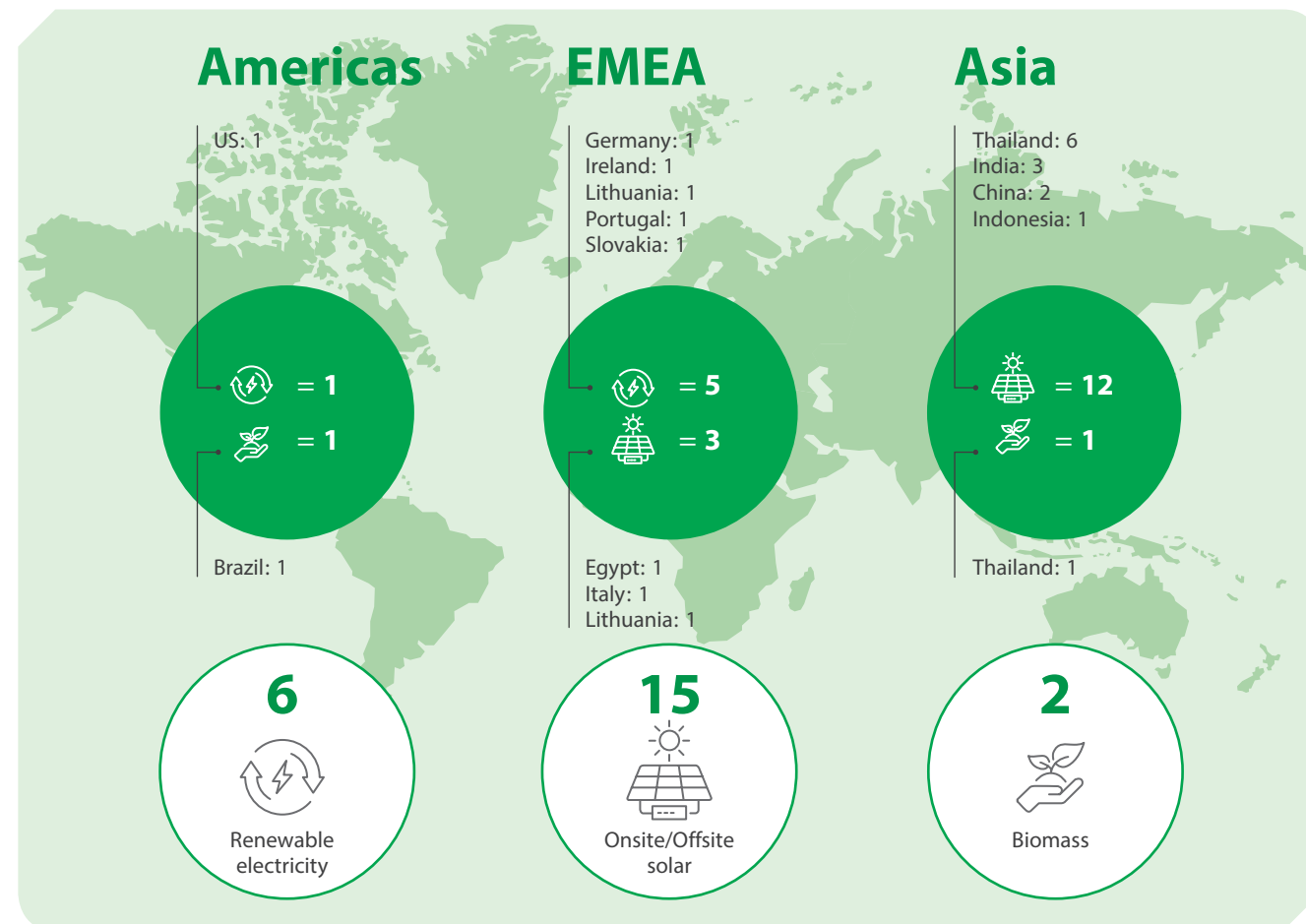
To achieve our Vision 2030 renewable electricity target, we are focused on expanding our solar energy generation projects as well as exploring VPPAs in the US and Europe. In 2022, our renewable electricity consumption was 3.32% of our total electricity consumption.

Renewable Electricity Consumption





We are implementing renewable energy transition projects globally across our different markets, with the majority of our solar energy projects located in Asia.



Location	Type of Renewable Energy	2022 Highlights
Onsite	Solar energy	<ul style="list-style-type: none">To date, we have installed onsite solar units across 15 sites in China, India, Indonesia, Thailand, and Lithuania.
Offsite	Renewable electricity certificates (RECs)	<ul style="list-style-type: none">We purchased renewable electricity with certificates through PPAs in the US and Europe, which provided a total of 209,242 MWh in 2022.We are further exploring the procurement of more renewable electricity through VPPAs, especially in the US and Europe, where the majority of our operational sites are located.The adoption of VPPAs not only facilitates scalability but also promotes the global expansion of renewable energy capacity, particularly in wind and solar power. Therefore, we are determined to explore opportunities to improve our procurement of renewable electricity through VPPAs at other viable manufacturing locations.

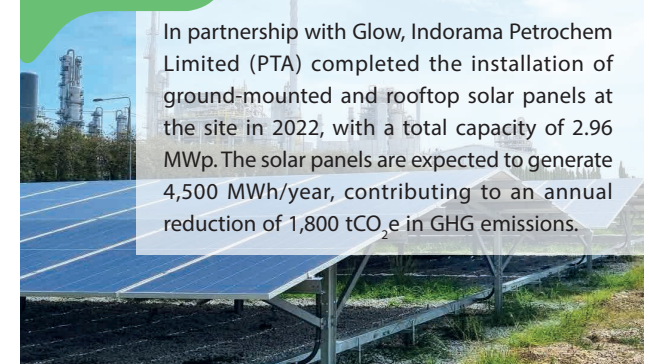
Generating Solar Energy at our Sites

Thailand



IVL's site in Lopburi, Thailand commissioned an additional 1.44 MWp solar rooftop in 2022. The total capacity of the solar rooftop is now 6 MWp, leading to an approximate annual reduction of 4,800 tCO₂e in GHG emissions.

Thailand



In partnership with Glow, Indorama Petrochem Limited (PTA) completed the installation of ground-mounted and rooftop solar panels at the site in 2022, with a total capacity of 2.96 MWp. The solar panels are expected to generate 4,500 MWh/year, contributing to an annual reduction of 1,800 tCO₂e in GHG emissions.

Thailand



In 2022, Petform (Thailand) Limited in Nakhon Ratchasima installed a new solar plant with a capacity of 586 kWp, contributing to an annual reduction of 351 tCO₂e in GHG emissions.

China



Performance Fibers Kaiping (PFK), one of IVL's facilities in Guangdong, commissioned solar panels with a capacity of about 1 MWp in August 2022. An additional 4 MWp was completed in January 2023, leading to an approximate electricity generation of 5 million kWh/year and an annual reduction of 3,500 tCO₂e in GHG emissions.

In addition to generating renewable electricity through onsite and offsite solar energy projects, we are actively phasing out the use of coal from our operations by transitioning primarily to natural gas.

Thailand



Liquefied Natural Gas-Based Heating System (Thailand)

Indorama Polyester Industries in Nakhon Pathom, Thailand achieved a significant milestone in their sustainability journey by commissioning a Liquefied Natural Gas (LNG)-based thermic fluid heating system to replace the original coal-fired system. This marks their first step towards phasing out coal at their site, resulting in an annual reduction of 5,212 tCO₂e in GHG emissions and an expected overall 6% carbon savings this year.



EMERGING TECHNOLOGIES

[GRI 305-5]

In 2022, we initiated the development of natural climate solutions to offset long-term GHG emissions, which are detailed below.



2022 EMERGING TECHNOLOGIES HIGHLIGHTS

CCUS

We capture and sell CO₂ at our facilities in Alabama in the US, as well as Mauá and Camaçari in Brazil. Additionally, we are exploring potential CCUS projects at our sites in Port Neches in the US and Indorama Ventures Polymers Mexico (IVPM).

Natural Capital Solutions

We are working on developing a biodiversity strategy that takes into account our impacts and dependencies on the ecosystem. We recognize the importance of investing in nature-based solutions that help to reduce our carbon footprint, such as the preservation and conservation of forests, which act as carbon sinks.

GHG MANAGEMENT

[GRI 305-1, 305-2, 305-4, 305-3]



2022 GHG AND ENERGY MANAGEMENT HIGHLIGHTS



US\$ 11.3 million

CAPEX Investment in 55 projects



GHG reduction of **74,906 tCO₂e** (location-based) from renewable energy consumption

GHG reduction of **59,637 tCO₂e** from biomass usage



100%

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

In 2022, our absolute GHG emissions (Scope 1 & 2) was 9.8 million metric tons, with 73% coming from processes (Scope 1) and 27% from electricity, heat, and steam procurement (Scope 2).

As of 2022, we have successfully reduced our GHG emissions intensity by 3.84% when compared to 2020, resulting in 0.585 tCO₂e/ton of production.

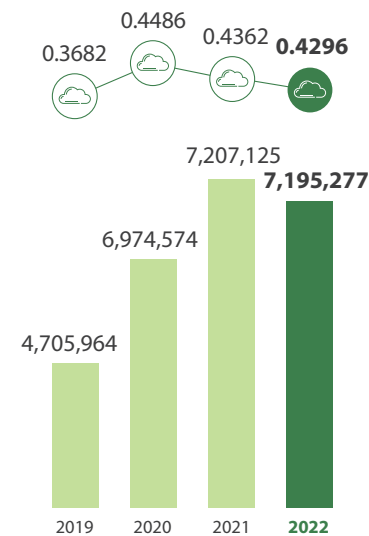
INTERNAL CARBON PRICING

Globally, an increasing number of companies are adopting “Internal Carbon Pricing” as a tool to comply with carbon emissions regulations, incentivize investments in green projects, and facilitate the transition to a low-carbon economy. In alignment with this trend, IVL is currently implementing an internal carbon pricing framework to integrate investment decisions and business operations with the reduction of greenhouse gas emissions. We expect to better connect our corporate business strategy with our sustainability strategy through this framework.



Scope 1

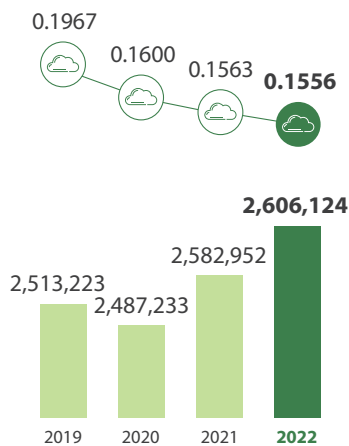
Direct GHG Emissions



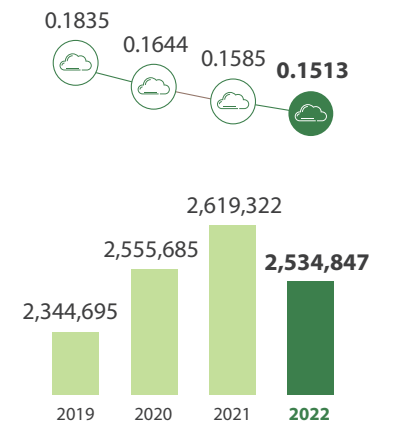
Scope 2

Indirect GHG Emissions

Location-based



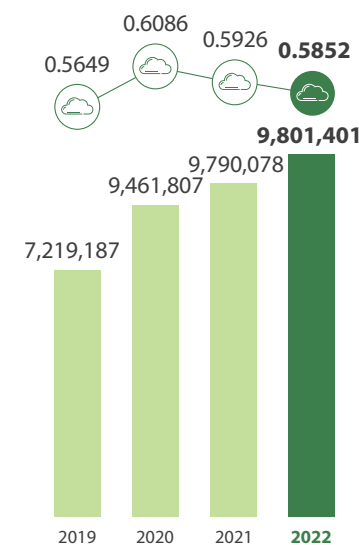
Market-based



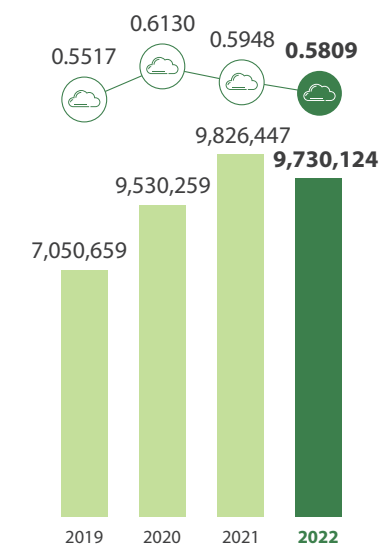
Scope 1 & 2

Total GHG Emissions

Location-based



Market-based



■ GHG emissions (tCO₂e)

—●— Intensity (tCO₂e / ton of production)



**GHG (Scope 1 & 2)
Intensity Reduction
(2020 baseline)**

Targets

10% by 2025 and **30%** by 2030

Performance

In 2022, IVL recorded an intensity of **0.5852** tCO₂e/ton, a **3.84%** reduction against the 2025 target

In line with our commitment to ongoing improvements and supporting our value chain partners in achieving their sustainability objectives, we have expanded the reporting of our Scope 3 emissions to nine categories this year.

We maintain our dedication to advancing towards a more sustainable future and will continue to enhance the calculation of our Scope 3 emissions. This commitment ensures that we positively contribute to the environment and communities we serve.

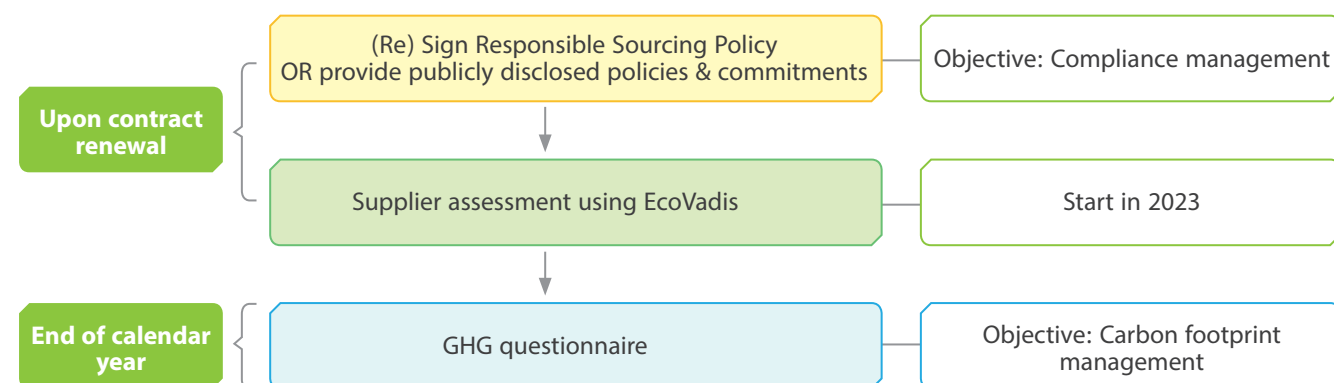
Scope 3	tCO ₂ e
Purchased Goods and Services (including Nitrogen)	25,343,626
Upstream Transportation	976,299
Waste	229,582
Business Travel	27,440
Employee Commuting	36,603
Downstream Transportation	1,555,676
Emissions from Electricity (T&D, WTT) and Fuels (WTT)	1,721,879
Capital Goods	1,030,896
Use of Sold Products	1,865,082



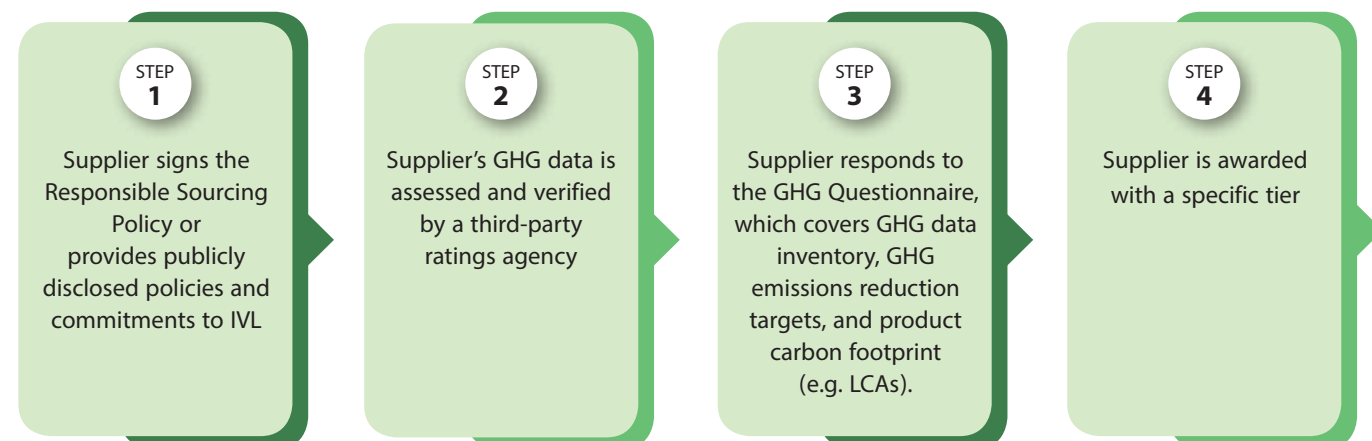
SUSTAINABLE SUPPLY CHAIN MANAGEMENT

[GRI 305-5]

To establish a carbon-neutral supply chain, IVL launched the “Sustainable Supply Chain Collaboration Program” in early 2022 to improve the visibility of our Scope 3 emissions impact. This program places a strong emphasis on managing ESG supply chain risks, complying with international standards and regulations, and supporting decarbonization efforts throughout the value chain. During 2022, our primary focus was on engaging with top raw material suppliers that constitute 90% of our raw material expenditures, and we successfully established communications with more than 40% of suppliers within this category.



Sustainable Supply Chain Collaboration Program



SUSTAINABLE SUPPLY CHAIN COLLABORATION PROGRAM

ESG capacity building, carbon footprint management, and ESG compliance management were provided to more than 50% of total spending of our raw materials suppliers against our target, 40% in 2022.

FOR MORE
INFORMATION

MANAGING OUR ENVIRONMENTAL IMPACT

We have made significant investments in refining our environmental governance system, regulating our water usage, and minimizing waste output through recycling and energy recovery. While there was a slight decline in waste diverted from landfills when compared to 2021, we achieved a decrease in water intensity due to the successful implementation of multiple water-saving initiatives. We currently have actionable mitigation measures in place to ensure the accomplishment of our medium-term targets for 2025 and 2030.

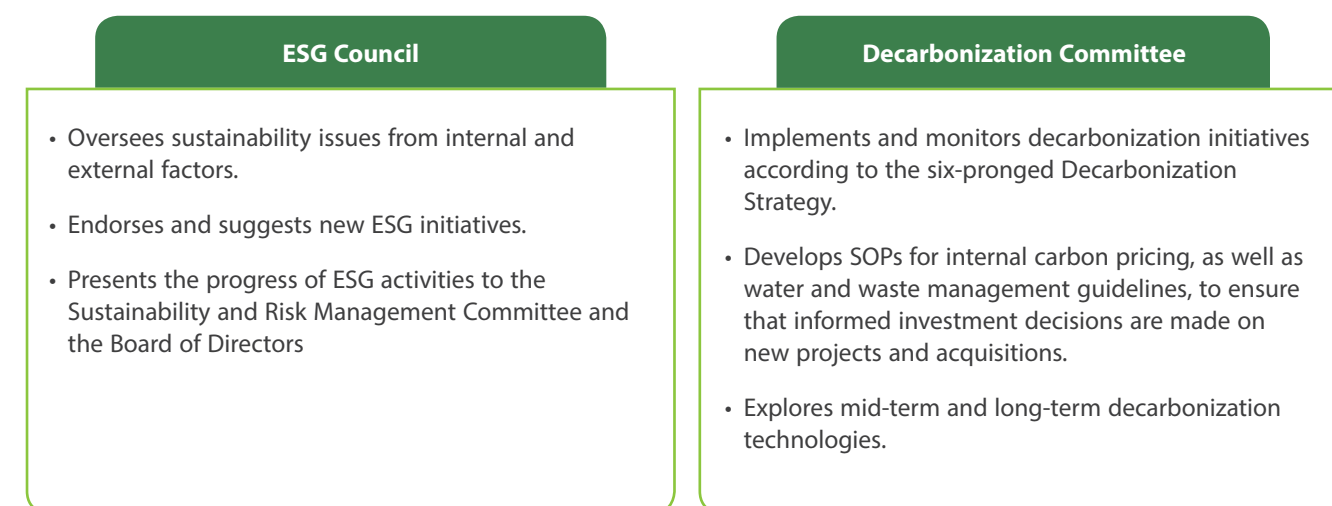
Environmental Progress Against Targets					
Focus Area	Metrics	Progress		Target	
		2021	2022	2025	2030
Water	Reduction in water intensity	1.14% intensity increase	1.70%	10%	20%
Waste	Waste diverted from landfills	78%	72%	90%	90%

OUR APPROACH TO ENVIRONMENTAL MANAGEMENT

Environmental Governance

Establishing robust environmental governance is crucial to embed environmental best practices and strategies throughout our value chain, while ensuring accountability among relevant functions and teams. Both the ESG Council and Decarbonization Committee play a leading role in driving environmental management initiatives in line with IVL's Vision 2030, while our proprietary Environmental Management System (EMS) upholds high standards of environmental business conduct.

Environmental Governance Committee

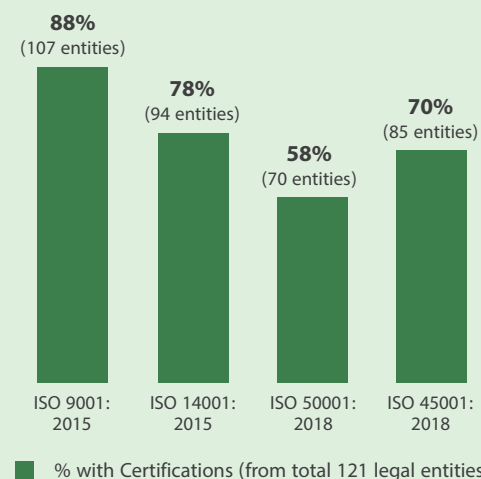




Environmental Management System

Description	A company-wide management system based on ISO 14001 standards
Scope & Applicability	EMS applies to our Board of Directors, management, employees, trainees and those authorized to act on behalf of or represent the Company.
Purpose & Objective	<ul style="list-style-type: none">• Systematically tracks and monitors all environment-related data, including:<ul style="list-style-type: none">• Procurement of raw materials• Consumption of energy, electricity and water• Emissions of greenhouse gases and toxic air pollutants• Procurement of renewable energy to offset GHG emissions• Guides due diligence exercises prior to embarking on any new greenfield projects or mergers and acquisitions.• Informs employees about environmental issues, empowering them to implement environmental protection measures.

IVL Certification Status (as of March 2023)



In addition to being overseen by an effective EMS, we abide by applicable environmental sustainability laws, regulations and standards in the countries where we operate, and are committed to taking prompt corrective measures and, if necessary, disciplinary actions in cases of environmental non-compliance. We also maintain transparency by sharing the outcomes of such actions with all relevant parties.

FOR MORE
INFORMATION

In 2022, we recorded four incidents of regulatory non-compliance, which was a 43% reduction compared to 2021.

Environmental Non-Compliance Cases

Significant fines and non-monetary sanctions for non-compliance with environmental laws and/or regulations in FY2022 [GRI 2-27]	<ul style="list-style-type: none">• Indorama Ventures Europe (IVE), the Netherlands<ul style="list-style-type: none">• US\$ 15,000 due to a 2018 injury• Indorama Ventures Sustainable Recycling (IVSR) Dallas, United States<ul style="list-style-type: none">• US\$ 20,000 due to a 2021 fatality• Indorama Ventures Oxides, Port Neches, United States<ul style="list-style-type: none">• US\$ 85,000 due to process safety findings (settled)• US\$ 37,000 due to a failure in preventing unauthorized discharges (settled)
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WATER MANAGEMENT

[GRI 3-3, 303-1, 303-2, 303-3, 303-4, 303-5]



2022 WATER MANAGEMENT HIGHLIGHTS



5
Water consumption
reduction projects



**US\$
1.68 million**
Implemented
CAPEX investments



178,200 m³
Reduction in water
consumption



5
Sites with zero liquid
discharge

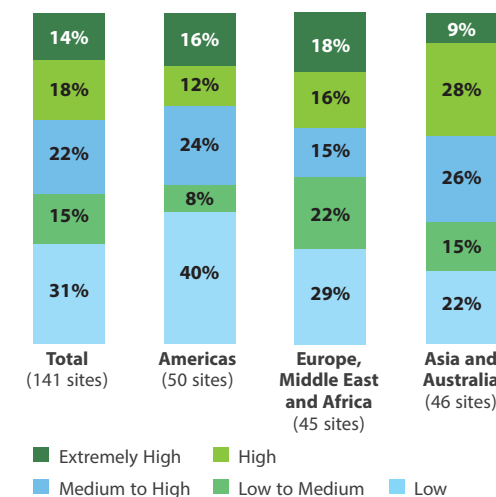
Water Management Policy

Policy	Metrics
Water Management Policy & Corporate Global Water Strategy	<ul style="list-style-type: none">• IVL complies with all applicable environmental laws, international standards, procedures, and regulations in the countries where we operate, and we continuously demonstrate proactive leadership in responsible water usage.• We have pledged to reduce our water intensity and minimize water-related risks globally through our enterprise risk management framework.• This policy is a key component of IVL Group's Environment, Health & Safety (EHS) policy, which mandates environmental stewardship, natural resource efficiency, and continuous process improvements in water management.

FOR MORE
INFORMATION

2022 Water Stress Assessment

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



To optimize water resource usage, we employ preventive and predictive measures to avoid further strain on water-stressed environments at our operational sites. We use the AQUEDUCT Water Risk tool, which employs 12 indicators to identify water stress levels and forecasts demand and supply fluctuations at our sites. The results are used by the Sustainability and Risk Management Committee (SRMC) to develop remediation strategies for water optimization. The percentage of high water stress areas marginally increased from 15% in 2021 to 18% in 2022.

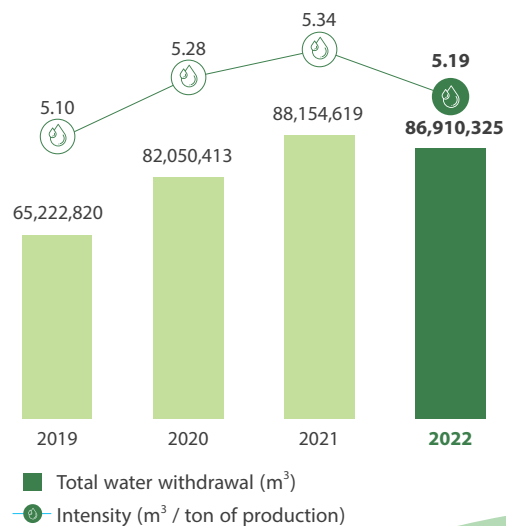
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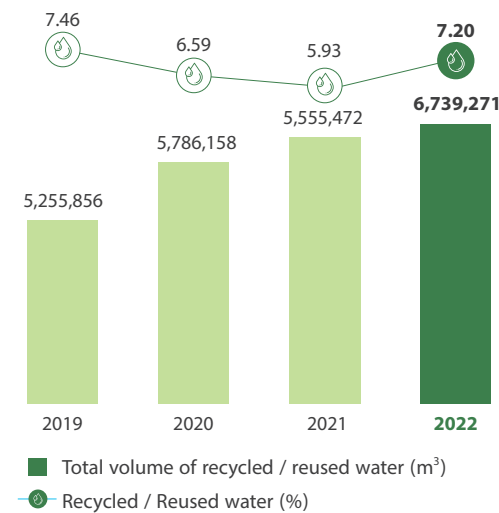
Guided by our Water Management Policy and Corporate Global Water Strategy, we are committed to advancing water stewardship throughout our value chain and improving sustainable water management practices (including water withdrawal and discharge).

Through the implementation of five water consumption reduction projects and US\$ 1.68 million in CAPEX investments in water-saving initiatives, we achieved a 1.70% reduction in water intensity in 2022. As a company committed to sustainable and responsible growth, we strive to exceed compliance requirements by promoting effective water management, which has resulted in a 2.8% reduction in total water withdrawal.

Total Water Withdrawal



Total Recycled / Reused Water



Water Intensity Reduction (2020 baseline)

Target
10% by 2025 and 20% by 2030

Performance
In 2022, IVL recorded a water intensity of
5.19 m³/ton of production,
a **1.70%** reduction against 2025 target.



Achieving Zero Liquid Discharge (Thailand)

Indorama Petrochem Limited (IRPL-PET) in Thailand successfully achieved zero liquid discharge by implementing SCALEBAN equipment. This initiative effectively addresses the rising costs of water and risks associated with droughts. As a result, the water consumption rate has been reduced by 50%, with the rate now at 0.33 m³ of water/ton of product, the lowest amongst all IVL-PET sites.

The implementation of this technology not only safeguards the site from water shortages but also eliminates odors, enhancing the reputation of the community. The success of this project supports IRPL-PET's plan to sustainably double production capacity and supports IVL's commitment to being a responsible and sustainable chemical company.

WASTE MANAGEMENT

[GRI 3-3, 306-1, 306-2, 306-3, 306-4, 306-5]



2022 WASTE MANAGEMENT HIGHLIGHTS



0.0277
Total waste intensity
(tons/ton production)



236,596
Total waste recycled
and reused



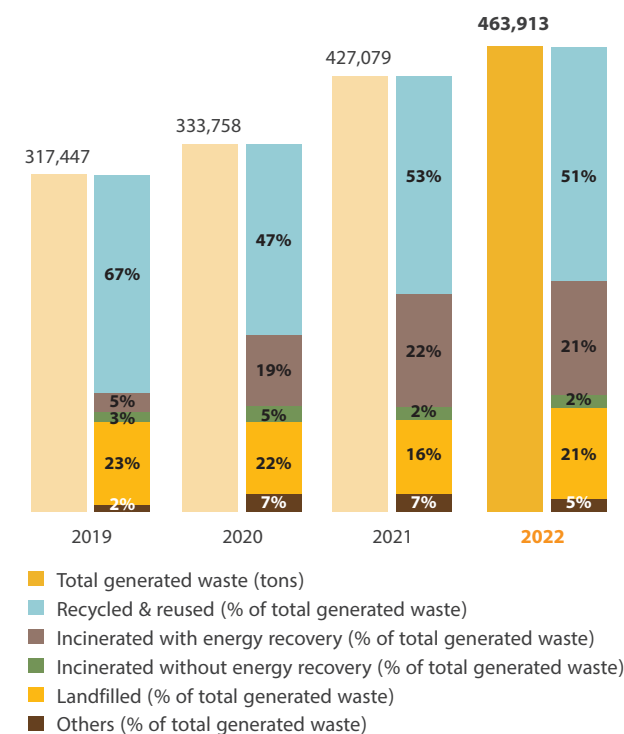
72%
Total waste diverted from
landfills (reused, recycled,
recovered to energy)

We adopt a responsible approach in industrial waste management, placing a strong emphasis on compliance with relevant laws and regulations. As part of our waste management practices, we provide guidance on the safe handling and disposal of waste, in accordance with health, safety, and infection control requirements.

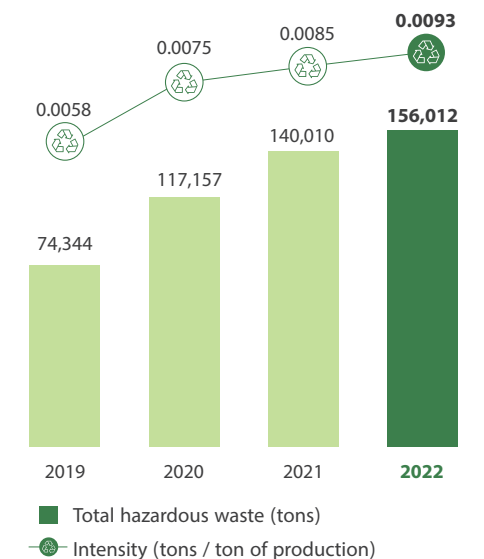
In 2022, we recorded an 8.6% increase in total waste. However, we remain committed to minimizing waste by engaging with sustainable vendors who specialize in waste reuse, recovery, or recycling. Additionally, we actively work towards reducing hazardous waste and ensure its disposal through appropriate vendors. This involves maintaining proper waste inventory in accordance with legal requirements.

Total Waste

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



Total Hazardous Waste





Waste Diverted from Landfill*

Target

90% waste diverted from landfill
by 2025

Performance

In 2022, **72%** of our waste was diverted
from landfill against our 2025 target

** including waste incinerated with energy recovery*

We place a high priority on waste reduction and recycling efforts as part of our commitment to circularity, aiming to divert operational waste from landfills. Through our Zero Waste to Landfill initiative, we aim to divert 90% of waste from landfills by 2025. In 2022, we achieved a landfill diversion rate of 72%, representing a slight decline from 2021 primarily due to the increase in the number of IVL sites. However, we have implemented a rigorous verification program for the top 35 waste generating sites, which involves a comprehensive review of their waste data collection and waste handling methods.



2022 HIGHLIGHT: ZERO WASTE TO LANDFILL

- Petform Lopburi
- Petform Korat
- Petform Nakhon Pathom
- Petform Pathum Thani
- Petform Rayong
- Indorama Polyester Industries (Nakhon Pathom)

Zero
Waste

Automation to Reduce Effluent Waste (India)

Indorama Synthetics (India) has successfully implemented an automatic chemical dosing system for two of their cooling towers. This represents a significant advancement in automation and digitization, and offers numerous advantages over manual dosing. The automated system ensures that the desired level of chemicals is consistently maintained in the system, preventing both corrosion and scaling caused by underfeeding, in addition to chemical waste due to overfeeding.

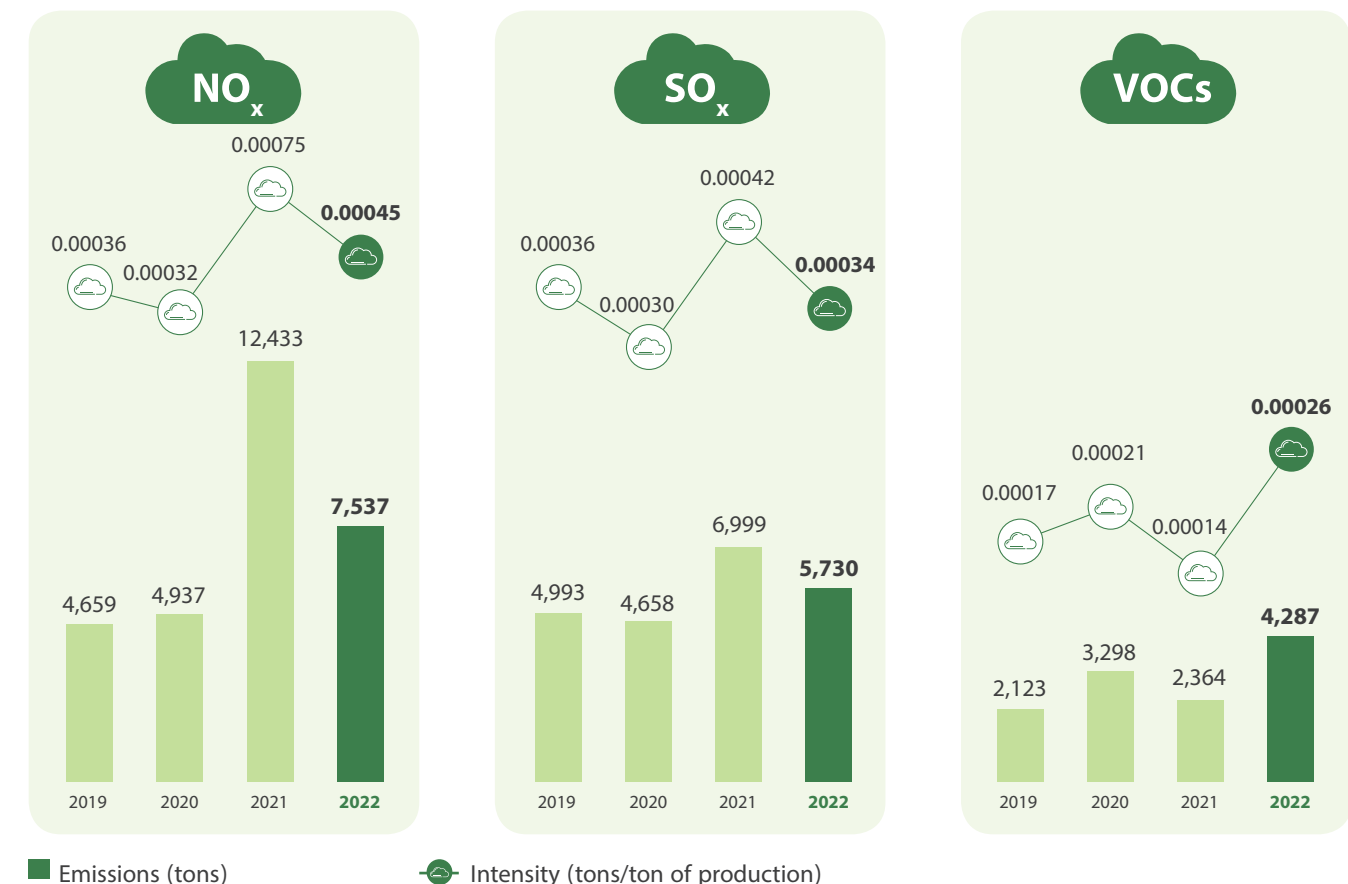


AIR POLLUTION MANAGEMENT

[GRI 3-3, 305-7]

To minimize the generation of air pollutants from our operations, we are going beyond simply monitoring activities by ensuring compliance with local and international laws and regulations of the countries where we operate.

Air Pollution Performance



■ Emissions (tons)

☁ Intensity (tons/ton of production)

**Note: Intensities are calculated based on overall production including inter-company sales.*

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BIODIVERSITY

[GRI 3-3, 304-1, 304-2]

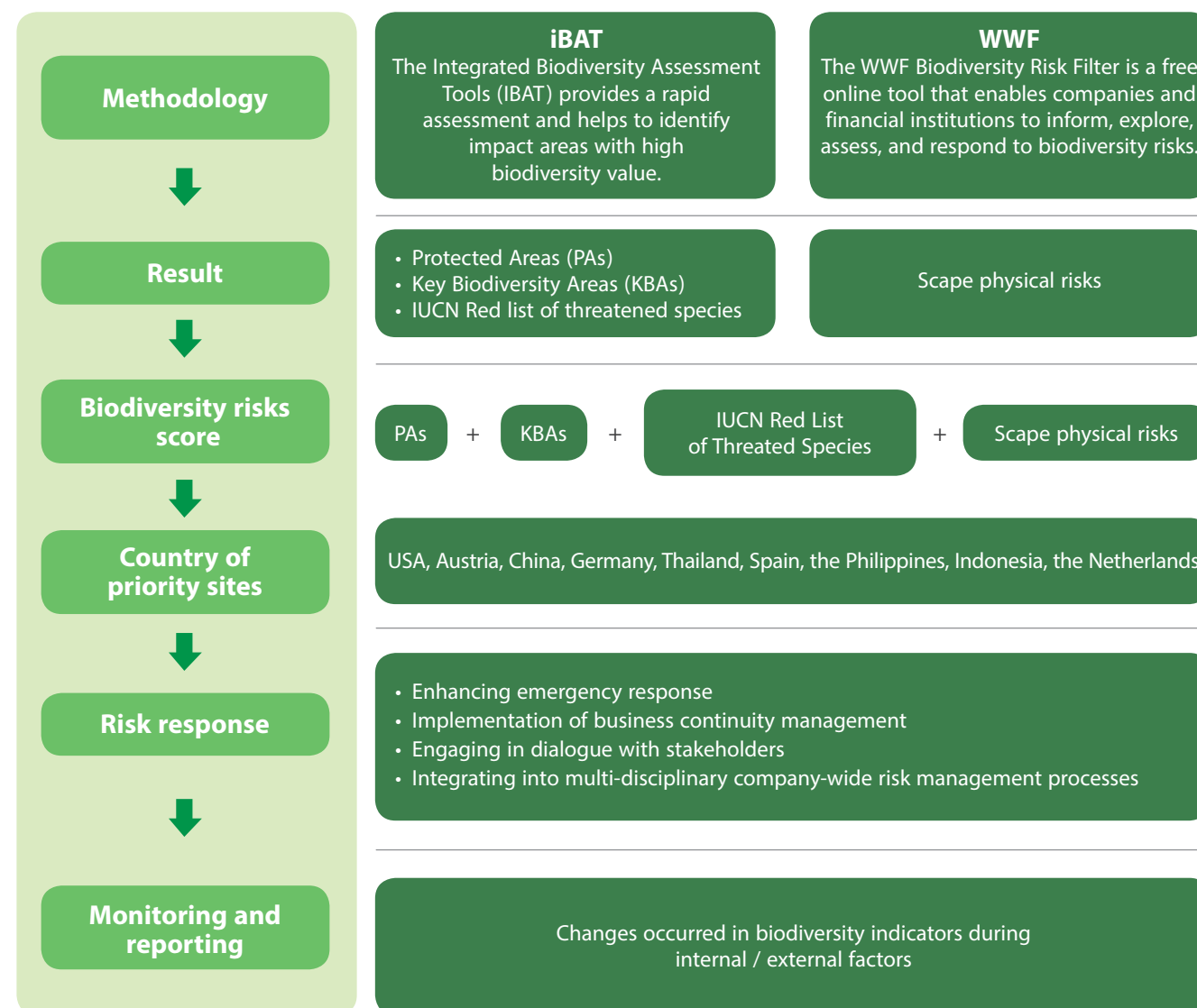
As we further our knowledge and understanding of the impacts and dependencies we have on biodiversity, we are dedicated towards safeguarding nature. To remediate any significant impacts of biodiversity loss to our ecosystem, we have pledged that future Indorama Ventures production sites will have no deforestation for business expansion and follow the mitigation hierarchy for any new operations.

In June 2023, we completed the first biodiversity risk assessment utilizing a variety of methods, including the Encore tool, IBAT, and WWF Biodiversity Risk Filter. These

tools give us the assessment findings for all of our operating sites in terms of dependencies, impacts, the number of species on the IUCN Red List, Protected Areas, Key Biodiversity Areas (KBAs), and Scape physical risk. We were able to select priority sites in nine different countries (Austria, China, Germany, Indonesia, the Philippines, Spain, Thailand, the Netherlands and USA) that are associated to biodiversity risk. The results will be further utilized to develop the first phase of our Biodiversity Action Plan (BAP) for those priority sites. For more information, please read our TNFD report here.



Biodiversity Risk Assessment Processes



Advancing Biodiversity Thought Leadership

In 2022, Indorama Ventures supported the release of a significant report by the Eurasia Group and Suntory Holdings entitled “Addressing Nature Loss in Asia: The Next Sustainability Challenge for Businesses.” This report, which offers valuable guidance for businesses to develop effective corporate nature strategies in a post-COP 15 world, is the culmination of a year-long project, drawing on key learnings from a series of roundtable discussions in which IVL executives explored the critical role of biodiversity in today’s business landscape. To mark its launch in December 2022, a live digital event was organized, highlighting the intrinsic connection between business sustainability and the well-being of our planet.

Further, we have identified the following strategy for Indorama Ventures Biodiversity initiative:

Short-Term

- Educate our employees about biodiversity
- Set a strategy with our risk team
- Develop a Biodiversity Risk Mitigation Action Plan (BRMAP) for Priority sites

Mid-Term

- Conduct biodiversity assessment covering more metrics
- Develop a Biodiversity Risk Mitigation Action Plan (BRMAP) for all Indorama Ventures sites
- Set biodiversity targets
- Develop a global policy to maintain biodiversity and deforestation commitment

Long-Term

- Monitor progress and data reporting to determine if we are on track for our targets
- Identify and take mitigation actions for impacts and dependencies of our suppliers and our products



2022 BIODIVERSITY HIGHLIGHTS

FiberVisions

FiberVisions has committed to Operation Clean Sweep (OCS), a pledge aimed at preventing any loss of pellets, flakes, or powder loss into the oceans.

Indorama Ventures Xylenes & PTA (IVXP)

The Wetlands Edge Environmental Center (WEEC) was established to educate students on responsible environmental and natural resources stewardship. This site has been certified by the Wildlife Habitat Council (WHC), a non-profit organization dedicated to enhancing the quality and quantity of wildlife habitats on corporate, private, and public lands. The WEEC facility consists of a building showcasing aquatic life, including two floors of touch tanks, a 1,650-gallon marine tank, and a 780-gallon freshwater ecosystem. In addition, more than two miles of trails traverse the 320-acre habitat enabling visitors to see several diverse ecosystems including a swamp, a marsh, bottomland hardwoods, upland species, young pines, and one of the largest white oak trees in the world.



CHAPTER 5: SOCIAL IMPACT

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EXPANDING BOUNDARIES TO MEET THE NEEDS OF CUSTOMERS

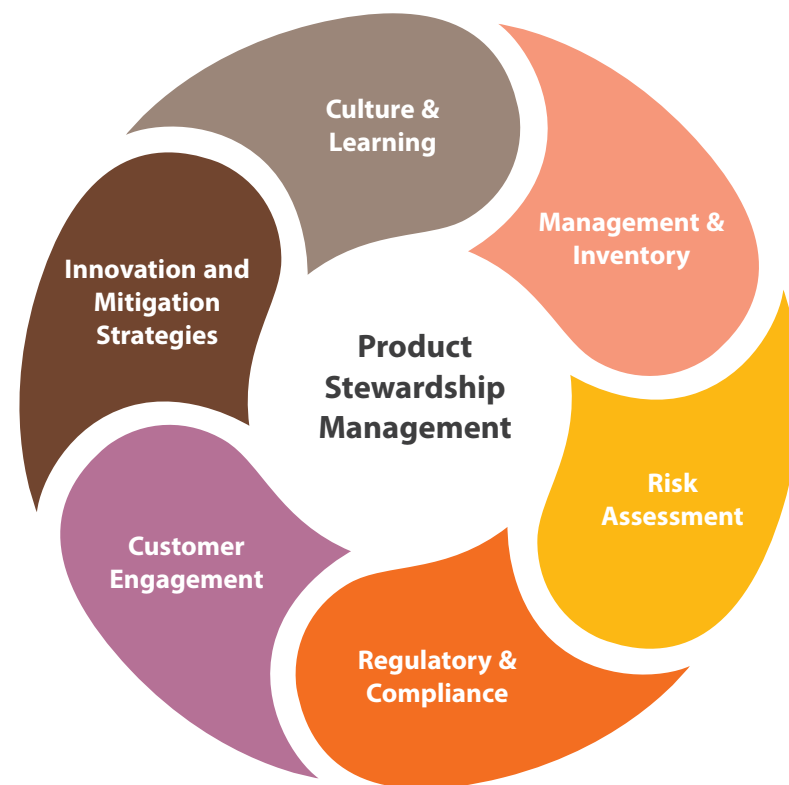
IVL remains committed to addressing the evolving needs of our customers through enhanced product innovation. Whether through our Combined PET, Fibers, or Integrated Oxides and Derivatives (IOD) segments, we manufacture products that are not only safe, compliant, and sustainable, but also meet the expectations of our customer in terms of functionality, design, capacity, and overall user experience.







In our continuous pursuit of creating a safe and sustainable product portfolio, product safety remains top of mind, from the procurement of raw materials to every subsequent step in our supply chain. We strive to reduce any adverse consequences of our products on the environment, and/or to customers, consumers and stakeholders across our value chain.

FOCUSING ON SAFE AND SUSTAINABLE PRODUCTS

[GRI 3-3, 416-1, 416-2]

Product stewardship plays a crucial role in IVL's portfolio development. It encompasses a strategy that is integrated throughout all stages of the product life cycle, serving to minimize the impacts of our products on the environment and on customer health and safety. By continuously reducing, phasing out the use of hazardous chemicals/substances and formulating progressively innovative processes towards green alternatives and chemicals, we demonstrate our strong commitment to product stewardship.



Product Stewardship Management	
 Culture & Learning	Cultivating a Robust Organizational Culture that Emphasizes Product Safety <ul style="list-style-type: none">• We provide comprehensive training and education to responsible teams and relevant employees on product and chemical safety.
 Management & Inventory	Employing an Efficient Chemicals/Substances Management System <ul style="list-style-type: none">• We utilize a chemicals/substances management and monitoring system to ensure that our use of chemicals/substances are compliant with the required regulations.• This system systematically oversees and controls the use of chemicals/substances across all company activities to prevent potential incidents, issues, and hazards.
 Risk Assessment	Conducting Risk Assessments for Product Optimization <ul style="list-style-type: none">• We conduct a Product Compliance Risk Characterization (PCRC) process for every product to evaluate its associated environmental and human health and safety impacts.
 Regulatory & Compliance	Maintaining Strict Regulatory Compliance <ul style="list-style-type: none">• We continuously review and manage volatile materials under the REACH regulation, Substances of Very High Concern (SVHC) list and the Substitute It Now (SIN) list, while also maintaining compliance with the European Chemicals Agency's (ECHA) SVHC list.
 Customer Engagement	Engaging Customers via Safety Data Sheets and Proactive Enquiry Response <ul style="list-style-type: none">• We publish Safety Data Sheets (SDS) for products, covering our entire global footprint.• We also promptly respond to customer enquiries to address their product safety concerns.
 Innovation and Mitigation Strategies	Substituting Hazardous Chemicals/Substances with Alternative Materials <ul style="list-style-type: none">• We strive to substitute chemicals within the SIN list with safer alternatives that are either readily available or can be developed, which will result in a progressive phase out of concerned substances across our products.



Minimizing Hazardous Substances

[GRI 2-27, 403-2, 403-3]

IVL endeavors to phase-out all identified hazardous and harmful substances within our product portfolio. Whenever hazardous chemicals are detected, we will create and implement a mid-term to long-term strategy to replace them with safer alternatives after a thorough evaluation by relevant departments, such as R&D, product stewardship, procurement, production, and quality control. Our objective is to safeguard the safety and well-being of all stakeholders while also minimizing the generation of hazardous waste during the manufacturing process.

One of the chemicals on the SIN list is Monoethylene Glycol under the IOD business segment, which cannot currently be replaced with an alternative. However, to minimize its impact, we have integrated bio-based feedstocks in the production process. Additionally, IVL ensures responsible management of this chemical throughout the value chain, from production to end users.

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ENSURING PRODUCT SAFETY



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



100%
compliance with the ECHA SVHC list



Zero violations
of domestic and international regulations



For the second year in a row, Indorama Ventures was ranked at the top among the 54 largest chemical companies in the world according to ChemScore, a ranking system by ChemSec.

This recognition is due to our continued efforts to reduce our chemical footprint while transitioning towards green chemistry.

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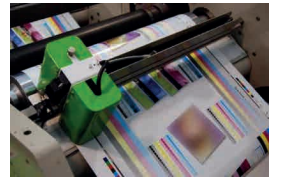
Our Responsible and Sustainable Product Portfolio

[GRI 3-3, 201-1, 203-1, 203-2]

The customer is why we exist, and it is crucial for us to address their needs as we continue to expand our business and product portfolio. Consequently, our products are designed with sustainability in mind, without compromising customer health and safety. In this regard, we have identified key products that contribute to socially sustainable impacts, which include:

ULTRASOLVE® H line FLEXOGRAPHIC PRINTING INKS

ULTRASOLVE® H was developed for application in flexographic printing inks, and was endorsed by several customers in Brazil, Peru, Colombia, Mexico, Argentina, South Africa, India, and Australia. ULTRASOLVE® H offers high efficiency as a solvent retardant during application in printing inks where less solvent is required compared to traditional solvent retardants. It is a solvent with both low toxicity and odor, promotes low retention in the application of flexible plastic packaging, and is also in accordance with the main regulations of the food packaging market. In 2022, sales revenues for printing inks reached US\$ 1.75 million with a total volume of 642 tons.



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BIO-BASED PLA INSECT-PROOF AND COMPOSTABLE NETS

Being sustainable in many ways, Texinov has developed insect-proof and compostable nets for farming. The fine knitted net called FILBIO®, produced by the French based company, not only protects crops without using pesticides which may be harmful to mankind or the environment, but also protects against hail, wind, and climate stress. Made with IVL's bio-based PLA, it is re-usable for up to three seasons. Our IVL's German sites in Bobingen and Guben produce PLA staple fibers and filaments, which are made from 100% renewable materials. PLA gives off significantly lower CO₂ emissions and has a much lower energy consumption during the production of the raw material.

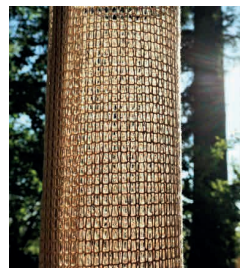


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BIO-BASED AND BIO-DEGRADABLE TREE COVERS INCORPORATING PLA

PET has some of the best properties for mankind – high strength, good chemical resistance, light weight and it is recyclable. For specific applications, where the product cannot be properly disposed after the life cycle is expired, new alternative solutions have been developed. German based company Buck has developed bio-based and bio-degradable tree covers incorporating our PLA. The knitted structure not only protects the plant in early stages, but also ensures it gets enough air and light. Thanks to its bio-based contents, it does not shed of any microplastics (awarded 4 of 4 stars at the OK biobased test TÜV Austria).



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iCare™ HEAVY METAL-FREE PET FIBERS

iCare™ is IVL's leading sustainable fiber brand, used in a variety of personal care products, such as baby strollers, baby diapers, car seat interiors, and food packaging. To ensure that the products are safe to use, especially for infants and young children, iCare™ is manufactured without heavy metals, and strictly complies with the food additive provision of the US Federal Food, Drug, and Cosmetic Act (FFDCA).

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Trevira CS® METAL-FREE FLAME RETARDANT POLYESTER FIBERS

Trevira CS® is the world's leading flame-retardant polyester fiber, and is widely used in public spaces, such as hotels, hospitals, and offices, where fire safety is of the greatest importance. Commonly utilized in the production of textiles such as curtains and upholstery, Trevira CS® is antimony-free, thus preventing incidents of skin and eye irritation among our consumers.

FOR MORE
INFORMATION

Polyclear® Preserve PET 2222 MODIFIED PET RESIN WITH A HIGHER GLASS TRANSITION TEMPERATURE

This new product, launched in 2022, can provide a higher heat deflection temperature to containers compared to standard PET. Target application is for Thermoformed trays for sterilized medical packaging. Key functionalities of containers made from Polyclear® Preserve PET 2222:

- are lightweight and shatterproof
- can be recycled with standard PET
- exhibit excellent clarity and superior dimensional stability, thus preventing shrinkage and expansion at higher temperatures
- provide an additional UV-light barrier over standard PET
- comply with the Federal Food, Drug, and Cosmetic Act for certain food contact applications

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INFORMATION

Deja™ CARBON NEUTRAL LOW-CARBON FOOD-GRADE PELLET

Recognized as the 'Best Sustainable Product' at the Chemical Week Sustainability Awards, Deja™ Carbon Neutral Pellet is made from locally sourced raw materials. Deja™ products support the UN Sustainable Development Goals (SDGs) promoting a sustainable, greener, and circular economy. Deja™ proudly collaborates with South Pole on carbon offset projects such as the Safe Water Project Rwanda, which provides 50 million liters of safe drinking water annually to communities.

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BREATHAIR® COMFORTABLE AND DURABLE 3D CUSHION MATERIAL

BREATHAIR® is a highly innovative 3D spring structure, commonly used for the manufacturing of cushions, furniture, and bed sheets. Known for its superior elasticity and durability, this material provides users with long-lasting comfort. In addition to being washable and recyclable, BREATHAIR® has been commended for meeting the stringent hygiene standards of the Japan Textile Evaluation Technology Council (JTETC). The product's high breathability minimizes the risk of mold and bacterial growth, further enhancing its appeal to those who value cleanliness and hygiene.

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Managing our Product Life Cycle

At IVL, we utilize two methodologies, the Life Cycle Assessment (LCA) and Portfolio Sustainability Assessment (PSA) to evaluate the ESG impact of our products. These methods enable us to achieve sustainable competitiveness by ensuring our products meet customer requirements while leaving a positive impacts. Both approaches are valuable tools for assessing sustainability and together, they provide a more comprehensive understanding of the sustainability impact of our products.

2022 Product Sustainability Assessment Global coverage by production volume = 32.78%		
Assessment Method	Portfolio Sustainability Assessment (PSA)	Life Cycle Assessment (LCA)
Underlying Principles	Based on World Business Council for Sustainable Development (WBCSD) principles	Based on ISO 14040 and ISO 14044
Applicable Business Segment	IOD, Fibers, Combined PET	Combined PET, Fibers, IOD
Coverage (by production volume)	8.60%	24.18%
Purpose	<ul style="list-style-type: none">• Evaluates the ESG impacts of a collection of products, using a questionnaire composed of 25 environmental and social criteria, for different stages of the product's life.• Based on the qualitative results, action plans are implemented to improve low-performing products or increase sales for high-performing products.	<ul style="list-style-type: none">• Evaluates a product's environmental impact throughout its lifecycle, using either cradle-to-grave or cradle-to-gate system boundaries.• Based on the results, we identify environmental hotspots in our supply chain and make informed decisions on product design and development.
2022 Highlights	<ul style="list-style-type: none">• IOD: We thoroughly analyzed 115 Oxiteno legacy products in application, exclusive to the Home & Personal Care market.• In the final two months of 2022, we took a step further and revised the entire Oxiteno PSA methodology to integrate the IOD vision.• This update will be officially launched in the first half of 2023, bringing even more value and excellence to our customers.• Expanding PSA to Combined PET and Fibers segments.	<ul style="list-style-type: none">• IOD: In 2022, more than 46 product life cycle assessments were carried out internally, 33 of which focused on their carbon footprint, all at the request of customers. An additional 28 assessments will be delivered in the first quarter of 2023.• CPET: 2 products completed LCA (out of two products started).• Fibers: 3 product families completed LCA (out of 11 products started).• We have in house LCA capability to support all business segments.

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MAINTAINING STRONG CUSTOMER RELATIONSHIPS

[GRI 3-3, 416-1, 416-2, 417-2, 417-3, 418-1]

For the past three decades, we have advanced our market positioning by strategically nurturing our reciprocal customer relationships, which have enabled us to better understand market trends and forecasts, resulting in improved brand equity, long-term customer loyalty, as well as satisfaction.

To uphold the quality of the social and relationship capital we have established with our customers, our business marketing team plays a crucial role in understanding their needs and preferences, improving customer satisfaction, and tailoring our products to meet their demands. The team also ensures prompt and respectful responses to customer concerns, thereby building trust, loyalty, and a positive reputation, which leads to increased customer retention and revenue.

We use a number of tools to evaluate and manage our customer experience and satisfaction, including:

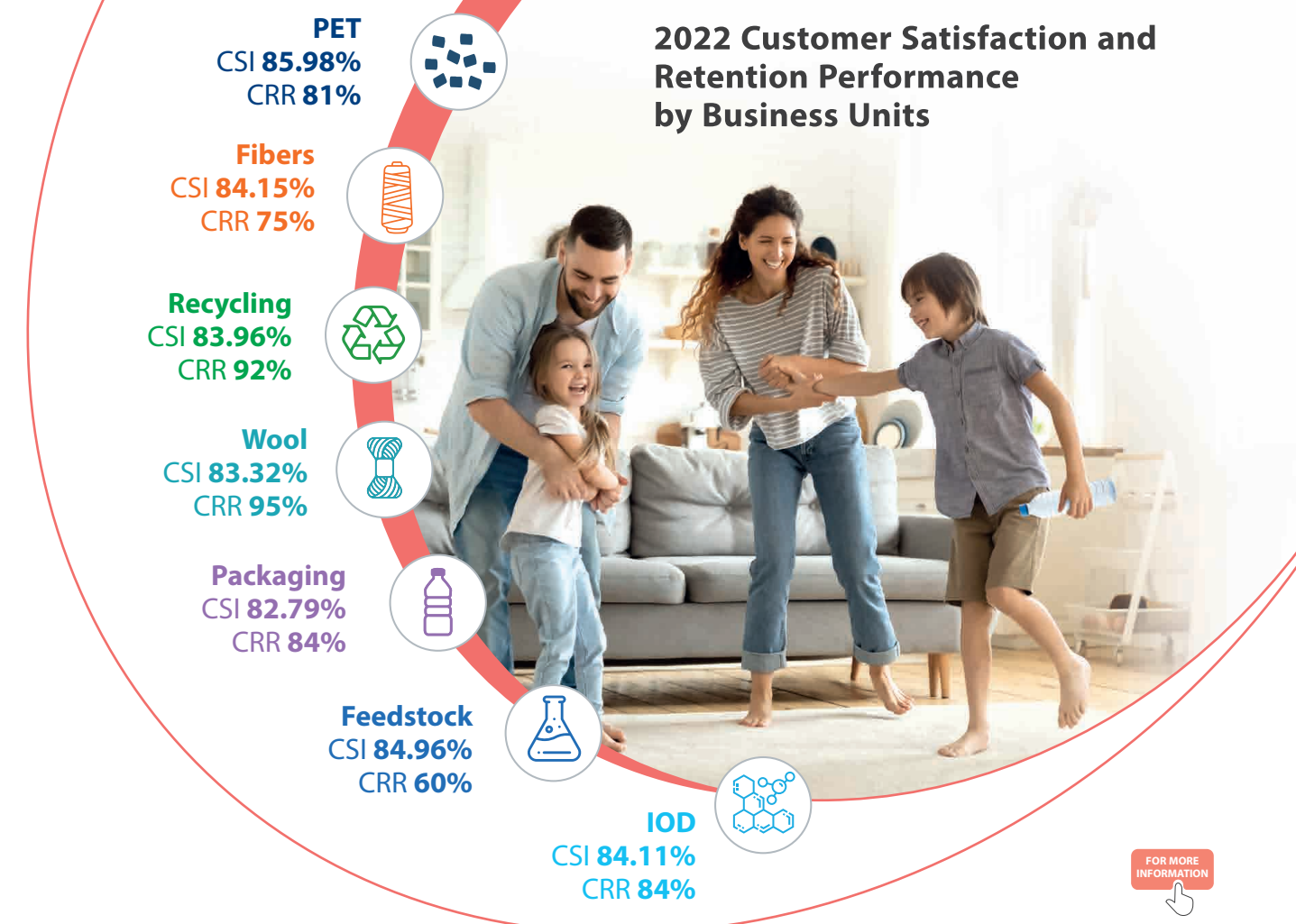
Measuring Customer Satisfaction, Retention and Experience			
Tools	Definition	2022 Performance	Impacts
Customer Satisfaction Index (CSI)	Evaluates our customers' expectations, needs, and level of satisfaction with our products. Measures customer satisfaction pertaining to our products, services etc.	84.82%	<ul style="list-style-type: none">Examine the root cause of issues.Identify areas for improvement in support of our core values to become the preferred supplier to our customers.Formulate strategic action plans to drive impactful product improvements.Gain insights into the future needs and expectations of our customers.
Customer Retention Rate (CRR)	Measures the number of customers. We continue to do business with throughout the year	78%	
Net Promoter Score (NPS)	Measures customer loyalty and the likelihood of recommending our products and services to others	48%	<ul style="list-style-type: none">Develop process and product improvement plans based on the issues raised.Continuously monitor our business performance.
Customer Satisfaction Survey (CSS)	Evaluates the expectations, needs, and level of satisfaction with our products on the part of our customers.	2,148 Responses	<ul style="list-style-type: none">Formulate strategic action plans to drive impactful product improvements.Enable the targeting of relevant customer groups.Gain valuable insights for the development of purposeful and meaningful products.

Managing Customer Experience and Satisfaction

In our proactive pursuit of consumer insights and input for the development of sustainable and reliable products, we have carried out a range of customer engagement initiatives, primarily through the following communication channels:

- Briefing sessions centered on the technical and functional aspects of the products, as well as the sustainability elements embedded within the product design, to help customers to fully utilize the power of the product and continue to grow their business
- In-depth interviews, focus groups and surveys, to better understand their needs and adapt to the changing behaviors of customers
- A product roadmap to communicate the status of a product, a plan to move forward to meet customers' vision and product strategy

2022 Customer Satisfaction and Retention Performance by Business Units



As a responsible and customer-focused business, we comply with relevant regulations that govern customer relations. We have implemented various measures to ensure that we meet these requirements, including employee training, establishing clear communication channels with customers, and performing periodic audits to identify areas for improvement.

In 2022, we have not come across any incidents of non compliance pertaining to:



Marketing communications



Health and safety impacts of products



Product and service information and labeling



Breaches of customer privacy and losses of customer data

2022 HIGHLIGHTS

Avgol wins Procter & Gamble's prestigious Supplier Excellence Award

Procter & Gamble's global Baby Care program unanimously recognized Avgol Industries, a subsidiary of Indorama Ventures, as the most noteworthy and valuable supplier of the previous fiscal year.

This acknowledgment was awarded to Avgol due to its exceptional strength in collaborative efforts and consistent improvement initiatives across all regions of the program.



ENGAGING OUR SUPPLIERS

[GRI 3-3]

In recent years, responsible supply chain management has expanded to encompass compliance with environmental standards, protection of human rights, and prevention of bribery and corruption, amongst other measures. Consequently, safeguarding against and managing these risks has become integral to sustainability practices within leading global corporations. To uphold a responsible and sustainable supply chain, IVL has implemented new initiatives to efficiently manage, evaluate, and train our suppliers. To establish a carbon-neutral supply chain, IVL launched the "Sustainable Supply Chain Collaboration Program" in early 2022 to improve the visibility of our Scope 3 emissions impact and ensure alignment with our Responsible Sourcing Policy.

EMBEDDING ESG IN OUR SUPPLY CHAIN

[GRI 3-3]

Responsible Sourcing Policy

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- In 2022, our Supplier Code of Conduct was upgraded to a Responsible Sourcing Policy, which includes the sourcing of palm oil, palm kernel oil, and derivatives.
- The code encompasses legal compliance, ethics, and human rights concerns, such as child and forced labor, health and safety, anti-bribery and corruption, mutual trust and respect, as well as environmental performance monitoring, among other metrics.

Human Rights Policy

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- Our Human Rights Policy complies with international and local human rights and labor laws, particularly in the countries where we operate.
- We identify and address risks related to environment, human rights, labor, and ethics to ensure that our suppliers operate in compliance with our policies.

Roundtable on Sustainable Palm Oil (RSPO)

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- Our IOD business conducts traceability of our suppliers' mills and updates stakeholder complaints related to this topic on our website every six months.
- All of these facilities can produce, process, and market Mass Balance certified products responsibly.

No-Deforestation, No-Peat and No-Exploitation (NDPE)

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- Our IOD business requires that suppliers adhere to No-Deforestation, No-Peat, and No-Exploitation (NDPE) practices to ensure the prevention of incidents such as labor exploitation, child labor, deforestation, and development in peatland areas.
- Failure to comply with these practices may impact the future ability of a supplier to do business with Indorama Ventures, as outlined in our Responsible Sourcing Policy for Palm Chain.

ESTABLISHING A ROBUST SUPPLY CHAIN MANAGEMENT PROCESS & SYSTEM

When conducting our due diligence, we assess the compliance of our suppliers to quality standards, such as ISO 9001, ISO 14001, REACH certification, as well as UNGC and ILO standards. We include quality control and traceability clauses in our supplier contracts.

To ensure the traceability of our supply chain, IVL takes into account the impacts of our entire supply chain, with a particular focus on the GHG emissions of our suppliers. We have also improved our digital supplier engagement tools, including the GHG Questionnaire and Sustainable Supply Chain Program guide.

CONDUCTING THOROUGH EVALUATIONS, DUE DILIGENCE AND SUPPLIER TRAINING

New and existing suppliers of raw materials and critical non-raw materials are required to acknowledge our relevant policies, namely our Responsible Sourcing Policy and Human Rights Policy. Complemented by the GHG Questionnaire, our global procurement team facilitates the evaluation, monitoring, and upskilling our pool of suppliers.

Once a vendor becomes part of our supplier network, we provide supplier training through our Sustainable Supply Chain Collaboration Program. We reach out to them through our procurement executives to offer online group workshops or one-on-one discussions so they can learn more about our GHG Questionnaire, Responsible Sourcing Policy, and our sustainable supply chain roadmap in general. Some of the topics we cover during these sessions include our decarbonization strategy, GHG Scope 1, 2, and 3 accounting, and Scope 3 methodology.

In 2022, we focused on providing capacity building to our raw material suppliers, who account for approximately 90% of our raw material spending, by 2025. We successfully engaged with more than 50% of suppliers within this category against our target, 40% in 2022.

Indorama Ventures PCL Awarded Gold Sustainability Assessment

By EcoVadis



Collaboration Initiative for Green and Sustainable Logistics

Indorama Ventures Portugal was recognized, for the second consecutive year, with a Sustainable Transport Certificate by MEDWAY's Transport and Logistics. Our company was recognized as a partner in sustainability and in reducing our carbon footprint, with an estimated reduction of 318 tons of CO₂ in the year 2022. The calculation in ton/CO₂ represents the difference between moving containers by rail vs. by road (trucks).

MEDWAY is an intermodal operator, and the certificate was granted to Indorama Ventures for having used rail transport instead of trucks to move our product (PTA) in the Iberian Peninsula (Portugal and Spain).

Indorama Ventures would like to thank MEDWAY for their collaboration, once again highlighting those fostering good partnerships results in excellent achievements and creating a better world together.





ENSURING COMPLIANCE IN OUR SUPPLY CHAIN

[GRI 3-3, 408-1, 409-1]

Ethics

We expect all our suppliers to conduct business in an ethical and legal manner, as outlined in our Responsible Sourcing Policy. Our Ethics policy includes avoiding conflicts of interest, bribery, and corruption, as well as the responsible acceptance of gifts and hospitality. Suppliers are required to maintain compliance with competition regulations and ensure supply chain transparency.

In addition to respecting intellectual property and upholding information security, we also emphasize animal welfare. This includes responsible and ethical animal testing practices. Additionally, suppliers are expected to provide transparent declarations to ensure that the materials supplied are free from conflict regions, thereby avoiding any contribution to human rights abuses associated with mining and mineral trading.

Social

To protect our business, people and the communities that we engage with along our value chain, we place importance on fair treatment, combating forced labor, and ensuring safety in the workplace. Suppliers are expected to respect the rights of employees to freedom of association and collective bargaining, promote diversity and equality, and create a harassment-free workplace. Beyond compliance with laws regarding work hours, wages, and benefits, suppliers are also required to prioritize a safe and hygienic working environment by implementing risk management systems and conducting regular safety assessments.

Together with human rights in the workplace, we also strongly uphold human rights across our supply chain. All our suppliers must comply with applicable laws and regulations, conduct business with ethical and transparent labor practices, and adhere to health and safety protocols in line with IVL standards. We also require our suppliers to be accountable for managing and guaranteeing the compliance of their subcontractors. We pay special attention to identifying any instances of child labor or forced/compulsory labor. All of these principles are reflected in our Responsible Sourcing Policy.

Environment

Our Environmental, Health, and Safety (EHS) Policy reflects our commitment to climate protection. Suppliers are expected to comply with environmental laws and regulations and are encouraged to utilize environmentally friendly technologies. Efforts should be made to reduce the environmental impacts of activities and products, safeguard local biodiversity, and promptly respond to environmental accidents. Waste collection, disposal, and treatment facilities must be monitored, and sustainability programs should undergo periodic reviews to drive continuous improvements. In terms of product stewardship, suppliers must implement a quality management system in line with IVL's standards and upgrade internal capacity to prevent and mitigate harmful impacts on the environment.



2022 HIGHLIGHTS

Oxiteno (a part of Indorama Ventures Public Company Limited or IVL), is an ordinary member of Roundtable on Sustainable Palm Oil (RSPO), and in support of the causes it protects, established its in a new Responsible Sourcing Policy PKO and Derivatives, which sets out specific requirements for suppliers of this renewable raw material that is so important for our business.

Oxiteno RSPO-certified units are able to produce and direct sales of RSPO-certified products in the Mass Balance mode. The products certified in this modality have the acronym MB in their brand. In 2022,

- 109 million tons of raw material from the palm chain were purchased, equivalent to 43% of this raw material was certified to RSPO standards.
- 12 of 13 IOD production units process palm kernel oil and its derivatives are RSPO certified. In addition, one distribution center and one office are also certified.



FOR MORE
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PATH FORWARD

IVL is committed to being a responsible player in our extensive value chain. In May 2023, we joined the Together for Sustainability (TfS) Initiative and began utilizing the EcoVadis platform to assess our suppliers. These two key steps will further enhance our Sustainable Supply Chain Collaboration program and allow us to expand the scope and reach of our supply chain assessments.

Engage

Join TfS and utilize the EcoVadis platform to gain more detailed assessment result of critical suppliers

Assessment

Carry out desk-based assessments and onsite ESG audits based on a recognized industry methodology

Evaluate

Evaluate the results of all assessments conducted using a weighted scoring system

Support

Work with suppliers on corrective action plans and monitor progress towards improvements.

Implement

Support suppliers with the implementation of their corrective action plans

Joining the "Together for Sustainability" Initiative

IVL joined "Together for Sustainability (TfS)," a global initiative for sustainable supply chains. The initiative consists of a network of 47 TfS member companies representing the global chemical industry, reinforcing our commitment to driving sustainable solutions in supply chain management. By becoming a part of this initiative, we:



- Expand our Sustainable Supply Chain Collaboration program and further encourage suppliers to meet high sustainability standards, reducing the risk of supply chain disruptions and improving overall climate maturity.



- Contribute to and collaborate with other TfS members by joining the TfS workstreams to develop guidelines and best practices, allowing chemical companies to share resources more efficiently as we transition to a low-carbon economy.



- Further align with the UN Global Compact Principles and champion the Responsible Care Global charter commitments.



INVESTING IN OUR PEOPLE

Our human capital is our most prized asset, and our growth and success are contingent upon their talent, experience, ingenuity, and diligence. As our employees are our competitive edge, we continuously foster a work environment that is healthy, productive and diverse, which respects individual and cultural differences, challenges people to do their best, and provides limitless opportunities for personal and professional growth. To ensure that we have the right talent for the right roles, we have implemented Strategic Workforce Planning, which examines our current workforce, predicts future workforce requirements, identifies discrepancies between now and the future, and executes solutions to address them.



'Thailand Best Employer Brand Awards 2023' is a recognition of Indorama Ventures' achievements which include the Thailand Top Talent program and Succession Planning Implementation.

DEVELOPING WORLD-CLASS TALENT

To enhance the capabilities of our workforce, IVL invests in leadership development programs, professional training and development opportunities, as well as other employee upskilling efforts. Through these initiatives, we are laying the foundation for a new generation of leaders and innovators.

Talent Management

- Executed the pilot Top Management Assessment Center
- Global Leadership Development
- Deployed Succession Planning for all site/plant Management and Head Office

Talent Acquisition

- Researched and benchmarked to identify the employer value proposition, involving branding, monetary, and non-monetary factors that impact IVL's ability to attract and retain talent.

Leadership Development as a Strategic Enabler

[GRI 404-2]

Leadership development is a critical component of our business success. To develop effective leaders, we established the Leadership Development Curriculum which provides targeted development at different leadership levels. This curriculum comprises training, coaching, mentoring, and experience and assignment-based development centered around digital intelligence. The approach encourages employees to take ownership of their development and creates a dynamic and innovative learning environment.

We aim to further expand the deployment of our Leadership Development and mentoring program in the near future. As a result of this program and our focus on succession planning, we have culminated two successors ready for leadership roles in two years. In 2019, 39 senior management positions and 68 validated successors were identified, and this process was subsequently expanded to middle and site management positions as well.

FOR MORE
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Targets

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

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



Performance

791 leadership positions

3,381 leaders were trained through leadership training programs and leadership e-Learning.

2022 Leadership Development Outcomes

- **1,447** leaders trained through leadership training programs
- **1,934** leaders completed leadership e-Learning
- **40,659** training hours

Succession Planning

IVL's Approach to Succession Planning

- Ensure alignment with key business objectives
- Determine key positions for succession based on business demands
- Review talent based on performance and potential
- Develop a targeted development plan

Progress Achieved

- In 2022, we covered 791 positions with 1,269 validated successors with strong progress on diversity and age profiles.
- We are expanding to reach 1,000+ target positions.
- Together with the NCCG committee, the Board reviews the process adequacy and plan for the Group CEO and Executive Board positions.
- For other key positions, we ensure successful executive/management transitions through the constant development of leaders.



Employee Upskilling



2022 EMPLOYEE UPSKILLING HIGHLIGHTS



Implemented IVL Thailand's Top Talent Project, whereby 59 high-performing employees were selected to undergo two-year development acceleration programs



Global English e-Learning was introduced to support employee development and systems adoption, piloted for 100 employees in Asia and the Americas



Pre-assignment training for new expatriates to support assimilation and cultural awareness, 35 expatriates received pre-assignment training

To provide our employees with an integrated experience, we promote different ways to learn and grow, depending on development needs and individual learning styles, adopting a holistic approach guided by a 70-20-10 ratio as shown below.



10%

Training

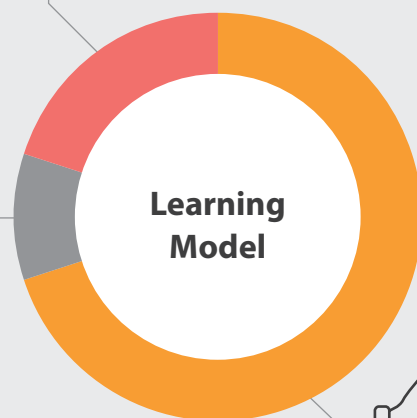
Learn and develop through structured programs and courses, e.g. training courses, online courses, and reading.



20%

Developmental relationships

Learn and develop from others, social and collaborative interactions, constructive feedback, e.g. communities, networks, peer, coaches and mentors.



70%

Job assignments and experiences

Learn and develop by doing, e.g. on the job practice, taking on new challenges or stretched assignments.

IVL Global Mentoring Program

We initiated the Global Mentoring Program in Thailand to promote the professional growth and development of our employees, while also fostering talent retention. Divided into two phases, the program offers a mutually beneficial partnership with mentors who support the growth, networking, and exposure of mentees.

The first pilot project, conducted from March 2020 to November 2021, involved four pairs of mentors and mentees, including line managers from head offices. The second project, which ran from May 2021 to June 2022, subsequently comprised six pairs of mentors and mentees.





INDORAMA VENTURES EXCELLENCE (IVEX) PROGRAM

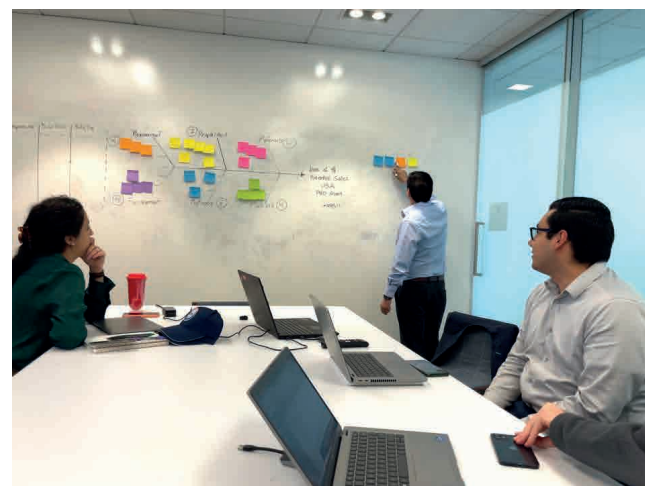
[GRI 404-1, 404-2]

Indorama Ventures Excellence (IVEX) catalyzes our values by introducing world-class tools and techniques to employees worldwide. Having collaborated with functions across IVL, IVEX creates an innovative culture that activates the Prosperity of the Company through the **Prosperity of our People**. IVEX training programs and leadership development projects are carried out with the full support of top management.

Laying a solid foundation for IVL businesses, the **"IVEX World Class"** training program includes a series of progressive Lean Six Sigma (LSS) training courses. In 2022, IVEX completed the first waves of the new lean training programs, which cover non-manufacturing areas, including Commercial Excellence, Supply Chain Excellence, Finance Excellence, and Innovation.

Additionally, the IVEX team focuses on excellence projects, with their Lean Experts acting as internal consultants for the subjects under their responsibility. These development projects result in a variety of benefits, including increased output, sustainability in energy, air, and water, waste management, improved quality, and cost control, among others. Through **Project Olympus**, we achieved our 2022 savings target of **US\$ 76.2 million for a run rate benefit** with a digital overlap of US\$ 6.2 million.

Our global IVEX practitioner community regularly holds cross-sharing events, giving us an advantage as we leverage best practices. This is just one of the many ways that IVEX continues to strategically leverage new improvement opportunities.



IVEX Project Competition 2022

The annual IVEX Project Competition highlighted LSS projects completed in each business. In 2022, the competition was divided into three divisions: Veteran, Pioneer, and Lean, which encompassed all levels of the professional competencies of LSS practitioners. Over 80 projects were submitted from all regions, with the top projects recognized and awarded accordingly.

GHG Reduction
47,322 tCO₂e



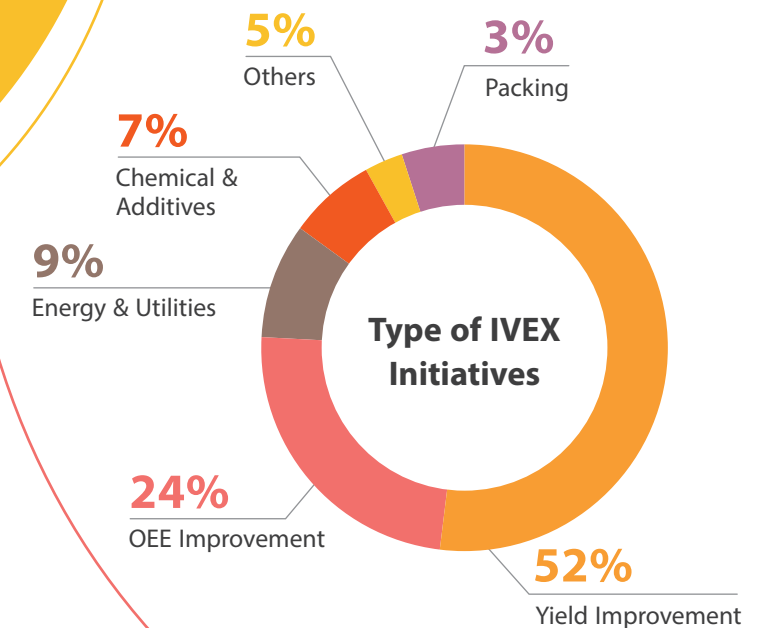
Energy Reduction
498,744 GJ



SUSTAINABILITY BENEFITS



Water Reduction
149,756 m³



2022 IVEX Performance Achievements

- **US\$ 76.2** million in cost saving benefits from 358 projects

- **139** million kWh reduction in energy consumption from 52 projects

- More than **139,500** total training hours from 2018-2022

- **70,000+** hours invested in training and development our employees

- **60** sustainability projects across IVL including utilities

- **371** projects in total

- Total CAPEX at **US\$ 7.8** million for all projects in 2022

- **593** New Belts Practitioners in 2022, surpassing the annual target of 506



EMPLOYEE PERFORMANCE MANAGEMENT

[GRI 3-3]

To maintain a high-performance culture, we ensure that our employees receive regular feedback on their performance through constructive conversations with their supervisors. This helps to pinpoint their strengths, areas for development, as well as challenges. We also routinely review their respective performance and career development trajectories to support their growth and development. Moreover, our talent management system and forms are available in multiple languages to reach a wider audience while ensuring accessibility.

IVL Performance Excellence Awards

Our rewards system is designed to improve and sustain employee engagement and inspire employees to challenge boundaries and achieve outstanding results. It is based on stellar performance across three key criteria: Financial, operational, and sustainability performance. The top-performing Business Units are identified and cash incentives are provided to the employees in recognition of their excellent teamwork.



Fibers Winner



Indorama Ventures Polymers Mexico S. de R.L. de C.V. Technical Fibers plant, Mexico

IOD (North America) Winner



Indorama Ventures Oxides LLC
Indorama Ventures Propylene Oxides LLC Port Neches, USA

IOD (South America) Winner



Oxiteno S.A. Indústria e Comércio, Maua, Brazil

PET Winner



Guangdong IVL PET Polymer Company Limited, China

Packaging Winner



Petform (Thailand) Limited, Pathumthani, Thailand

Recycling Winner



Indorama Ventures Recycling Poland Sp. Z o.o., Bielsko Biala and Leczyca, Poland

Aromatics Winner



Indorama Petrochem Limited, Rayong, Thailand

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INFORMATION



Employee Engagement

[GRI 3-3]

Continuous talent engagement is crucial in increasing productivity and fostering creativity and innovation among our employees. To achieve this, IVL conducts general company-wide surveys and smaller focused surveys to gather valuable insights into the experiences and needs of our human capital. By doing so, we are able to develop an engaged workforce.

Name	Frequency	Participants	Main Topics
Organizational Announcements	Regularly	<ul style="list-style-type: none">Direct email to IVL senior and middle management (IMC, GMC, Site Heads, HR Heads)Posted on the Intranet	<ul style="list-style-type: none">Management AppointmentsGlobal Level Reorganization
Updates on HR Projects	Yearly (by project plan)	<ul style="list-style-type: none">Direct email to local HR Heads requesting that they circulate it to their employees, but depends on each projectPosted on the Intranet (InVoLve-Employee center) which all employees can access	<p>In 2022, we released:</p> <ul style="list-style-type: none">IVL Culture Awards 2022Monthly IVL Employee Assistance Program (EAP) and a Health Bulletin by Corporate EHS and Global HR
HR Quarterly Connect	Quarterly	<ul style="list-style-type: none">Human Resources Business Partners (HRBP) organize the meeting on MS teams with the Local HR Heads	<ul style="list-style-type: none">Opportunities to update HR projects, strategies, and share within the HR community





As part of our continuous talent engagement, a Global Employee Engagement (GEE) is conducted every two years to better understand employee needs. Highlights of the survey results for 2023 include:



HIGHLIGHTS OF THE GEE SURVEY RESULTS FOR 2023



- Survey Participation: 84.06%
- Employee Engagement: 73.31% (actively engaged employees)
- Employee Net Promoter Score: 75.85%
- Key Engagement Drivers:
 - Objectives and Aspirations: 74.14%
 - Accountabilities and Collaborations: 78.71%
 - People Manager Capabilities and Interactions: 73.12%
 - Performance Management and Recognition: 62.25%
 - Leadership: 72.58%

To prioritize the well-being of our employees, we introduced two new criteria to gather relevant insights. This includes:

- Our company ensures my well-being and health.
- Achieving a balance in my personal and work life is attainable.

The survey results will be communicated to respective stakeholders and employees. Subsequently, a thorough analysis of the survey results, leading and/or lagging indicators, as well as related feedback will be conducted at global, segment, and site levels. Focus groups will be facilitated to gather further actionable insights and create improvement action plans. These plans will be documented, implemented, and progress will be regularly communicated with employees to facilitate continued engagement and relevance.



Building Culture

In our organization, we support a positive working environment and culture that promotes a learning culture and growth mindset.

Inaugural National Team Workshop

In November 2022, the head office of Indorama Ventures in Thailand hosted the first Energize and Collaboration Strengthening Workshop for all local sites, organized by the Human Resource Head Office (HRHO). The event began with an inspiring welcome speech delivered by Mr. Klaus Holz, CHRO, and was followed by presentations from the site heads and site HR heads. The workshop also featured the expertise of Mr. Rob Davies, a certified master coach, who empowered participants and promoted a culture of collaborative teamwork.



IVL Culture Awards 2022

The IVL Culture Awards is a significant initiative aimed at fostering a shared understanding of the behaviors aligned with our values by recognizing and celebrating employees and teams that exemplify our core principles. We value and highly appreciate the outcomes we achieve together and the way in which we achieve them. Our culture and values are a reflection of the behaviors exhibited by each individual in their daily work, forming the foundation of our past, present, and future success. The awards focus on five categories: Customer-centric, Responsible, Driving Diversity, Change Enabler, and Leadership.

In 2022, three program categories were highlighted: Change Enabler, Leadership, and Responsible. Employees worldwide had the opportunity to nominate their colleagues to HR, and the selection process involved committees at site, vertical, segment, and group levels. Ultimately, the Group winners were awarded and honored at the IVL Group Management Conference (GMC) in Bangkok, Thailand, on January 26, 2023.



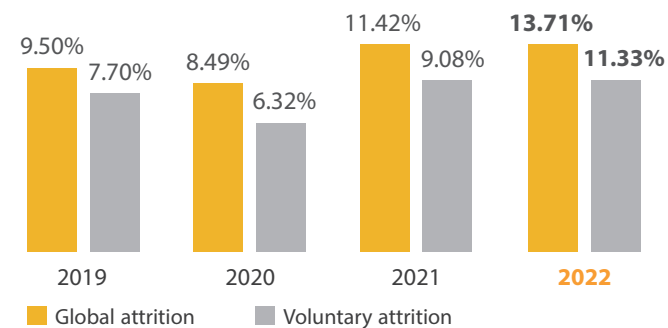


Retaining Talent

[GRI 401-1]

At IVL, we proactively address attrition by implementing diverse retention intervention programs. One particularly successful initiative was a company-wide recognition program that acknowledged and rewarded staff who consistently exceeded their job expectations. This program not only elevated employee morale and engagement but also had a positive impact on retention. Moreover, we conducted regular industry assessments to ensure our employees' salaries and benefits are competitive. As a result, our workforce is now more motivated, productive, and committed to achieving our organizational objectives.

EMPLOYEE ATTRITION RATE



FOR MORE
INFORMATION



As an example, Indorama Ventures Poland (IVP) was certified as a Great Place to Work for the June 2022-2023 period due to its unique workplace culture. This award has allowed IVP to attract more job applicants, strengthen its employer brand, retain top talent, and more.

CREATING A CONDUCTIVE WORKPLACE

Employee Well-Being

[GRI 3-3, 401-2, 403-6]

Employers are increasingly recognizing the importance of providing non-occupational health services for their employees. These services may encompass health insurance coverage, mental wellness programs, and access to fitness centers. By prioritizing these investments, companies can improve the overall quality of life of their workforce and drive greater productivity and retention.

IVL is committed to providing a safe and healthy workplace for all employees worldwide, in addition to complying with local regulations. To achieve this, several programs were established, including:

The Drug and Alcohol Policy, which helps guarantee a safe workplace for all employees.

Fitness for Duty, which ensures that all employees are fit for their roles and can safely perform their duties.

Workplace Injury and Illness Management, which supports quick and healthy reintegration back into the workplace, following an injury or illness.

Medical Surveillance, which helps identify any factors that may lead to an injury or illness, as well as adverse exposure from the workplace.

In 2022, we launched a series of initiatives aimed at enhancing the quality of life and well-being of our employees, including:

Employee Assistance Program (EAP)

Our partnership with Workplace Options (WPO), the world's largest provider of integrated employee well-being and effectiveness services, ensures that employees receive support when they most need it, both professionally and personally.

The EAP allows us to support employees in professional and private matters, report mental health issues confidentially, and advance post-injury/illness rehabilitation efforts, as well as during/after serious EHS incidents. Supplementary features to this program include counseling and education on specific topics, and onsite support.

Health Education

Health articles and bulletins are communicated in collaboration with Global HR. These materials promote healthy habits at home and in the workplace, with information on nutrition, exercise, cardiovascular health, sleep, communicable diseases, mental health, and more.

Computer Workstation Ergonomics and Industrial Ergonomics standards

These standards, which were released in 2022, identify ergonomic hazards and controls to be implemented to avoid or prevent adverse health effects on our workers.

These standards reflect our commitment to employee well-being and reducing work-related injuries, resulting in improved employee satisfaction, engagement, and productivity.

Access to non-occupational medical and healthcare services

Many IVL sites provide a range of non-occupational medical and healthcare services via internal and external medical services and providers. The type of service varies depending on facilities management, local legislation, and the needs of employees. For example, beyond Fitness for Duty requirements, many sites provide annual medical exams.

Through some of IVL's programs, employees have access to:

- Substance abuse prevention and treatment materials and support
- Counseling for mental health and support
- Information on communicable diseases





Workplace Human Rights

[GRI 2-23, 2-24, 3-3, 406-1, 408-1]

We are proud of our commitment to respecting human rights through our Human Rights Policy and showcasing our dedication to ethical practices and social responsibility. Moreover, we ensure that all stakeholders closely collaborate to promote human rights within our entire value chain, ultimately fostering a culture of respect, diversity, and inclusion.



FOR MORE
INFORMATION

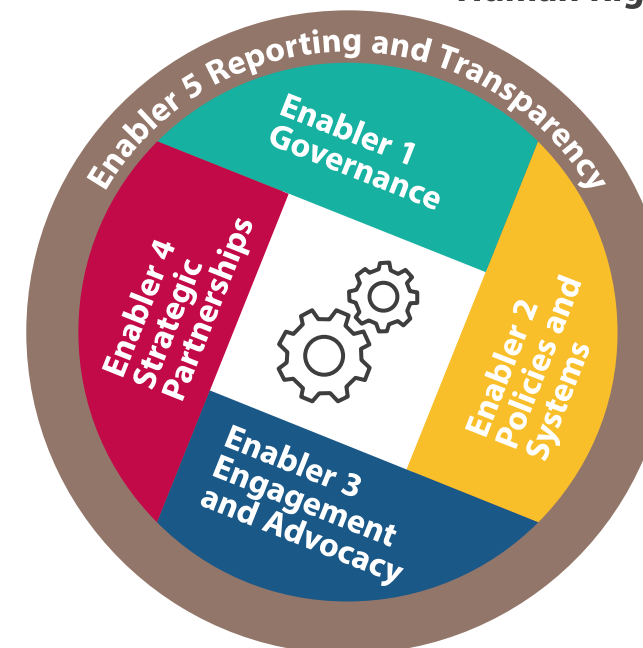
We have taken a strong position against discrimination, bullying and harassment, as clearly outlined in our Human Rights Policy, and closely monitor incidents of non-discrimination, reflecting our commitment to ensuring a safe and inclusive workplace. In addition, we are dedicated to ensuring that our operations do not infringe on the rights of indigenous people. For more information, please refer to the Global Performance Datasheet on pg. 190.

At IVL, human rights are ingrained in our business operations, integrated from policy to actual practices at the site level, and we provide annual training to our employees with a participation rate of 35.7%. Since 2018, we have achieved 100% coverage in our human rights assessment.

IVL's policy in addressing employee data privacy aligns with the Personal Data Protection Act 2019 (PDPA). This policy ensures that the personal information of employees is collected, processed, and stored as per applicable laws and regulations. We also implement measures to safeguard employee data, preventing any unauthorized access or disclosure.

In 2022, reported cases included harassment/hostile behavior, unfair termination, discrimination, and unfair disciplinary action. To address these issues, we scheduled training sessions led by the CGPAC team and the local HR department at each site, focusing on interventions and action plans. Every year, we conduct our Human Rights Pledge with all sites to ensure that we uphold the law and our policy, and that we continue to remain vigilant about human rights assessments and grievance issues.

Human Rights Framework



Topics in Human Rights Policy:

1. Respect for Human Rights
2. Discrimination, Bullying and Harassment
3. Fair Treatment of Employees
4. Staff Training
5. Right of Access
6. Working Hours
7. Recruitment
8. Child Labor
9. Disciplinary Issues
10. Freedom of Association and Collective Bargaining
11. Modern Slavery and Human Trafficking
12. Report of Violations
13. Communication of this Policy
14. Disciplinary Action





Creating a Diverse, Equitable and Inclusive Workplace

[GRI 3-3, 405-1]

IVL is dedicated to fostering a Diverse, Equitable, and Inclusive (DEI) workplace that promotes inclusive workplace and ensures business fortitude.

In 2022, we established a DEI Committee under the ESG Council to further promote DEI in the workplace. Through extensive discussions, we developed a comprehensive roadmap to guide our efforts in this crucial area. By promoting DEI, we can encourage greater collaboration among individuals from diverse backgrounds, leading to innovative solutions that bring value to our employees, brands, partners, and communities.

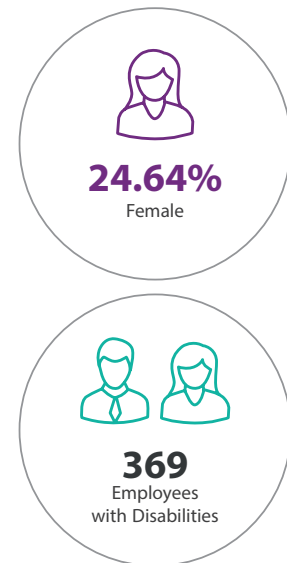
Indorama Ventures' DEI Vision:

DEI Statement

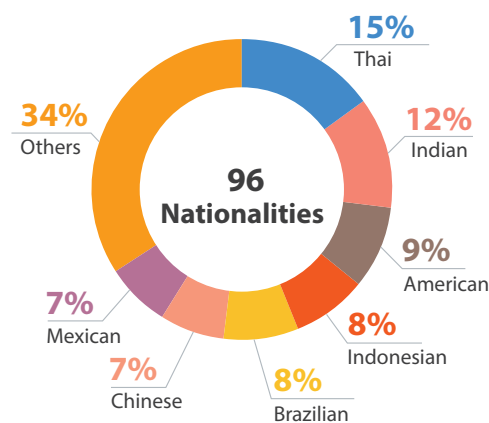
At Indorama Ventures, diversity, equity and inclusion form a strong pillar of strength for our continuous success.

DEI Ambitions

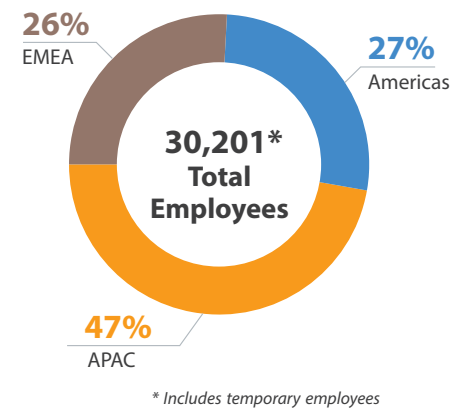
We want to promote equality for all persons of different backgrounds, identities, and cultures so that our employees feel fully heard, seen, and respected. To do this, we will adopt inspiring internal and external actions, focusing on cultivating an inclusive organizational culture and fostering a sense of belonging.



NATIONALITIES (% of total employees)



EMPLOYEES BY CONTINENT (% of total employees)



In line with our commitment in 2022 to gender diversity, we increase the representation of women within our workforce. We set a target to have 50% of female employees holding top and senior management positions in our IOD segment by 2030. To achieve this goal, we implemented a range of initiatives focused on attracting, retaining, and developing female talent throughout the organization.



2022 HIGHLIGHTS

We take pride in being a signatory to the Women's Empowerment Principles (WEPs), a framework established by the UN Global Compact and UN Women that provides guidance to businesses on promoting gender equality and empowering women in the workplace, marketplace and community.

Indorama Ventures is proud to be a signatory and supporter of the Women's Empowerment Principles (WEPs), a set of Principles offering guidance to business on how to promote gender equality and women's empowerment in the workplace, marketplace and community; established by UN Global Compact and UN Women.

"Indorama Ventures is deeply committed to the Women's Empowerment Principles from the United Nations Global Compact Network. Driving equality outcomes across our company is a key part of our sustainability program under our purpose of "Reimagining Chemistry Together to Create A Better World". Our vision for a better world has equality at its heart, with a more diverse workforce as one of our core values. We are proud to pledge our commitment to equal-opportunity by taking measurable action to empowering women."

In support of

**WOMEN'S
EMPOWERMENT
PRINCIPLES**

Established by UN Women and the
UN Global Compact Office

Aloke Lohia
Group Chief Executive Officer



To establish the importance of Diversity, Equity and Inclusion (DEI), Indorama's two sponsors are Mrs. Suchitra Lohia, IVL Deputy Group CEO, and Mrs. Aradhana Lohia Sharma, Head of Investor Relations Strategy & Communications.



DEI: WHO WE ARE AND WHAT WE VALUE

To establish the importance of Diversity, Equity and Inclusion, hear from Indorama's two Sponsors, Mrs. Suchitra Lohia, IVL Deputy Group CEO, and Mrs. Aradhana Lohia Sharma, Head of Investor Relations Strategy & Communications, about their passion for this topic, and how all of Indorama benefits from it.



IVL also supports the Standards of Conduct for Business Tackling Discrimination against Lesbian, Gay, Bisexual, Trans, and Intersex People, an initiative led by Business for Social Responsibility (BSR), the UN Office of the High Commissioner for Human Rights (OHCHR) and the World Economic Forum (WEF). We value an inclusive and equitable workplace, firmly valuing diversity. With a strong commitment to fostering a culture that respects the human rights of all stakeholders, including employees, contractors, vendors, and wider communities, IVL remains dedicated to promoting equality and eliminating discrimination.





PROVIDING A SAFE WORKPLACE

[GRI 3-3, 403-8]

Maintaining workplace health and safety is crucial for business continuity. As a leading chemical company, IVL goes above and beyond to promote a safe, productive, and healthy work environment that meets global standards. We protect the health and safety of our employees and contractors through sound procedures and frequently seek their input to identify opportunities to support their well-being by ensuring a safe workplace. One measure is through our digital Occupational Health and Safety (OHS) system, which tracks incidents, including near misses, and identifies trends to help us proactively avoid health and safety incidents.

2022 Highlights

- 31 new standards released by corporate EHS providing guidance on various topics to IVL sites worldwide
- Digital advancements – EHS Software Solutions
- Plants with reinforced Injury & Illness Prevention Plans:
 - 79% TRIRs improvement
 - 66% LTIFRs improvement
- ISO Certification
 - 70% of sites received ISO 45001:2018 certification
- 120 of IVL's top leaders participated in safety leadership training
- 61 employees trained in compliance auditing globally

2023 Priorities

- Focus on the implementation of Corporate EHS Standards
- Capacity Building
 - Develop training for the new IVL learning management system
 - Conduct in-person and topic-specific trainings as needed
- Assurance
 - Conduct audits across all regions ensuring compliance with IVL corporate EHS standards and local regulations



Class of 2022

National Safety Council Award Recipients

In 2022, IVL had two nominees awarded by the National Safety Council as Rising Stars. The two winners, Laura Miles with IVXP and Cassondra Winner with Avgol Mocksville, were recognized for their efforts at fostering an environment that promotes a positive safety culture, actively engaging employees in safety initiatives, and driving significant improvements in safety and process safety at their respective sites. IVL anticipates having additional nominees considered for 2023.

OCCUPATIONAL HEALTH AND SAFETY (OHS) PERFORMANCE

[GRI 403-2, 403-3, 403-7, 403-9]

Everyone at IVL has a role to play in creating a safe and secure work environment, and our Health and Safety Policy defines our internal approach to making this happen. Through routine sharing of safety learnings within each business vertical, employee engagement opportunities, and training, we adopt best practices that help avoid workplace injuries as a responsible employer.

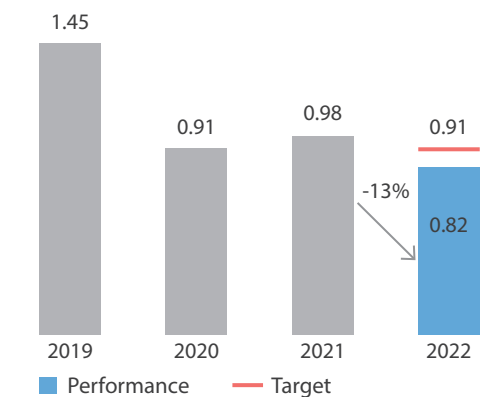
One of our targets to track performance and ensure consistent improvement is through the Lost Time Injury Frequency Rate (LTIFR). By setting these targets, we are dedicated to continuously improving our safety standards and promoting a culture of safety across our operations.

In addition to the LTIFR data, IVL tracks LIFE incidents, defined as an actual personal injury or illness that is work-related and permanently impacts the quality of the affected person's life. LIFE events include incidents resulting in a fatality, permanent partial disability, or permanent disfigurement. The Company experienced seven LIFE incidents in 2022, including a fatality and six incidents which resulted in a permanent partial disability. IVL investigated these incidents and identified key findings centered on effective contractor management control programs, and the lessons learned have been shared across all IVL sites. In 2022, we recorded a total of 2,794 near-miss incidents compared to 2,558 in 2021 while over 54% of our operations (80 of 148 sites) achieved zero recordable accidents in 2022.

In the spirit of continuous improvement, IVL recognizes the need to reduce injuries of all types, including those that result in lost time and LIFE impacting events. To decrease incident frequencies and their severity, we launched the Injury and Illness Prevention Program (I2P2) and Golden Safety Rules in 2022. Results for the year showed that 79% of participants had improved their TRIR while 66% had improved their LTIFR. Corporate and business segment EHS personnel work closely with sites that did not show significant improvements to reinforce their performance.

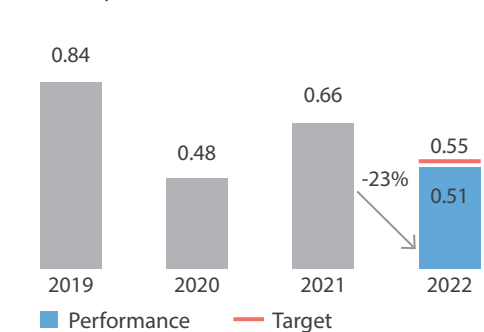
Total Recordable Injury Rate: TRIR

(cases per 200,000 man-hours)



Lost Time Injury Frequency Rate: LTIFR

(cases per 200,000 man-hours)



Targets

LTIFR
(cases per 200,000 man-hours)
< 0.5 by 2025



Performance

0.51 cases per 200,000 man-hours



2022 HIGHLIGHTS

Over **54%** of our operations (80 out of 148 sites) achieved zero recordable injuries.

A total of **2,794** near-miss incidents as compared to 2,558 in 2021.

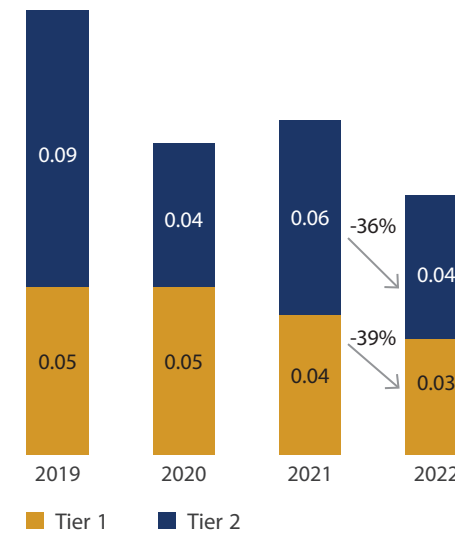


Enhancing Process Safety

As safety is one of IVL's key values and an integral part of our culture, we prioritize and continuously improve process safety across all activities because they often involve hazardous manufacturing processes and chemicals. Everyone in the business is responsible for promoting excellence in process safety because we are aware of the potential harm incidents can have on our employees, communities, and the environment.

We use the American Petroleum Institute (API)'s definition for process safety events to measure process safety performance, covering both Tier 1 and Tier 2 events. Additionally, IVL uses the US Occupational Safety and Health Administration (OSHA) standard as a process safety benchmark. More rigorous standards will apply in countries that have process safety statutes. Some standards were deployed in April 2022 and others will be deployed as part of a multi-year process.

Process Safety Event Rate
(events per 200,000 man-hours)



Our corporate-level Environmental, Health and Safety Group, with the support of the Board, ensures effective management and continuous improvement of each site's environmental, health and safety practices. At a minimum, all IVL sites must comply with our EHS standards, and some of these standards go beyond what is required by law. Sites implement these standards based on their respective risk profiles.

In 2022, 31 new standards were outlined across Process Safety, Occupational Safety, Industrial Hygiene, Occupational Health and Environmental Compliance subject areas and released to all IVL sites. These standards detail the accountabilities for each area, the requirements for site-specific standards, and training requirements. We audit all IVL sites every five years to ensure compliance with these standards and local regulatory requirements.

IVL'S EHS SYSTEM IMPROVEMENT WHEEL



Digital Advancements - EHS Software System

In 2022, the Corporate EHS Team partnered with the Sustainability Team to co-develop and launch a centralized EHS data management across IVL's operations to improve accuracy and efficiency, resulting in better EHS management and compliance. We have also deployed a fully developed legal register of all requirements for each IVL manufacturing location. Through these systems, we are able to refine our OHS processes, and enhance our ability to identify, assess, and mitigate workplace hazards.

EHS Audit Program

In late 2022, we launched the Corporate EHS Audit Program with the goal of ensuring compliance and safe operations across all IVL sites worldwide. More than 60 IVL associates were trained as internal auditors to support the program. We also bring in external support as needed to provide knowledge of local languages and regulations. The auditing program covers regulatory compliance, as well as compliance with IVL's internal EHS standards. All IVL sites will be audited at least once every five years, with a target of 10 audits per region per year. This target may vary based on a number of factors such as the current risk ranking profile, business needs, IVL acquisitions and divestments. In addition to identifying any potential gaps or best practices, sites are also scored on their maturity level based on four factors: Culture and leadership, risk management, EHS performance, and implementation of IVL's corporate EHS standards.





Beyond EHS Compliance

Through effective management, we identify minor non-compliance issues with respect to regulations or voluntary codes concerning the environmental, health and safety of our operations, and the impacts of our products. We then follow up on these issues to prevent their recurrence. In 2022, 43 minor violation warnings were issued to plants for various reasons. We initiated numerous corrective actions and continuously monitored their progress to ensure a timely resolution of these issues.

EMPLOYEE PARTICIPATION AND TRAINING IN EHS

[GRI 3-3, 403-4, 403-5, 403-6]

IVL regularly engages with employees to promote a strong safety culture and integrate their ideas into our safety systems. At many sites, joint health and safety committees comprising management and employee representatives ensure that feedback regarding health and safety matters is received and given due consideration.

To maintain a safe working environment, we have established processes for workers to report work-related hazards and dangerous situations. These processes are designed to encourage and enable our workers to report any potential hazards, so we can swiftly address them. All reports are treated confidentially and thoroughly investigated to identify the root cause with the implementation of corrective measures. The same applies for contractors. Under IVL's Human Rights and Whistleblower Policy, those who report work-related hazards and dangerous situations are protected against reprisals.

To remain up-to-date, a compliance management software is utilized to provide local manufacturing sites with information on new and changing regulations, ensuring thorough EHS compliance. This software monitors legal requirements and offers summaries and notices of specific legal requirements for self-evaluation and audits.

In 2022, IVL introduced several initiatives that involve employee participation, particularly in developing safety mechanisms and health policies. This includes gathering their input for the development of global standards and site-specific EHS procedures, as well as a new standard to improve the selection and management of contractors. Employees at IVL locations worldwide are invited to draft and review these standards with the goal of ensuring that they are as practical as possible for sites to implement, exchange knowledge, and develop site EHS professionals.

EHS Capability Development and Culture plays a crucial role in achieving EHS Excellence, and we prioritize the development of our workforce's critical skills in this regard. In addition to the 132 training sessions and regional networking meetings attended by 150 employees in 2022, we utilize a range of channels to effectively communicate information on EHS and develop a culture of awareness throughout the organization.

CAPABILITY BUILDING



120
Safety Leadership training for IVL's top Leaders



12
EHS People received Advanced Root Cause Analysis (RCA) training



150
EHS Coworkers met over 2 F2F regional meetings



61
Employees Trained in compliance auditing globally

CULTURE



158
Nominations by IVL Colleagues for EHS Excellence Awards



188
EHS-related exchanges on Yammer (internal social media)



14
Health Bulletins released include info to encourage healthy habits



12
Global group share and Regional Networking Meetings



Regional EHS Meetings

- Building real networks
- Face-to-face training
- Best practice exchange
- Planned for Q3 2023



APAC
7-8 June 2022
Thailand



AMER
28-29 June 2022
USA



EMEA
20-22 June 2022
Ireland



Recognizing Effective EHS Management

IVL EHS Excellence Awards

The awards recognize an individual or team, regardless of their (EHS or non EHS) background, who have demonstrated and made conscious efforts to reduce risk, drive improvements in safety or environmental programs, lead others in doing the same, or promote a strong safety and environmental compliance culture. A second award category is dedicated to EHS Performance. In each business segment, one individual/team award and one performance-based award are presented.

The nine business segments/verticals are: IOD Up-/Midstream, IOD Downstream Fibers: Hygiene, Lifestyles, Mobility CPET: PET, Aromatics, Packaging, Recycling



IVL EHS EXCELLENCE AWARDS

INDORAMA

Category: Individual/Team Awards
Winner: Cristiane Nunes Alves
Awarded for: High quality engagement in developing a safety culture
Site: Oxitenio S.A. Indústria e Comércio
IOD – Downstream



Category: Site Award for EHS performance + Individual/Team Awards
Winner: Korat EHS Working Team
Awarded for: Strong EHS implementation through teamwork
Site: Petform (Thailand) Co., Ltd.
(Nakhonratchasima) Packaging Business



ENVIRONMENT

HEALTH

SAFETY

Hazard Identification, Risk Assessment, and Incident Investigation

[GRI 403-2, 403-4]

Our EHS Commitment and Policy serves as a blueprint for managing workplace hazards and guides us in effectively reviewing, communicating, and controlling operational hazards associated with both routine and non-routine activities, as well as emergency situations. We are better able to address potential hazards and risks linked to our operations, products, and services, as well as those arising from our business relationships. We continually review and update our procedures to ensure they are effective in identifying and managing hazards and minimizing risks.

IVL utilizes the following tools to identify hazards that could potentially lead to high-consequence injuries and illnesses:



The Exposure Assessment and Control standard aims to identify potential health hazards in the workplace, estimate the potential exposure via qualitative and quantitative methods to measure the actual risk, and implement controls for any high-risk activities (i.e., exposures deemed unacceptable for IVL workers). Hazards may be related to chemical, biological, or physical (noise, ergonomic, thermal or radiation) stressors. Exposures are assessed in relation to exposure limits for each of these stressors. Our preferred method of control is to eliminate the risk. If this is not possible in order to continue operations, IVL aims to remove the burden from the worker by controlling the risk via technical (or engineering) controls. Administrative controls are considered when necessary, and personal protective equipment is considered the last line of defense.

Additionally, we have established policies and procedures to ensure safe and efficient unplanned plant shutdowns, including clear communication protocols, risk assessments, and contingency plans.

These measures help to minimize the impact of unplanned operational shutdowns and ensure the safety of our employees.

In 2022, we implemented a new tracking software to record all incidents occurring at our operating sites. This software captures all lessons learned from investigations and the corrective actions for each incident, serving as a reminder of the potential risks associated with hazardous materials or tasks and highlighting the importance of following strict safety protocols. Each site is expected to take immediate action to investigate the incidents and ensure the continued safety of employees and the surrounding community. Beyond the thorough investigations, significant incident learnings are shared within the organization, ensuring a culture of continuous improvement in safety and risk management.



Chemical Transportation Safety

Given the nature of our business, transportation safety is one of the utmost importance. All of our raw materials, including hazardous chemicals, undergo safe handling and transport. This commitment to transportation safety also extends to our trusted logistics partners globally, whereby rigorous inspection processes are applied across different truck and rail loading processes for the transportation of our raw materials. Furthermore, our shipping employees receive training on the safe transportation of hazardous materials as per regulatory training requirements.

The transportation of goods comes with inherent risks, such as collisions, spills, and accidents that can cause damage, revenue loss, and endanger the environment and public safety. We prioritize the implementation of strict safety protocols, utilize advanced equipment and vehicles, and adhere to industry standards and regulations to mitigate these risks. Throughout 2022, we experienced 17 minor transportation incidents across our organization at 13 locations. The incidents resulted in minimal or no product loss, and there were no injuries.

Plant Crisis Management

[GRI 403-3, 403-7]

To protect our employees, contractors, visitors, and surrounding habitat, IVL developed a Playbook and Emergency Crisis Management standard to support sites in the case of an unforeseen event. This playbook describes the process, hierarchy, and communication structure necessary to minimize the effect of this event and ensure business continuity.

In 2022, we also conducted a Testing & Exercising (T&E) program for the Global Business Services (GBS) Business Continuity Plan (BCP), with a 100% participation rate. The program covered nine core components, including BCP activation, emergency response, and alternate workforces. Through this program, we are now better equipped to respond to and recover from potential disasters, effectively minimizing the impact on our operations while still meeting our customers' needs. We have identified areas for improvement following this exercise, which will further strengthen our preparedness moving forward.






GIVING BACK TO OUR COMMUNITIES

[GRI 3-3, 413-1]

Just as we positively impact our customers through our products, we prioritize our social responsibilities to the broader communities where we operate. To ensure that we make a meaningful difference, our Corporate Social Responsibility (CSR) Steering Committee oversees and evaluates the effectiveness of our CSR activities. We have also set up local working groups that bring together employees, local communities, and authorities to coordinate our CSR efforts. By maintaining a centralized database, we help these groups learn from the experiences of others and benchmark their progress against the entire organization.

Our Corporate Social Responsibility (CSR) framework, called Creating Shared Value (CSV) for society, goes beyond the traditional notion of CSR. Our main objective is to elevate the communities across our global footprint, leading to significant value creation for both businesses and society. This includes addressing key unmet social and community needs and enhancing the resilience of our supply chain. Our group-wide CSR strategy is divided into three major pillars: knowledge, community care, and the environment.



Strategic CSR pillars	Long-Term Vision	Actions Taken in 2022	Performance against Targets
 Knowledge	<p>Inculcating recycling and waste separation awareness in the communities where we operate, primarily through programs at educational institutions and online resources. This helps empower our communities to prevent the mismanagement of plastic waste.</p> <p>Increasing student access to innovation and educational pursuits, especially within STEM-related subjects, to equip youth with the necessary skills to thrive in the workplace and build fulfilling careers.</p>	<p>Recycling Education</p> <ul style="list-style-type: none">• 199,787 people educated in recycling awareness• Program expansion to more than 10 initiatives in eight countries (the Czech Republic, Poland, the Netherlands, Brazil, Mexico, the United States, Ghana and Thailand)• 167 schools, universities, and organizations participated in the programs <p>STEM Education and Social Innovation</p> <ul style="list-style-type: none">• Five initiatives to support STEM education, competitions, challenges, and innovation programs• 12 STEM scholarships granted by Indorama Ventures Oxides and Derivatives• 10 sponsorship programs channeled through various associations	<p>2030 target: Our recycling awareness projects will have educated one million people globally since 2018</p> <p>2022 cumulative achievement: Educated 253,372 people globally on waste separation and PET recycling since 2018</p>



Strategic CSR pillars	Long-Term Vision	Actions Taken in 2022	Performance against Targets
 Community Care	<p>Promoting the physical and mental well-being of community members by extending access to quality healthcare services and resources.</p> <p>Empowering underprivileged communities with entrepreneurship skills to increase their income opportunities.</p> <p>Preserving and promoting the arts and culture.</p>	<p>Health and Well-being</p> <ul style="list-style-type: none">• Over 290 initiatives to support the well-being and health of local communities• 24 initiatives to support vulnerable groups such as the disabled, the elderly, and orphans• 40 initiatives to provide basic needs (e.g. food, clothing, etc.) to underprivileged communities• 29 sports initiatives to promote the mental and physical health of students	<p>2030 target: To reach at least 100,000 beneficiaries/people in communities with direct or indirect benefits from our well-being initiatives</p> <p>2022 cumulative achievement: Supported 76,121 beneficiaries in improving their quality of life since 2020</p>
 Environment	<p>Encouraging long-term behavioral change in our communities in regards to recycling and waste separation, primarily by providing recycling collection facilities and drop-off points.</p> <p>Engaging multi-sectors (e.g. government, educational institutions, corporations, etc.) in plastic waste collection campaigns to minimize their disposal into landfills and the ocean.</p>	<p>Circular Economy and Waste Management</p> <ul style="list-style-type: none">• 20 initiatives to promote biodiversity programs and responsible waste management• 24 partners have supported environmental advancements and recycling• 25.2 tons of post-consumer PET bottles collected• 25 tCO₂e reduced via PET recycling <p>Natural Resource Conservation</p> <ul style="list-style-type: none">• 13 initiatives to enhance nature conservation, such as tree planting and beach clean-ups	<p>2030 target: Enable the cumulative sorting of at least 100 tons of post-consumer PET bottles for recycling</p> <p>2022 cumulative achievement: Collected 53.4 tons of post-consumer PET bottles since 2020</p>



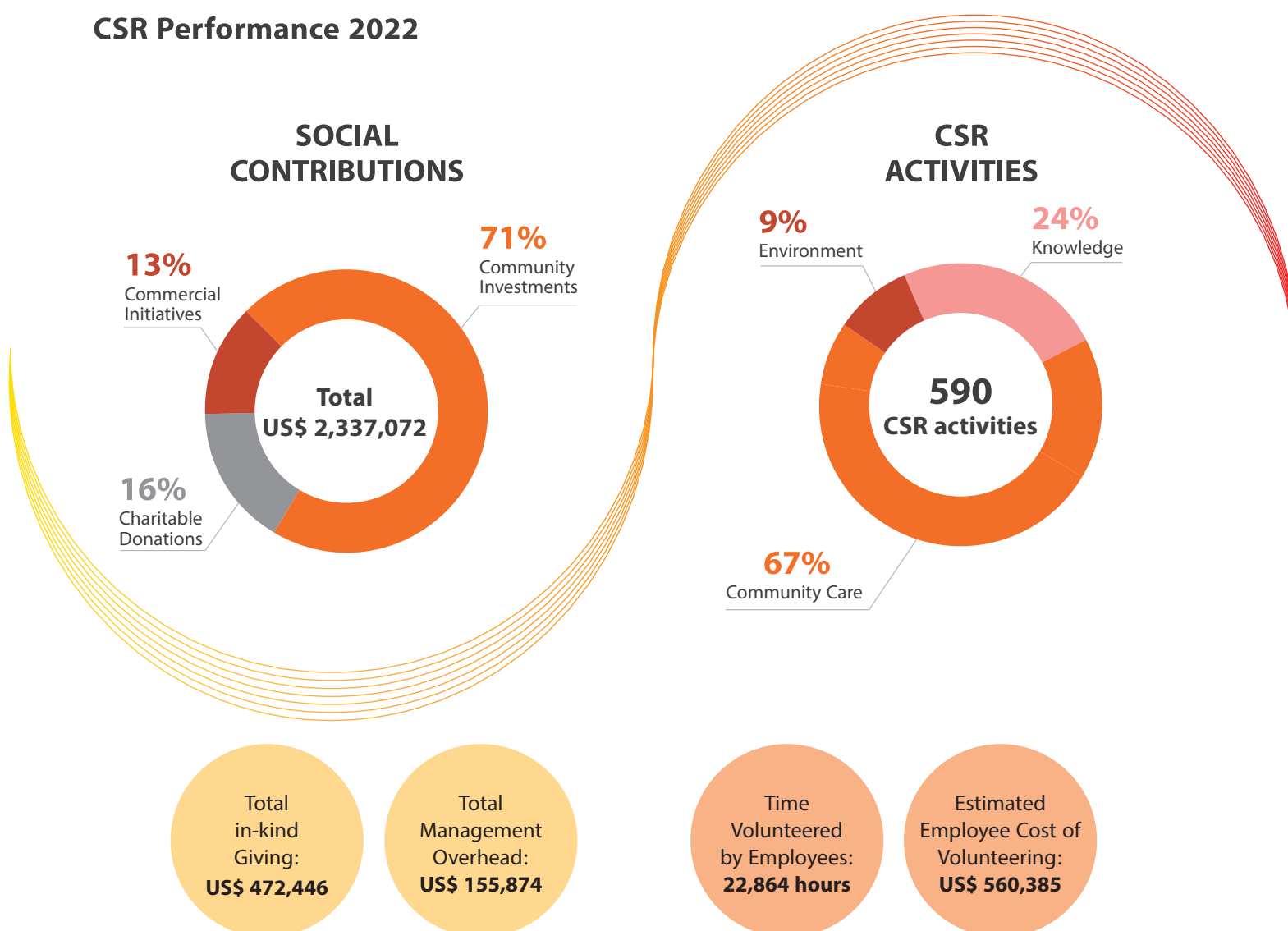


Our CSR initiatives directly reflect our core values and are driven by our dedicated employees. Following the “Shared Value for Society” concept, we continuously organize knowledge-sharing sessions for all employees to motivate them to increase their contributions to the community. To this end, the IVL Shared Value Award was launched to advance the global contributions across our sites and encourage active employee participation.

In 2022, we recorded a total of **22,864 volunteer hours**, representing a 150% increase from 2021. This demonstrates that our employees embody the values outlined in the CSR framework.

	Commercial Initiatives	Community Investments	Charitable Donations
Our Approach	We support community-driven business activities that are related to our corporate identity	We endorse long-term strategic partnerships with community organizations that address social issues which are aligned with our values	We offer donations aligned with the needs of our community and employees, focusing on serving underprivileged and vulnerable groups

CSR Performance 2022



Case Studies

Commercial Initiatives

SUPPORTING UNIVERSITY STUDENTS' COMMUNITY ENTERPRISES

The Rayong IVL group of companies recently became an associate member of the Community Partnership Association (CPA) or Puenchumchon. The CPA collaborates with students from Thammasat University's Faculty of Commerce and Accounting to promote the development of community enterprises. In 2022, IVL supported nine university students in developing products for their Brahman Ban Sam Ice community enterprise. We leveraged our corporate finance and accounting knowledge to educate the students on basic business management and financial skills.



Community Investments

INVESTING IN BIODIVERSITY CONSERVATION AND ENVIRONMENTAL EDUCATION EFFORTS

Since 2002, Indorama Ventures Xylenes & PTA LLC has made an annual contribution to the Wetlands Edge Environmental Center (WEEC), an environmental learning center that provides students with the opportunity to learn outside the traditional classroom setting. IVL supplied the building and grounds to support environmental conservation efforts, with a focus on improving biodiversity and promoting responsible environmental stewardship.



Charitable Donations

CHANNELING FINANCIAL AID TO SUPPORT COMMUNITY NEEDS

Indorama Ventures Europe, located in the Netherlands, recently became a member of the Deltalinqs donation fund. The fund supports the local communities surrounding Rotterdam harbor, which includes hundreds of students, residents, and athletes as well as various sports clubs, culture clubs, and food banks. A joint effort between petrochemical companies in the Botlek Europoort region, this fund also supports a range of community activities, including sports, health, culture, innovation, and sustainable projects.





RECYCLING EDUCATION

[GRI 3-3, 413-1]

Recycling education is crucial to reducing our dependence on petrochemicals as a primary feedstock. Educating communities on the importance of recycling can, in turn, generate a significant supply of recycled materials, thereby, reducing the need for raw material extraction and promoting the conservation of natural resources. Additionally, recycling education empowers individuals to contribute to the transition to a circular economy.

GLOBAL HIGHLIGHTS

In partnership with Yunus Thailand, IVL introduced "Waste Hero Education: Reduce to Zero," a global resource for teachers with 19 well-crafted lesson plans focused on Recycling Fundamentals, Creating Zero Waste, and Building the Circular Economy. Developed by educators and experts from 17 countries and tested internationally, the materials are tailored for students from kindergarten to university levels. We are also collaborating with regional partners to disseminate the materials through global educator and teacher networks. As a result of these efforts, we have successfully engaged over **173,000 educators and students in 37 countries, including 98 universities and five international institutions.**

FOR MORE
INFORMATION

Scaling Recycling Education Globally

In 2018, we launched our Recycling Education program in Thailand to promote waste separation and PET bottle recycling. This year, we expanded our efforts through onsite and virtual training for schools, universities, companies, and hospitals. We also attended major events such as the Sustainability Expo 2022 and the National Science Technology Fair 2022 to raise awareness about the importance of recycling. We also made our latest materials available on YouTube and our website to ensure wider accessibility. To further accelerate our impact, we initiated several community recycling programs in collaboration with multiple organizations:

FOR MORE
INFORMATION

2022 Recycling Education



199,787
People Received Trainings



184,482
Students



7,179
Teachers



4,103
Public and
Community People



150
Schools and
Universities



17
Organizations



12
Virtual Training
Sessions



57
Classroom Training
Sessions



346
Teaching Hours



6
Public Events



686
Downloads
of Recycling
Education Materials



3,337
Downloads
of Recycling
Education VDOs



128
Recycling Articles



1,135,643
Bottles Collected



Bottles Returned to
Recycling Factories
25,200 kg



CHAPTER 6: ROBUST GOVERNANCE

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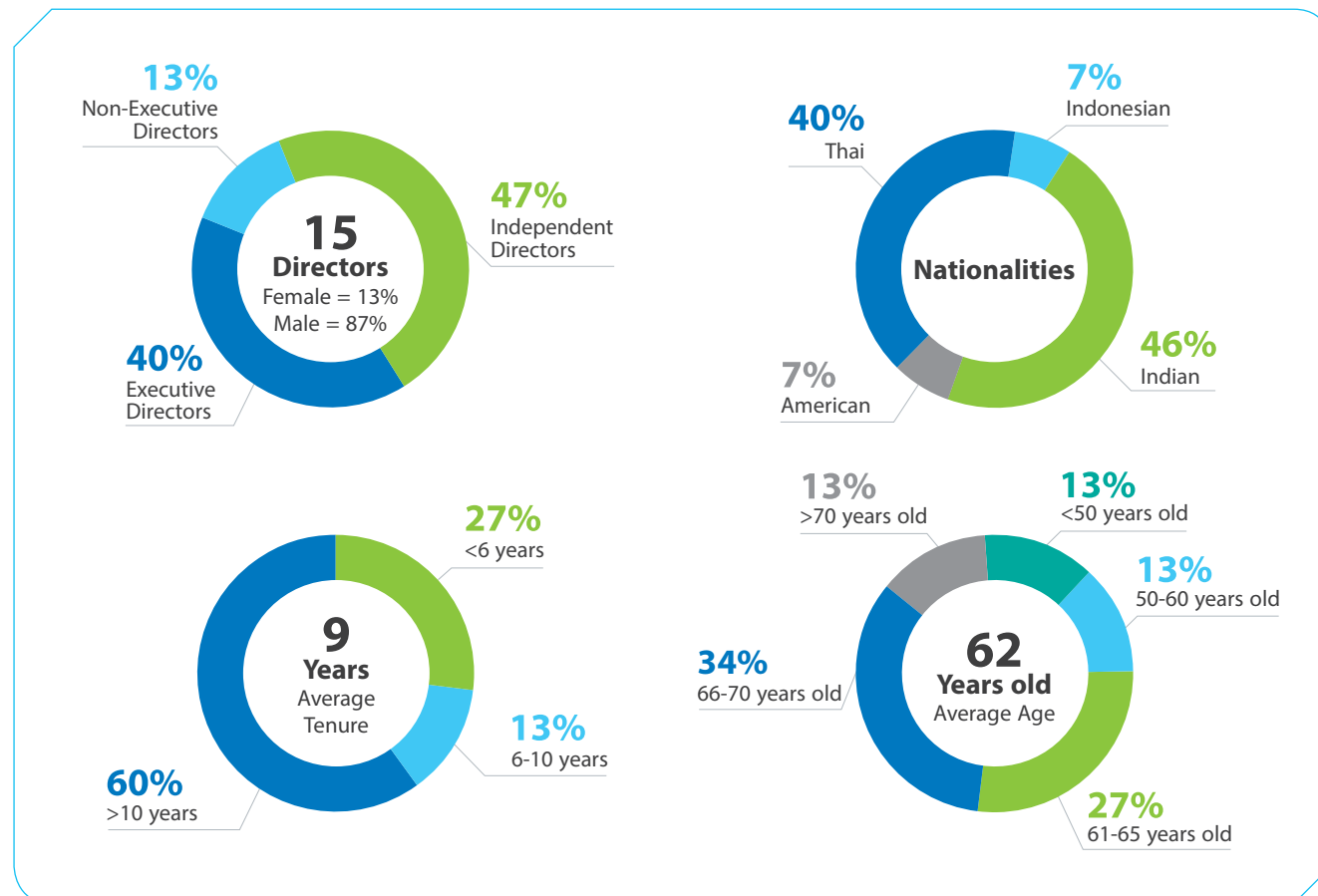


VISIONARY LEADERSHIP BOARD OF DIRECTORS

BOARD OF DIRECTORS

[GRI 2-9, 3-3, 405-1]

IVL's Board of Directors is the driving force in steering the organization's strategic direction, which is essential for our business growth. The Board is made up of a balanced mix of diversity, skills, and experience, comprised of 15 high-caliber individuals from different nationalities, with a range of backgrounds and expertise in prominent careers in their respective disciplines.



Board Expertise

[GRI 2-17]

An effective Board of Directors steers an organization towards success. In order to maximize favorable outcomes for IVL, we have strategically assembled a highly competent and diverse board with multi-disciplinary experiences ensuring well-rounded competencies and skills. Every Board member is methodically evaluated with a broader perspective in mind, so that the entire Board can function effectively as a superior unit, advancing our company's vision.

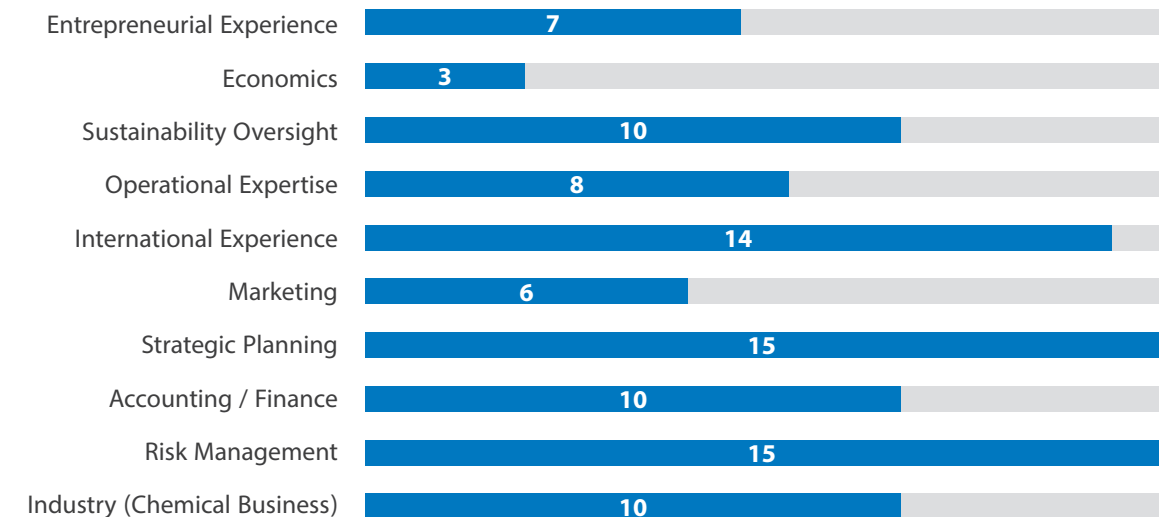
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IVL's Board skills and experience

(Number of board members with experience)

[GRI 2-9]



To ensure that the Board skillset is always up to standard, in 2022, the independent directors attended relevant trainings, including risk awareness training, among others. Our Board of Directors is also assisted by the Audit Committee, Nomination, Compensation and Corporate Governance (NCCG) Committee, and the Sustainability & Risk Management Committee (SRMC). They effectively govern our operations and keep the organization in check on our compliance with established principles, policies, procedures, responsibilities, and accountabilities. To ensure the independence of the Board, "Independent Directors" constitute no less than one-third of the total number of directors and must satisfy certain qualification criteria.





ENSURING RESPONSIBLE BUSINESS PRACTICES

Our Approach to Doing Business Responsibly

[GRI 2-15, 2-23]

IVL's business principles and practices were formulated to cultivate an innovative and collaborative culture that upholds ethical behavior, accountability, and transparency. We continually strive to provide the right resources that eventually become the foundation in an ever-changing world. Our focus is not only on achieving our goals, but also on the approach we take to accomplish them.

Conflict of Interest Assistance Package

Supports the implementation of the Conflict of Interest Policy at our subsidiaries through local procedures.



Corporate Governance Manual (CG Manual)

Outlines our vision, mission and values as a responsible industry leader and a world-class chemical company, and our corporate governance principles that balance the interests of stakeholders.



IVL's Tools and Mechanisms for Ethical Business Practices



Anti-Corruption Assistance Package

Assists all units in adhering to anti-corruption frameworks and supports local units in strengthening their anti-corruption systems.



Code of Conduct

Contains policies on ethical practices, fair business practices, workplace values, and the treatment of stakeholders.



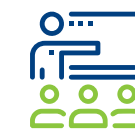
Whistleblower Policy

Provides information on how employees and stakeholders can file a whistleblower report and how the process is managed.

CORPORATE GOVERNANCE HIGHLIGHTS 2022



IVL received an **"Excellent - 5 Star"** **CG score** by the Thai Institute of Directors (IOD) for the 10th consecutive year.



A score of **100%** for the 2022 Annual General Meeting of shareholders, judged by the Thai Investors Association. This was our 11th consecutive year with a full score.

100%
Independent
Directors on the
NCCG
and Audit
Committees

Directors on the Nomination, Compensation and Corporate Governance (NCCG) and Audit committees are **fully independent**.

CORPORATE GOVERNANCE

[GRI 2-23, 2-24, 2-25]

Building stable economic value through our business is vital, and none of this would happen without a proper foundation of trust and transparency with our stakeholders. On this note, IVL carried out the Corporate Governance Policy Awareness Campaign (CGPAC) using the Corporate Governance Manual (CG Manual) to instill responsible corporate governance principles among our workforce and provide a clear direction on how our values are being implemented.

Key Corporate Governance Activities in 2022

Revision of the CG Manual in 2022

The revised CG Manual was approved by the Board in February 2022. Notable enhancements include adjustments to the human rights and whistleblower policies, and a combined environment, health and safety policy. All directors and executives have acknowledged the CG Manual and agreed to comply with its policies, including the Anti-Corruption Policy in 2022.

To ensure that policy commitments for responsible business conduct are integrated in the Company, all Site Heads are responsible for implementing the CG Manual and reporting the results to the CGPAC Team, which then forwards the findings to the NCCG and the Board. Upon joining, new employees must be informed of and acknowledge their understanding of the CG Manual by Site and HR Heads ensuring they are all aware of the policies in the CG Manual.

Enhancing CGPAC Implementation

To enhance the implementation of the CG Manual, the CGPAC team plans to digitize several communication and data collection processes in the upcoming year. The CG Database, a platform where the CGPAC team shares all CG-related information with local teams, was launched in 2022. These enhancements will enable the sharing of good CG practices and news from both internal and external sources.

Our stakeholders play a crucial role in maintaining the Company's high ethical standards. Therefore, IVL has opened a channel for all internal and external stakeholders to voice their concerns. Reporting can be done via email at ethics@indorama.net or through a secure website at whistleblower.indoramaventures.com. Please refer to pg. 165 in this report for more information on IVL's whistleblowing mechanism.

FOR MORE
INFORMATION



SUSTAINABILITY GOVERNANCE

[GRI 2-9, 2-12, 2-13, 2-16]

The Sustainability and Risk Management Committee (the “Committee”) was established by the Board to oversee the Group’s sustainability activities and provide risk management oversight, including monitoring the effectiveness of the risk management framework and mitigation plans, and embedding sustainability considerations across the business. The Committee, which serves as the second highest authority in the hierarchy in terms of sustainability, operates in accordance with the Sustainability and Risk Management Committee Charter and reports its findings to the Board. Additionally, new committees were introduced to the SRMC to further reinforce our sustainability performance, as elaborated in the table below.

Committee	Key Roles and Responsibilities	Frequency of Meetings/ Reporting
Sustainability and Risk Management Committee (SRMC)	<ul style="list-style-type: none">Leads the Group’s sustainability activities and extensive risk management oversight, including its effectiveness and risk mitigation plansFindings are reported to the Board for further actions	<ul style="list-style-type: none">Meets on a quarterly basisCommunicates developments on key sustainability issues to the IMC via monthly IMC reports
ESG Council	<ul style="list-style-type: none">Oversees important sustainability topics and provides guidance, utilizing the expertise of its members	<ul style="list-style-type: none">Meets on a quarterly basis
Manufacturing Leadership Council	<ul style="list-style-type: none">Emphasizes management of manufacturing excellence to improve operational eco-efficiencies and initiates process innovations	<ul style="list-style-type: none">Meets on an ad-hoc basis
Decarbonization Committee	<ul style="list-style-type: none">Highlights decarbonization business practices at IVL to achieve our target of Net Zero Carbon by 2050-2070Reviews IVL’s environmental performance and its alignment with sustainability targets	<ul style="list-style-type: none">Meets on an ad-hoc basis
DEI Committee	<ul style="list-style-type: none">Pursues IVL’s DEI ambitions and reviews progress on strategy, roadmap, metrics, and targetsParticipates as a signatory to UN Women’s Empowerment Principles (WEP) and applies the UN LGBTI Standards of Conduct	<ul style="list-style-type: none">Meets on an ad-hoc basis
CSR Committee	<ul style="list-style-type: none">Oversees IVL’s CSR policy, frameworks, processes and practices	<ul style="list-style-type: none">Meets on a quarterly basis

Please refer to pg. 83-89 of our Annual Report 2022 for additional information on key issues, deliberations, and attendance at Board meetings. Additional information of Sustainability Governing Structure is available in this QR code.



The SRMC met four times in 2022 to discuss pertinent sustainability-related issues. The Committee provided advice on IVL’s sustainability goals and strategy, aligning them with ongoing activities to address external developments and ensure sustainable and resilient operations. These activities were determined based on IVL’s strategic priorities, which focus on megatrends including climate change, the circular economy, water stewardship, product safety and transparency, and health and wellness.

During the last SRMC meeting in 2022, the SRMC Charter was assessed and revised by members of the Committee and subsequently approved by the Board of Directors. The new SRMC Charter clearly defines the responsibilities and authority of the Committee, ensuring that IVL’s sustainability approach is aligned with global best practices.



Notable SRMC Activities in 2022

Sustainability Targets, Strategy, and Performance

- Oversaw key initiatives such as IVL’s Sustainability Targets 2025/2030, Health and Safety, Bio-based Feedstock, Advanced Recycling, Supply Chain Management, Risk Management, and Biodiversity.
- The SRMC provided recommendations on a range of issues, such as improving operational efficiencies through green projects, renewable electricity, and harnessing future technologies.

Risk Management

- Endorsed new Enterprise Risk Management (ERM) and Business Continuity Management (BCM) plans that improve our organizational readiness and resilience to handle any disruptions.
- Established the Corporate Risk Profile (CRP), which includes significant risk areas, such as business growth, regulatory conditions, health, safety, and cybersecurity.



Incentivizing Performance

[GRI 2-19, 2-20]

In order to maintain the effectiveness of our corporate governance, the Group CEO and other executive directors conduct annual performance appraisals based on Key Performance Indicators (KPIs) determined by the NCCG Committee. To further enhance the achievement of financial and sustainability targets, incentives are provided to key

individuals responsible for managing climate change and water-related issues, specifically our Chief Technology Officers, based on their annual performance. For further information on the remuneration policy of Directors and management of the Company, please refer to pg. 87-88 of our Annual Report 2022.



Ethics and Governance Training for Employees

[GRI 2-24]



COMPLIANCE HIGHLIGHTS 2022

[GRI 2-27]

No material cases or incidents of corruption or bribery

No legal cases involving corruption or anti-competitive practices concerning IVL or our employees

No material litigation against IVL or our subsidiaries that negatively impacted our business

No case of material non-compliance

Employee training plays a pivotal role in maintaining sound business ethics and corporate governance standards. We believe that robust training programs are the key to promoting a culture of compliance and integrity within IVL. Investing in employee training is, therefore, critical to ensuring the long-term success and sustainability of our business.

Business Ethics and Corporate Governance Training in 2022

A set of five training videos summarizing content within the CG Manual was distributed as part of the employee refresher training. The videos are narrated in seven languages to facilitate understanding of the content by all staff.

Onsite training sessions were conducted to provide updates to local management teams in Thailand and Vietnam regarding the 2022 version of the CG Manual. The training emphasized the Conflict of Interest, Anti-Corruption and Human Rights policies.

The training was well-received and generated valuable discussions with our staff during live sessions.

2022 HIGHLIGHTS

86%
of employees attended the CG Manual training in the past three years.

76%
of IVL's sites achieved full training coverage.

Launching the CG Database which is a platform where the CGPAC Team shares all CG related information with the local teams at the units. This includes sharing of good CG practices and news from both internal and external sources.

WHISTLEBLOWING

[GRI 2-16, 2-25, 2-26]

IVL's Whistleblowing Policy serves as a guideline for stakeholders to anonymously report any violations and raise concerns about suspected misconduct without fear of retribution. This policy has been communicated to all employees globally and is accessible through the Company's website. The Whistleblower Privacy Statement was updated in February 2022 to comply with the Personal Data Protection Act 2012 (PDPA).

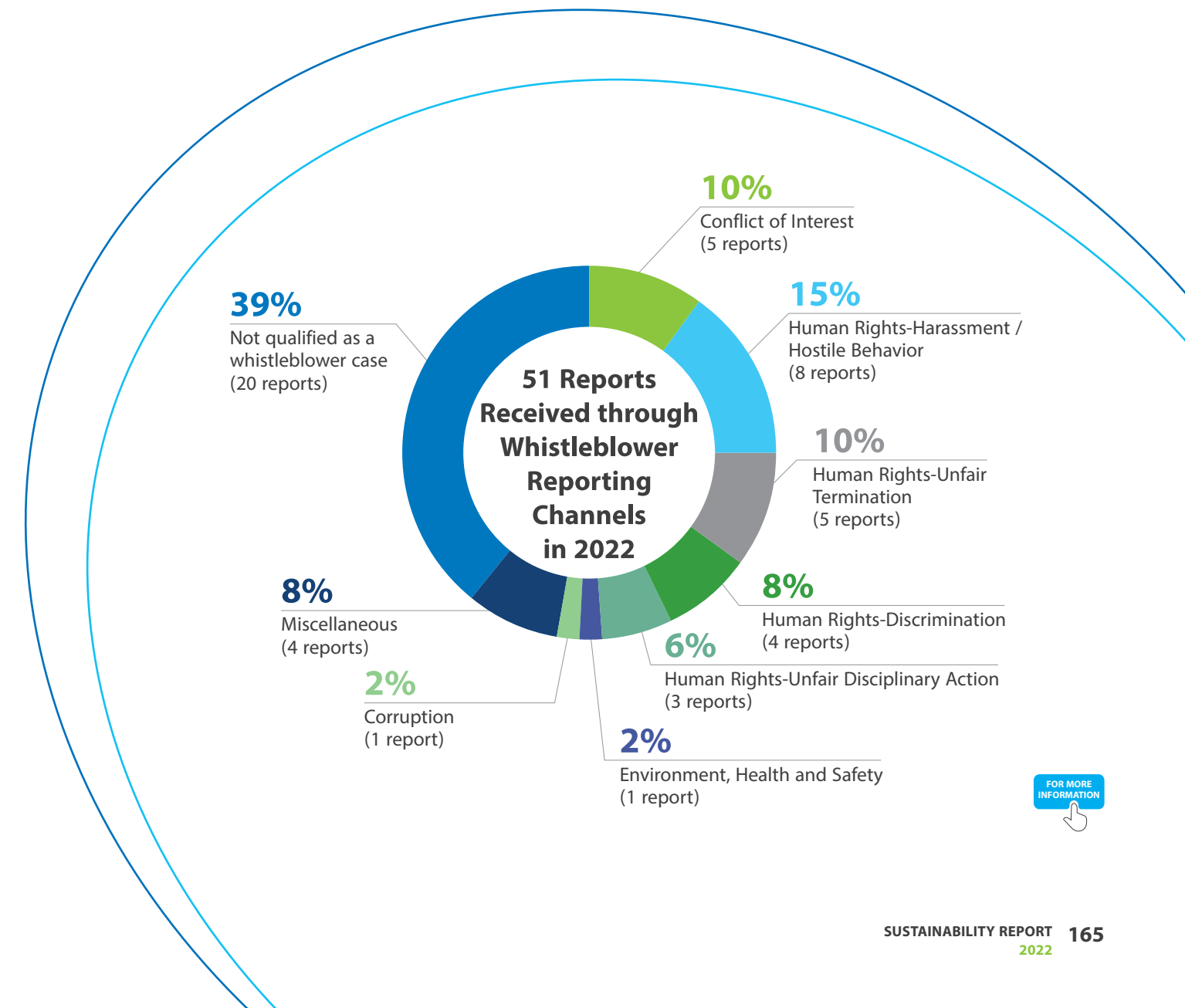
Whistleblowing information is kept strictly confidential, and concerns can be raised through the following channels:

E-mail: ethics@indorama.net

Whistleblowing site:
<http://whistleblower.indoramaventures.com/>

The Whistleblower Committee conducts monthly meetings and invites senior executives from HR, Internal Audit, businesses, and third parties to assist with the investigation process. The investigations and actions taken are summarized and reported to the Audit Committee, NCCG Committee, and Board of Directors. The committee provides timely responses to all complaints made by whistleblowers.

In 2022, the Whistleblower Committee received 51 complaints, of which 31 cases qualified as whistleblowing cases, and none were materially non-compliant. Out of these cases, 24 were resolved, and 7 are currently under investigation. 25 cases were received from the whistleblower site, and 26 were received at ethics@indorama.net. All cases carried over from 2021 have been concluded and reported to the NCCG Committee and the Board.





ANTI-CORRUPTION

[GRI 3-3, 205-2, 205-3, 206-1]

We consistently reinforce the implementation of the Anti-Corruption Policy to address evolving internal and external regulations and laws. This allows us to comply with global standards and meet our responsibility to society. As part of the CG Manual, our Anti-Corruption Policy outlines the best practices employed to prevent any corruption concerns, given our zero tolerance towards bribery and corruption.

The Anti-Corruption Policy is reviewed every three years as part of the revision of the CG Manual. Additionally, the policy may be adjusted to comply with regulatory requirements when necessary.

In 2022, onsite training sessions were held for all factories in Thailand and two locations in Vietnam as part of the CG Manual updates. The training focused on key Anti-Corruption controls, precautions when interacting with local and foreign government officials, and how to use the whistleblowing channels if employees are aware of corruption within their units. These sessions recorded high employee engagement rates.

CAC CERTIFICATION



IVL was first awarded the Collective Action Against Corruption (CAC) certification in 2014.

In March 2021, we successfully renewed the certification for the second time, extending its validity for another three years.

ACTING WITH TRANSPARENCY

[GRI 3-3, 207-1]

Tax Transparency

As a responsible business, IVL takes the management and control of taxation issues very seriously and ensures compliance with respect to all our tax disclosures and filing obligations while being aware of the various tax jurisdictions in countries where we operate. Through a robust governance process and tax policy, we operate with full transparency towards tax authorities and ensure that all our tax obligations are understood and fulfilled.

To achieve this, we engage in regular dialogue with tax authorities to maintain transparency and endeavor to seek advance rulings from tax authorities, as far as possible or input from reputable advisors to mitigate uncertainty regarding our tax obligations. We also accurately prepare and maintain records as per applicable GAAPs and other necessary standards, and efficiently manage tax risks. Our Audit Committee regularly reviews our tax strategies and risks, as well as our overall tax functions. By being transparent, our tax policy helps us build trust with our stakeholders and society.

Political Activities and Contributions

[GRI 3-3, 415-1]

Transparency is of the utmost importance to IVL across our advocacy and public policy work, as well as political contributions. In addition to participating in trade associations and lobbying for tax-exempt groups, we develop industry skills, raise awareness in society, enforce public policies, legislation and regulations, and take collective action to mobilize change.

Maintaining our memberships with various trade associations has enabled us to remain connected with stakeholders and respond to the requests of public authorities with respect to the development of related industries. In 2022, IVL was not involved in any political contributions.

FOR MORE
INFORMATION





SOUND RISK MANAGEMENT

Being a leading sustainable chemical company, we are taking the necessary steps to manage and minimize risks while optimizing our business performance. Our enterprise risk management, crisis management, and business continuity management framework, coupled with our group governance structure, ethics programs, and codes of conduct, act as the foundation for our efforts in meeting our sustainability goals.

Our Risk Journey at a Glance



INTERNAL RISK MANAGEMENT PROCESSES

Our Enterprise Risk Management (ERM) process employs the ISO 31000 Risk Management Framework and the Committee of Sponsoring Organizations of the Treadway Commission (COSO). By applying a top-down and bottom-up risk management approach, we ensure sustainability and business continuity at the corporate, business, and subsidiary levels worldwide.

The Corporate Risk Profile (CRP) captures key strategic risks which include cybersecurity, reputation, EHS, human capital, growth strategy, regulatory, and value chain. These risks are assessed and validated with key mitigation plans and signposts which are monitored and deliberated quarterly. Furthermore, the Finance team presents financial risks.

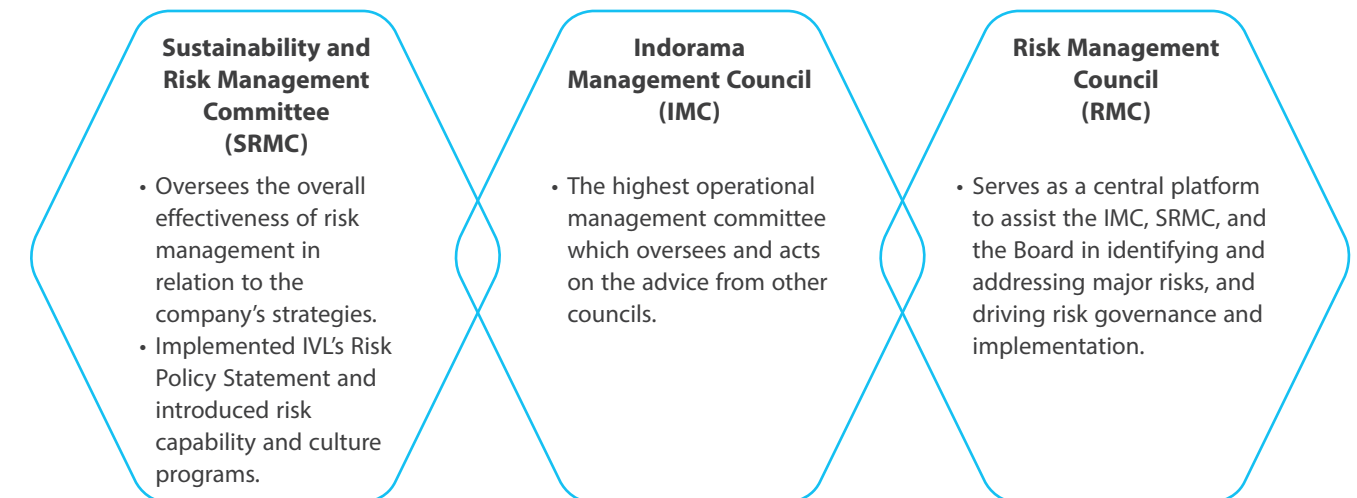
In 2022, we incorporated sustainability risks into our CRP to avoid adverse impacts on our operations, such as compliance issues, financial loss, and penalties. We recognize that effective sustainability risk management is crucial to our long-term success and the well-being of our stakeholders.

In addition, we have identified key emerging risks that could affect the Company's operations. Please refer to pg. 44-45 in our Annual report for the details on each emerging risk.



Risk Governance

Committees and Councils



IVL's SRMC oversees and conducts in-depth discussions on risk management at the Board level. Thus, the adequacy and effectiveness of our risk management frameworks, processes, management actions, and monitoring of key risk areas remain under their purview. In 2022, the SRMC reviewed and endorsed the ERM and BCM frameworks across various business segments. These segments will take ownership in further implementing these frameworks in the near future.

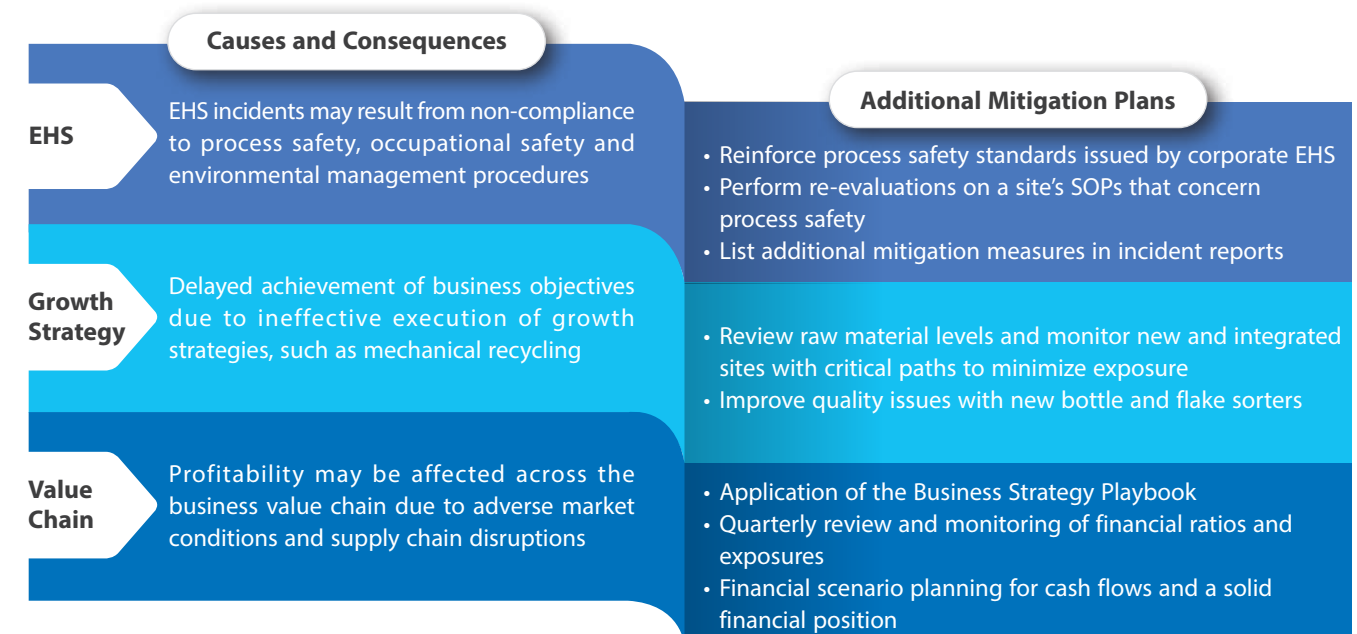
Our Risk Capability and Culture Leadership Program aims to enhance risk thinking and capabilities by building our capacity to quickly adapt to changes in the business environment. The program reinforces the risk leadership mindset in our top 100 leaders across IVL worldwide and develops their future risk assessment capabilities.



RISK ASSESSMENT AND MITIGATION

[GRI 201-2]

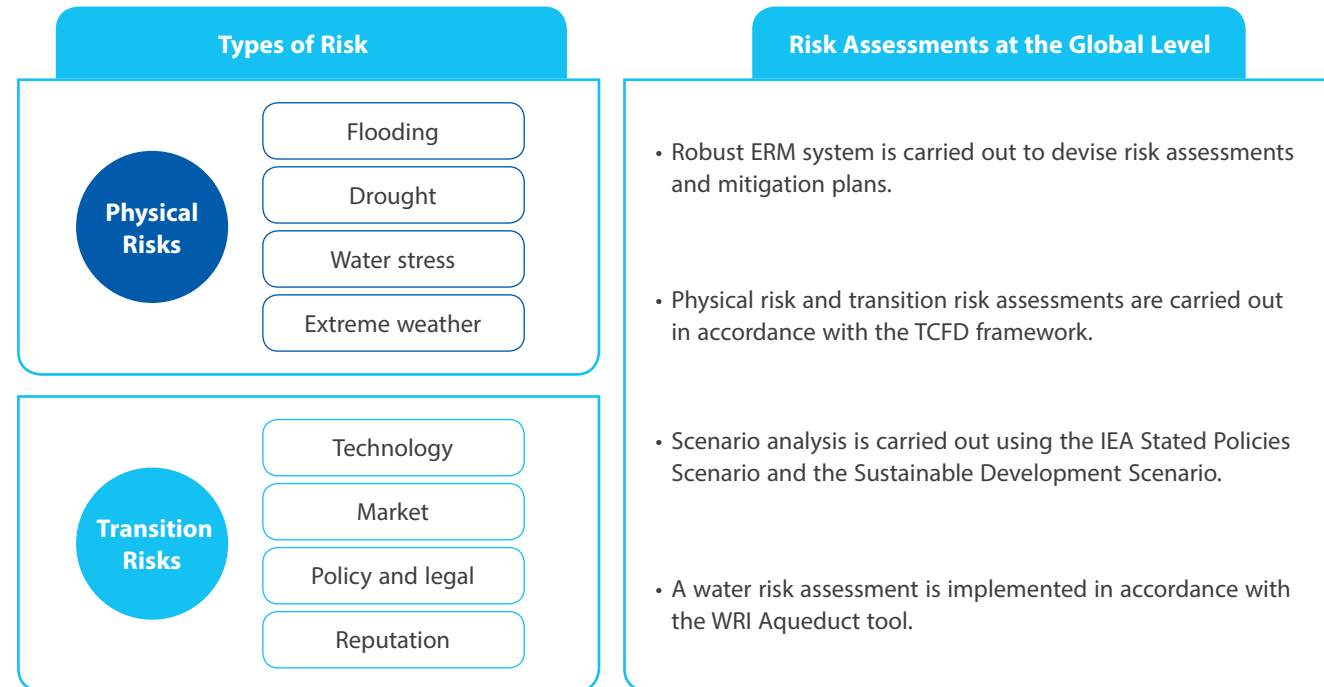
On a quarterly basis, IVL reviews key risk areas based on flagged signposts. This review includes a deep dive into the respective causes and consequences of the risks, and the adequacy of current mitigation plans. Additional plans are developed to reduce the risks to as low as reasonably possible.





The chemical industry is a significant consumer of energy and water, and a source of greenhouse gas emissions, making it vulnerable to climate change and other sustainability challenges. IVL's business is interconnected with the entire value chain and plays a crucial role in facilitating the transition to a low-carbon economy. To do so, we closely follow recommendations of the TCFD and utilize the AQUEDUCT Water Risk tool.

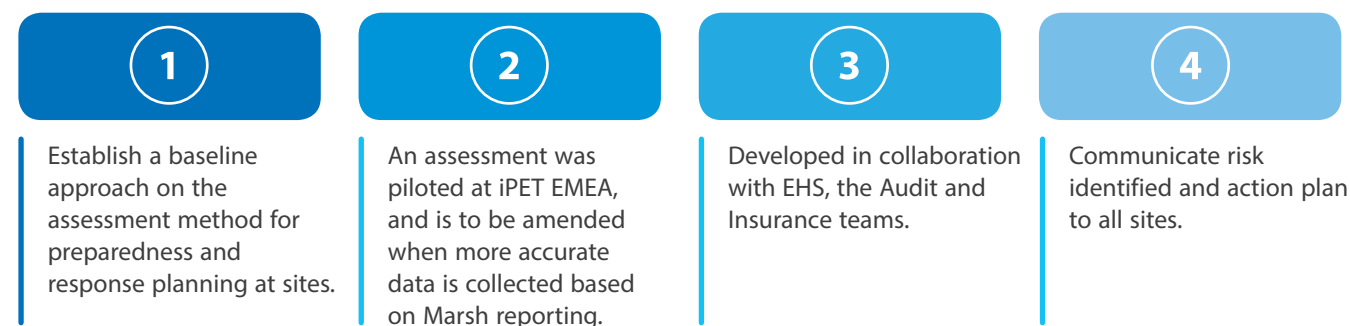
Addressing Climate-Related and Water-Related Risks at Global Level



While we manage climate and water-related risks across our operations through effective global risk management practices, we also acknowledge that each site works within its own unique operating context. Sites that are identified as having high risks are subject to additional precautionary monitoring and mandatory insurance.

Site Level Risk Assessment & Management

Site Level Risk Assessment for Natural Disaster Risk Events

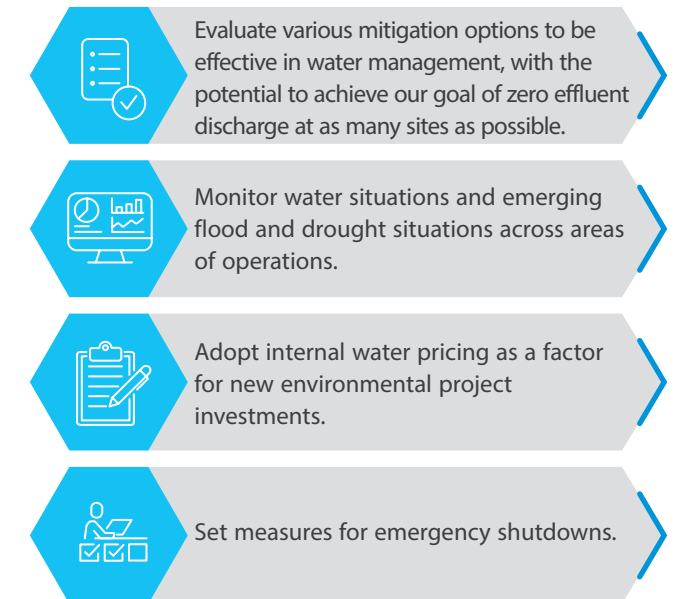


Management Procedures for High-risk Sites

Climate risks



Water risks



Case Studies

Physical Risk Mitigation Action at our US site

- Alphapet USA set up a shelter to provide protection from hurricanes and tornadoes specifically built to withstand winds of up to 250 mph. The shelter includes provisions that can last for two weeks. Additionally, the plant also installed backup generators, UPS units, and a diesel cooling water pump.

Flood Preparedness and Protection

- To mitigate the risk of floods, IVL conducted assessments of flood-prone areas, evaluated their frequency, assessed key risk areas based on the location of infrastructure, identified response teams in case of emergencies, and ensured sufficient preparation for flood defenses.

Carbon Capture Utilization and Storage (CCUS)

- We capture and sell CO₂ at our sites in the US and Brazil. In addition, we have project developments underway at our sites in the US and Mexico to capture CO₂ from feasible areas for sequestration and carbonate consumption.

Risk Alert - Emerging Floods in Thailand

- We remained informed on the emerging risk of floods in Thailand in September 2022 through internal updates and forecasts.

Please refer to pg. 48 in this report for further details on how we handle sustainability and climate-related risks, and pg. 43-52 in our 2022 Annual Report for more information about our risk categories and mitigation action plans.



RISK CULTURE AND FEEDBACK MECHANISMS

IVL employs various forms of feedback to ensure effective risk management, including quarterly feedback from plant operations to the business on key risks, input from leaders across plants, businesses, and functions on risk areas and potential mitigations through quarterly ERM reporting to business risk committees, Risk Leadership Programs (RLP), Emerging Risk Webinars, and other channels.

In 2022, our initiatives started by setting the tone from the top, implementing Board Risk Training for six of our non-executive Board of Directors and in-house RLP for our top global leaders. We also piloted Plant ERM and BCM Upskilling programs. Five RLP sessions have been conducted to date, with 50 global leaders participating in the program, where comprehensive feedback was also obtained.



The Emerging Risk Webinar is held annually, and a record is kept of responses from participants. Additionally, feedback on both emerging and enterprise-related risks is obtained by the Risk Management Council, where key strategic risks and mitigation plans are deliberated on a quarterly basis. We are committed to achieving continuous improvements and are confident that our various feedback mechanisms have provided valuable insights to enhance our risk management strategies.

IVL's inaugural ERM and BCM Recognition Awards ceremony was held in 2022. The awards were presented to individuals and teams who have made significant progress in strengthening risk management and business continuity management. Four award categories were announced during our Emerging Risk Webinar held in January 2023.

ERM & BCM Recognition Awards 2022



ERM Award

Recognizing outstanding progress and contributions to ERM programs, such as piloting the ERM Business Risk Profile and having the largest gap closure for ERM plant implementation.



BCM Supply Chain Award

Awarding efforts to develop the key Supply Chain Business Continuity Plan (BCP) ensuring uninterrupted supply to meet customer obligations.



Plant BCM Award

Awarding plants that are leading IVL's BCM enhancement implementation program.



Risk Ambassador

Recognizing individuals who have been instrumental in exemplifying a risk culture and inspiring their colleagues to do the same.

BUSINESS CONTINUITY PLANNING (BCP)

[GRI 2-25]

To adapt to the challenges of the current business environment, our BCM framework safeguards the interests of our business as well as key stakeholders. The framework is compliant with ISO 22301, strengthening our preparedness and adaptability, and guarantees business continuity with regular evaluations, thus, bolstering our planning and strategies.

A sound BCM secures the perpetuity of our business in the event of unforeseen circumstances, while sustaining our corporate reputation and revenue. The volatility and uncertainty of the business environment, coupled with increasing expectations from stakeholders, motivated us to adopt a risk operating model approach by incorporating ERM and BCM to expedite risk maturity across our increasingly integrated business value chain.

BCP Development across IVL's Value Chain

Establishing common risks and disruption scenarios such as material supply, production, facilities/utilities, manpower, and transportation.

Optimization of BCP Development by adopting common strategies across different regions and business units.

Exploring scalable recovery strategies following regional implementation, such as global production transfer/allocation, and central inventory strategy.

Phase One of business continuity Regional Planning is targeted for completion by Q2 2023.

In 2022, we completed our annual testing and exercises for the Global Business Services (GBS) BCP, including the Information Technology (IT) Disaster Recovery Plan (DRP) and the North America Integrated PET Supply Chain BCP. Based on the test results, we identified a few areas for improvement which we will work on to strengthen our risk management plan.

Business Continuity Highlight

As one of our largest portfolios and a critical point in our supply chain, it was imperative for us to develop a BCP for our iPET business in the Americas. Supply chain disruptions have worsened due to various risk events in the region, such as extreme weather, the limited availability of resources, and prevalent industrial action driven by economic pressures since the 2020 pandemic.

Our BCP for the North America and Mexico Integrated PET supply chain has been implemented to facilitate continuity actions in the event of a predefined disruption, with the aim of maintaining our obligation to contractual customers. Various other continuity strategy initiatives have also been put in place to reinforce our agility in responding to disruptions, such as seasonal stock buffering, product standardization, expansion of our warehouse footprint, and diversified transportation modes.



MANAGING CYBERSECURITY RISKS

[GRI 3-3]

The increasing prevalence of digital technologies has enabled IVL to achieve operational and commercial excellence by promoting new business models, revenue streams, and value creation opportunities. However, the acceleration of digitalization and global connectivity has also increased the likelihood of cyberattacks and data breaches. To safeguard against these threats, we leverage digitalization to fortify our systems and processes.

The cybersecurity challenges we face include email threats, lack of risk-based decision-making, absence of vulnerability assessments, ineffective patch management, and rapidly evolving technologies. To address these challenges, we established a formal Incident Response Procedure (IRP) to collate information on cybersecurity incidents and enhance overall protection. Numerous strategic responses have been implemented to ascertain data security.



CYBERSECURITY HIGHLIGHTS 2022

[GRI 418-1]



No data breaches

The absence of data breaches in 2022 demonstrates IVL's success in terms of security measures and our dedication to safeguarding sensitive information. Moving forward, we will continue our efforts in risk assessments, implementing security controls, and providing employee awareness training to maintain a secure IT infrastructure and information security environment.



New cyber risk mitigation measures

We introduced several new cyber risk mitigation measures in 2022, including implementing security controls through the Short-Term Cybersecurity Plan (STCP). We also integrated the ISO 27001 risk management framework, conducted a Vulnerability Assessment and Penetration Testing (VAPT) exercise, implemented a patch management solution and made the adoption of Multi-Factor Authentication (MFA) compulsory, in addition to launching a cybersecurity awareness initiative.



External IT audit

Our Corporate Office underwent an external ISO 27001 audit in fiscal year 2022 to evaluate our IT infrastructure and information security. The audit identified areas of strength as well as areas for improvement, and the results have helped us to further enhance our security controls to ensure maximum protection.



Initiating ISO 27001 certification

Our IT team is working with a third party to evaluate the effectiveness of a risk-based method for managing information security in accordance with NIST and ISO 27001 standards. We successfully implemented ISO 27001 at our corporate headquarters and at the 'Medco Plast' site, demonstrating the efficacy of this approach. We have communicated with global site ITs to extend this implementation at our other sites to ensure uniformity and consistency in information security management.



Adoption of emerging technologies

We implemented Microsoft ATP in 2022, an innovative solution for email and cloud protection, Cisco email security as a multi-layered defense, and XDR on endpoints to detect threats based on anomaly detections. We are also evaluating the use of AI-based DLP and NDR solutions to be added in the near future.

CYBERSECURITY GOVERNANCE

The SRMC and Audit Committee are dedicated to enhancing our cybersecurity resilience and overseeing the cybersecurity framework. The SRMC updates its knowledge of cybersecurity-related issues on a quarterly basis through the Risk and BCM framework, and develops robust policies and processes that are consistent with our risk appetite.

With a successful career in the banking industry spanning over 25 years, Mr. Rathian, our esteemed Board member, brings a wealth of knowledge and experience to oversee our cybersecurity framework and risks. He also serves as a member of the SRMC and as Chairman of the Audit Committee, and plays a vital role in ensuring the resilience and security of our digital systems. For further information on the SRMC's responsibilities, please refer to pg. 162-163 in this report.

Cybersecurity Management Processes

Our groupwide IT team works closely with the BCM team and the digital enabling function to improve our cybersecurity risk mitigation plans. The cybersecurity team's IR member manages our IRP, and a triage process has been put in place to determine if an event demands a full activation of the team.

1

When activated, IR members are responsible for initiating a war room involving the incident response team, IT teams, and other relevant internal and external stakeholders to address the incident.



2

The implementation of a Security Operations Center (SOC), as part of our strategic initiatives, improves visibility into our security posture and enhances our ability to detect and respond to security incidents.



3

A SaaS-based malware analysis lab was established to enhance our incident response capability. This secure and controlled environment enables our IR team to quickly identify and respond to potential threats, providing a better understanding of malware behavior, while allowing for more effective mitigation strategies.



4

We frequently communicate an established escalation process for suspicious emails to our employees through emails and training programs. Emails directed to ivl_infra@indorama.net will be addressed by our cybersecurity executives who monitor for any indications of attacks 24/7 using enterprise security systems.





IR Table-top Exercise

Our annual IR table-top exercise was executed by the corporate cybersecurity team in Q2 2022. This exercise helped us assess the measures that we could take to prevent breaches from internal and external cyberattacks. The simulation involved cyber incident responders, including IT infrastructure, escalation point of contacts, IT and security leadership, and other necessary stakeholders through a war room simulation.

These proactive investments have enhanced our overall cybersecurity position and helped protect us against advanced threats. Going forward, we will keep track of developments within the evolving cybersecurity landscape to ensure that we are adequately equipped to progress into the future in a safe and secure manner.

Cybersecurity Training

Cyberattacks are becoming increasingly sophisticated, and our employees are at constant risk of phishing email attacks. Therefore, our local IT teams regularly circulate various examples of phishing emails to maintain awareness and vigilance. Due to our extensive geographic presence and dynamic infrastructure, our employees are updated with our latest cybersecurity policies, and are constantly reminded to be aware of cyberattacks to comply with our IT security policies. Those in violation of our IT policies are penalized accordingly, with disciplinary actions taken, as necessary.

In 2022, to enhance the effectiveness of our cybersecurity awareness programs, we introduced animated cybersecurity training videos and assessments. By utilizing this innovative approach, IVL aims to engage employees to improve their understanding of cybersecurity best practices. The animated videos provide an interactive experience, designed to make the training more memorable and effective. The assessments aim to test our employees' knowledge and identify areas that may require further attention. Through these new methods, we are committed to promoting a strong cybersecurity culture throughout the organization.

ISO 27001 Certification for IT Head Office

IVL Head Office site has achieved ISO 27001 certification. ISO/IEC 27001 is an information security management standard that structures how businesses should manage risks associated with information security threats, including policies, procedures and staff training.

Head Office IT team worked extensively on the audit preparation by making improvements on multiple aspects of Head Office IT Infrastructure and IT Cybersecurity. The external ISO 27001 audit was conducted on November 9, 2022.



DATA



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Region Operation	Country	Business
Asia		
Asia Pet (Thailand) Limited	Thailand	●
Avgol India Private Limited	India	●
Avgol Limited (Dimona)	Israel	●
FiberVisions (China) Textiles Products Limited	China	●
Glanzstoff Industries (Qingdao) Company Limited	China	●
Guangdong IVL PET Polymer Company Limited	China	●
Hubei Gold Dragon Nonwoven Fabrics Company Limited**	China	●
Indorama Holdings Limited	Thailand	●
Indorama Petrochem Limited	Thailand	●
Indorama Petrochem Limited (2 nd Branch)	Thailand	●
Indorama Polyester Industries Public Company Limited, Nakhon Pathom	Thailand	● ● ●
Indorama Polyester Industries Public Company Limited, Rayong	Thailand	● ● ●
Indo Rama Synthetics (India) Limited	India	●
Indorama Ventures Oxides Ankleshwar Private Limited	India	●
Indorama Ventures Oxides Australia Pty Limited	Australia	●
Indorama Ventures Packaging (Myanmar) Limited	Myanmar	●
Indorama Ventures Packaging (Philippines) Corporation, Bacolod	The Philippines	●
Indorama Ventures Packaging (Philippines) Corporation, Batino	The Philippines	●
Indorama Ventures Packaging (Philippines) Corporation, Davao	The Philippines	●
Indorama Ventures Packaging (Philippines) Corporation, Meycauayan	The Philippines	●
Indorama Ventures Packaging (Philippines) Corporation, MOP	The Philippines	●
IVL Dhunseri Petrochem Industries Private Limited (Haldia)	India	●
IVL Dhunseri Petrochem Industries Private Limited (Panipat)	India	●
Performance Fibers (Kaiping) Company Limited	China	●
Performance Fibers (Kaiping) No. 2 Company Limited	China	●
Performance Fibers (Kaiping) No. 3 Company Limited	China	●
Petform (Thailand) Limited, Korat	Thailand	●
Petform (Thailand) Limited, Lopburi	Thailand	● ●
Petform (Thailand) Limited, Nakhon Pathom	Thailand	●
Petform (Thailand) Limited, Pathumthani	Thailand	●
Petform (Thailand) Limited, Rayong	Thailand	●
PT Indorama Petrochemicals	Indonesia	●
PT Indorama Polychem Indonesia	Indonesia	●
PT Indorama Polypet Indonesia	Indonesia	●
PT Indorama Ventures Indonesia	Indonesia	● ● ●
Ngoc Nghia Industry	Vietnam	● ● ● ●
Sinterama Yarns (Dongguan) Company Limited	China	●
TPT Petrochemicals Public Company Limited	Thailand	●
Africa		
Bevpak (Nigeria) Limited (Ibadan)	Nigeria	●
Bevpak (Nigeria) Limited (Port Harcourt)	Nigeria	●
Egyptian Indian Polyester Company S.A.E.	Egypt	●
Indorama PET (Nigeria) Limited	Nigeria	●
Indorama Ventures Packaging (Ghana) Limited	Ghana	●
Medco Plast Co. for Packing & Packaging Systems (S.A.E.)	Egypt	●

Remarks:

● Feedstock ● PTA ● IOD ● PET ● Hygiene ● Lifestyle ● Mobility ● Packaging ● Recycling ● Wool

Business Verticals: **Combined PET** – Feedstock, PTA, PET, Packaging, Recycling
Fibers – Fibers (Hygiene, Lifestyle and Mobility) and Wool
Integrated Oxides and Derivatives – IOD

NDC Naphthalene Dicarboxylate

PIA Purified Isophthalic Acid

PNDA Purified 2, 6 - Naphthalene Dicarboxylic Acid

PX Paraxylene

* One of the five Glanzstoff sites, the other four are Glanzstoff Bohemia and Glanzstoff Industries S.R.L., Glanzstoff Industries (Qingdao) and Glanzstoff Longlaville S.A.S.

** One of the four Avgol sites, the other three are Avgol America Inc., Avgol India Private Limited, Avgol Limited Liability Company and Avgol Limited (Dimona)

GLOBAL PERFORMANCE DATA

GRI Standards		Unit	2019	2020	2021	2022
Production**						
General	Total production (captive consumption)	Ton of production	12,780,005	15,547,062	16,521,350	16,748,664
	PET	Ton	5,167,714	5,359,788	5,469,996	5,457,361
	PTA	Ton	4,191,627	4,243,812	4,566,010	4,124,856
	Packaging	Ton	226,184	223,716	241,602	304,964
	Fibers	Ton	1,850,305	1,723,674	1,997,837	1,765,967
	Feedstock (e.g. IPA/PX/NDC/PNDA)	Ton	880,183	793,167	831,811	740,533
	Wool	Ton	6,622	4,602	6,168	7,140
	Recycling plants production (flakes+in process reuse)	Ton	149,734	180,739	217,414	344,543
	Olefins	Ton	307,634	3,017,564	3,190,512	4,003,300
Revenue						
General	Total revenues (including inter-company sales)	USD (million)	14,089	13,769	17,533	23,864
Materials**						
301-1	Total material used	Ton	13,058,126	15,019,567	15,973,039	17,252,346
	Non-renewable raw materials					
	- PTA	Ton	5,195,207	5,260,904	5,567,369	5,450,517
	- MEG	Ton	2,034,280	2,071,956	2,184,696	2,115,053
	- Paraxylene	Ton	2,751,180	2,785,304	2,996,541	2,720,688
	- IOD raw materials	Ton	-	1,532,558	1,783,223	3,903,983
	- Acetic Acid	Ton	168,183	154,037	163,937	159,336
	- Purified isophthalic acid	Ton	88,511	96,462	93,539	97,875
	- PET	Ton	405,181	398,514	426,209	380,635
	- PP	Ton	274,540	274,328	270,314	221,539
	- PE	Ton	55,494	56,757	58,436	48,350
	- HDPE	Ton	9,140	8,211	10,639	19,751
	- Others	Ton	1,785,341	2,120,334	2,061,244	1,477,343
	Bio-based raw materials					
	- Palm kernel oil and PKO fatty alcohols	Ton	-	-	-	94,473
	- Bio-MEG	Ton	9,130	10,031	9,615	9,875
	- Cellulose	Ton	10,079	7,212	10,298	7,745
	- PLA	Ton	2,023	3,641	4,065	4,233
	- Wool	Ton	5,096	3,400	4,855	4,232
	- Others	Ton	-	-	-	30,542
	Total packaging materials	Ton	57,745	5,006	10,993	105,103
301-2	Total recycled materials	Ton	206,996	230,912	317,064	342,961
Energy**						
302-1	Total energy consumption	GJ	74,978,310	111,045,549	115,583,712	122,147,400
	Total energy consumption	MWh	20,827,308	30,845,986	32,106,587	33,929,833
	• Natural gas	GJ	31,772,798	70,444,220	72,030,245	79,098,642
	• Coal	GJ	23,190,958	20,796,788	20,816,598	17,477,273
	• Fuel oil	GJ	308,901	431,744	1,895,027	653,786
	• Diesel	GJ	186,567	252,356	190,526	435,183
	• LPG	GJ	69,094	57,672	98,096	98,078
	• Gasoline	GJ	28,887	41,100	35,004	41,810
	• Fuel gas	GJ	-	-	-	-
	• Tail gas	GJ	-	-	-	466,210
	• Others	GJ	494,307	513,760	476,118	465,377
	• Renewable energy consumption	GJ	714,349	798,257	485,511	579,224
	- Palm shell	GJ	322,781	317,212	416,226	425,094
	- Biomass	GJ	391,568	481,045	69,285	150,961
	- Bio LPG	GJ	-	-	-	3,141
	- Bio ethanol	GJ	-	-	-	28
	• Direct energy sold	GJ	(2,566,138)	(3,228,551)	(3,411,550)	(2,915,134)
	Total indirect energy consumption (electricity, cooling, steam purchased from outside of IVL group)	GJ	20,778,587	20,938,204	22,968,136	25,746,952
	- Renewable electricity generated and consumed	GJ	11,964	23,326	24,933	37,269
	- Renewable electricity purchased through certificate	GJ	1,490,193	668,105	1,883,403	716,325
	Total direct electricity sold	GJ	387,862	397,319	354,050	659,971
	Total steam sold	GJ	136,103	133,695	519,650	586,479
	Total indirect electricity sold	GJ	59,547	64,105	16,449	16,127
302-3	Energy intensity	GJ/Ton of production	5.87	7.14	7.00	7.29
302-4	Energy saved due to conservation and efficiency improvement	GJ	756,216	435,645	1,575,159	413,476
	Total non-renewable energy consumption	MWh	20,212,746	30,433,476	31,442,891	33,559,695
	Total renewable energy consumption	MWh	614,561	412,509	663,696	370,138



GRI Standards		Unit	2019	2020	2021	2022
Water Withdrawal and Consumption**						
303-1	Total water withdrawn by sources	m³	65,222,820	82,050,413	88,154,618	86,910,036
	- Surface water	m³	35,480,047	50,870,402	61,522,902	48,332,122
	- Once through cooling water	m³	263,010	-	-	-
	- Municipal water and water utilities	m³	21,826,915	19,066,383	19,172,711	26,855,329
	- Groundwater	m³	7,630,654	12,113,628	7,459,005	11,722,585
	- Rainwater	m³	22,194	-	-	-
	Water intensity	m³/Ton of production	5.10	5.28	5.34	5.19
Reused / Recycled Water						
303-3	Total volume of recycled/reused water	m³	5,255,856	5,786,158	5,555,472	6,739,271
	% of recycled/reused water	%	7.46%	6.59%	5.93%	7.20%
Emissions**						
305-1	Direct GHG emissions of all sources owned or controlled by company (Scope 1 emissions)	tCO ₂ e	4,705,964	6,974,574	7,207,125	7,195,277
305-2	Indirect GHG emissions resulting from the generation of electricity, heat, or steam (Scope 2 emissions)	tCO ₂ e	2,513,223	2,487,233	2,582,952	2,606,124
	Total GHG emissions (Scope 1 + Scope 2)	tCO ₂ e	7,219,187	9,461,807	9,790,077	9,801,401
305-4	Scope 1 GHG intensity	tCO ₂ e/Ton of production	0.368	0.4486	0.436	0.430
	Scope 2 GHG intensity	tCO ₂ e/Ton of production	0.198	0.161	0.156	0.157
	Scope 1 + Scope 2 GHG intensity	tCO ₂ e/Ton of production	0.565	0.609	0.593	0.585
	GHG intensity in tons of CO ₂ e per currency total revenue	tCO ₂ e/USD (million)	512.40	687.18	558.38	410.72
	GHG Intensity in tons of CO ₂ e per full time equivalent (FTE) employees	tCO ₂ e/FTE	318.08	375.36	380.05	324.54
305-7	Total NO _x emissions	Ton	4,659	4,937	12,433	7,536
	Total SO _x emissions	Ton	4,993	4,658	6,999	5,730
	Total VOC emissions	Ton	2,123	3,298	2,364	4,287
	Total PM emissions		1,136	872	915	1,137
Wastewater Discharge**						
306-1	Total water discharge volume	m³	28,812,422	48,752,910	49,520,229	46,907,077
	COD in treated wastewater discharged	Ton	1,693	17,654	24,765	8,272
	BOD in treated wastewater discharged	Ton	328	1,693	2,735	3,005
	TSS in treated wastewater discharged	Ton	532	1,900	1,860	651
	Oil and grease in treated wastewater discharged	Ton	20.45	170	243	995
Solid Waste**						
306-2	Total hazardous waste	Ton	74,344	117,157	140,010	156,012
	- Reuse	Ton	43,574	39,840	47,897	0
	- Recycling	Ton	4,796	2,511	2,931	53,083
	- Incineration (with energy recovery)	Ton	2,542	52,439	71,709	84,128
	- Incineration (without energy recovery)	Ton	9,996	12,900	7,435	6,872
	- Composting	Ton	0	77	0	0
	- Landfill	Ton	12,260	6,416	6,557	5,441
	- Unknown disposal methods	Ton	1,175	2,973	3,482	6,489
	Total non-hazardous waste	Ton	243,104	216,601	287,069	307,901
	- Reuse	Ton	120,151	65,318	82,289	1,560
	- Recycling	Ton	43,423	50,505	92,227	62,986
	- Incineration (with energy recovery)	Ton	12,835	10,245	6,341	10,945
	- Incineration (without energy recovery)	Ton	1,080	2,425	1,135	583
	- Composting	Ton	11,235	12,829	0	0
	- Landfill	Ton	49,596	53,603	61,155	96,403
	- Deepwell injection	Ton	0	53	0	0
	- Unknown disposal methods	Ton	4,784	21,624	43,921	135,424
	Total waste reused, recycled and incinerated with energy recovery	Ton	227,321	220,857	303,394	212,702
	Total waste disposed (not reused, recycled) and incinerated without energy recovery	Ton	90,126	112,901	123,685	251,212

GRI Standards		Unit	2019	2020	2021	2022
Spills						
306-3	Total significant spills	Case	20	25	52	13
		Ton	89	49	348	23
	- Hydrocarbon spills	Case	6	18	7	10
		Ton	6	33	35	1
	- Chemical spills	Case	14	7	29	3
		Ton	83	17	293	21
	- Other spills	Case	0	0	16	0
		Ton	0	0	20	0
Process Safety Events						
	Tier 1					
	- No. of events	Case	24	18	15	10
	- Rate	Case/Million man-hours	0.44	0.32	0.24	0.14
	Tier 2					
	- No. of events	Case	14	13	21	14
	- Rate	Case/Million man-hours	0.26	0.23	0.33	0.19
Environmental Compliance						
307-1	ALL FINES: Monetary value of ALL fines for non-compliance with environmental laws and regulations	US\$	0	22,947	196,896	141,946
	FINES OVER US\$ 10,000: Monetary value of significant fines over US\$ 10,000 for non-compliance with environmental laws and regulations	US\$	0	22,357	156,878	127,726
	Total number of non-monetary sanctions for non-compliance with environmental laws and regulations were incurred	Case	0	0	21	10
Occupational Health & Safety						
403-2	Total Recordable Injury Rate (TRIR)	No/200,000 man-hours	1.45	0.91	0.98	0.82
	Employees	No/200,000 man-hours	1.59	0.99	1.19	1.04
	Contractors	No/200,000 man-hours	0.96	0.68	0.37	0.29
	Total Recordable Injuries (not including first aid incidents)	Case	394	259	299	301
	Employees	Case	335	209	267	268
	Contractors	Case	59	50	32	33
	Lost Time Injury Frequency Rate (LTIFR)	No/Million man-hours	4.18	2.38	3.30	2.55
	Employees	No/Million man-hours	5.07	2.93	4.05	3.30
	Contractors	No/Million man-hours	1.14	0.81	1.22	0.80
	Total Lost Time Injuries	Case	227	136	202	188
	Employees	Case	213	124	181	170
	Contractors	Case	14	12	21	18
	Occupational Illness Frequency Rate (OIFR)	No/Million man-hours	0.02	0.18	0.06	0
	Employees	No/Million man-hours	0.02	0.24	0.09	0
	- Male	No/Million man-hours	0.03	0.06	0.03	0
	- Female	No/Million man-hours	0	0.98	0.35	0
	Contractors	No/Million man-hours	0	0	0	0
	- Male	No/Million man-hours	0	0	0	0
	- Female	No/Million man-hours	0	0	0	0
	Total number of occupational disease cases	Case	1	10	4	0
	Employees	Case	1	10	4	0
	- Male	Case	1	2	1	0
	- Female	Case	0	8	3	0
	Contractors	Case	0	0	0	0
	- Male	Case	0	0	0	0
	- Female	Case	0	0	0	0
	Fatalities (all employees and contractors)	Person	1	0	2	1
	Employees	Person	0	0	1	0
	- Male	Person	0	0	1	0
	- Female	Person	0	0	0	0
	Contractors	Person	1	0	1	1
	- Male	Person	1	0	1	1
	- Female	Person	0	0	0	0
	Lost Day Rate (LDR)	Days/Million man-hours	104	114	144	80
	Employees	Days/Million man-hours	124	147	172	111
	Contractors	Days/Million man-hours	34	22	68	10
	Total number of lost days (only including lost scheduled work days)	Man Days	5,649	6,525	8,894	5,907
	Employees	Man Days	5,225	6,205	7,717	5,688
	Contractors	Man Days	424	320	1,177	219
	Near miss	Case	3,015	1,977	2,558	2,794
	Employees	Case	2,531	1,878	2,238	2,092
	Contractors	Case	484	99	320	702

** Table shows restatement of data from 2019 to 2021 due to recalculation.



WATER WITHDRAWAL BY SOURCE

GRI Standards		Unit	2020	2021	2022
Total Water Withdrawal by Source**					
303-3	Total water withdrawal by source (with + without stress)	m ³	82,050,413	88,154,618	86,910,036
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	78,234,318	84,704,174	85,376,163
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	3,816,095	3,450,444	1,533,873
	Surface water/rain water (with + without water stress)	m ³	50,870,402	61,522,902	48,332,122
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	47,343,325	58,361,273	48,239,270
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	3,527,077	3,161,629	92,852
	Ground water (with + without water Stress)	m ³	12,113,628	7,459,005	11,722,585
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	12,112,289	7,458,027	11,293,294
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	1,339	979	429,290
	Seawater (total) (with + without water stress)	m ³	0	0	0
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	0	0	0
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	0	0	0
	Produced water (total) (with + without water stress)	m ³	684,830	193,615	129,085
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	627,250	64,141	490
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	57,580	129,474	128,595
	Third-party water (with + without water stress)	m ³	18,381,553	18,979,096	26,726,244
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	18,151,454	18,820,734	25,843,108
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	230,100	158,362	883,135
	Total water withdrawal by source (with water stress)	m ³	34,675,873	39,501,965	37,566,089
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	34,467,798	39,224,933	37,294,453
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	208,075	277,032	271,636
	Surface water/rain water (with water stress)	m ³	19,514,459	23,446,101	25,372,029
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	19,514,459	23,446,101	25,372,029
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	0	0	0
	Ground water (with water stress)	m ³	3,747,740	3,961,213	3,600,532
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	3,747,740	3,961,213	3,600,532
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	0	0	0
	Seawater (total) (with water stress)	m ³	0	0	0
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	0	0	0
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	0	0	0
	Produced water (total) (with water stress)	m ³	81,039	153,254	106,889
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	34,370	34,585	0
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	46,669	118,669	106,889
	Third-party water (with water stress)	m ³	11,332,636	11,941,396	8,486,639
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	11,171,229	11,783,034	8,321,892
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	161,407	158,362	164,747
	Total water withdrawal by source (without water stress)	m ³	47,374,540	48,652,654	49,343,947
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	43,766,520	45,479,242	48,081,710
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	3,608,020	3,173,412	1,262,237
	Surface water (without water stress)	m ³	31,355,943	38,076,801	22,960,093
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	27,828,867	34,915,172	22,867,241
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	3,527,077	3,161,629	92,852
	Ground water (without water stress)	m ³	8,365,888	3,497,792	8,122,053
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	8,364,549	3,496,813	7,692,762
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	1,339	979	429,290
	Seawater (total) (without water stress)	m ³	0	0	0
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	0	0	0
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	0	0	0
	Produced water (total) (without water stress)	m ³	603,791	40,361	22,196
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	592,880	29,556	490
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	10,911	10,805	21,706
	Third-party water (without water stress)	m ³	7,048,918	7,037,700	18,239,605
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	6,980,224	7,037,700	17,521,216
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	68,693	0	718,388

** Table shows restatement of data from 2019 to 2021 due to recalculation.

WASTE WATER DISCHARGE

GRI Standards		Unit	2020	2021	2022
Waste Water Discharge**					
303-4	Total waste water discharge (with + without stress) (source wise)	m ³	48,753,355	49,662,741	46,929,160
	Total surface water	m ³	26,649,830	26,147,436	24,588,255
	Total ground water	m ³	65,486	92,209	416,408
	Total sea water	m ³	3,220,926	3,132,273	2,034,927
	Total third-party water/municipality/common waste water treatment plant	m ³	18,722,602	20,184,823	16,933,087
	Total third-party water sent for used for other organization	m ³	94,511	106,001	2,956,483
	Waste water discharge (with water stress)	m ³	25,906,869	25,674,905	22,681,126
	Surface water	m ³	14,429,383	14,164,176	14,089,106
	Ground water	m ³	47,719	52,544	287,723
	Sea water	m ³	1,663,141	1,771,417	1,460,691
	Third-party water/municipality/common waste water treatment plant	m ³	9,763,971	9,676,833	6,711,487
	Third-party water sent for used for other organization	m ³	2,654	9,935	132,120
	Waste water discharge (without water stress)	m ³	22,846,486	23,987,836	24,248,033
	Surface water	m ³	12,220,446	11,983,260	10,499,149
	Ground water	m ³	17,767	39,665	128,685
	Sea water	m ³	1,557,785	1,360,856	574,236
	Third-party water/municipality/common waste water treatment plant	m ³	8,958,631	10,507,990	10,221,600
	Third-party water sent for used for other organization	m ³	91,857	96,066	2,824,363
	Total waste water discharge quality wise by fresh water and other water (with + without stress)	m ³	48,753,355	49,662,741	46,929,160
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	39,684,310	40,515,778	38,763,132
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	9,069,045	9,146,963	8,166,028
	Waste water discharge with water stress	m ³	25,906,869	25,674,905	22,681,126
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	24,871,405	25,416,890	19,280,294
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	1,035,463	258,015	3,400,833
	Waste water discharge without water stress	m ³	22,846,487	23,987,836	24,248,033
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m ³	15,350,542	15,724,020	19,482,838
	Other water (>1,000 mg/L Total Dissolved Solids)	m ³	7,495,944	8,263,816	4,765,195

Total water returned to the same source at a similar or better level of quality (with + without water stress)	m ³	4,350,993	3,607,591	891,850
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** Table shows restatement of data from 2019 to 2021 due to recalculation.



GLOBAL HUMAN RESOURCES DATA

GRI Standards		Unit	2019	2020	2021	2022
Employees						
405-1	Total employees by gender	Person	22,696	25,207	25,760	30,201
	Male	Person	17,749	19,790	20,261	23,102
	Female	Person	4,947	5,417	5,499	7,099
	Total permanent employees	Person	22,027	23,134	23,666	25,740
	Male	Person	17,225	18,158	18,425	19,397
	Female	Person	4,802	4,976	5,241	6,343
	Total temporary employees	Person	669	2,073	2,094	4,461
	Male	Person	524	1,632	1,836	3,705
	Female	Person	145	441	258	756
% Women in Management Positions						
405-1	% Women in management positions in revenue-generating functions (e.g. sales) as % of all such managers	%	25.10	25.22	25.30	25.40
Employees by Level*						
	Total employee by level	Person	22,027	23,134	23,666	25,740
	Executive management	Person	109	115	117	127
	Male	Person	95	100	102	111
	Female	Person	14	15	15	16
	Senior management	Person	577	606	620	674
	Male	Person	468	492	503	547
	Female	Person	109	114	117	127
	Middle management	Person	2,341	2,458	2,515	2,735
	Male	Person	1,820	1,911	1,955	2,126
	Female	Person	521	547	560	609
	Junior management	Person	8,495	8,922	9,127	9,927
	Male	Person	5,097	5,353	5,476	5,956
	Female	Person	3,398	3,569	3,651	3,971
	Non management*	Person	10,505	11,033	11,287	12,277
	Male	Person	9,745	10,235	10,470	11,388
	Female	Person	760	798	817	889
Employees by Age*						
	Total employees by age	Person	22,027	23,134	23,666	25,740
	Over 50 years old	Person	5,033	6,267	6,118	6,430
	Male	Person	4,027	5,132	4,927	5,077
	Female	Person	1,006	1,135	1,191	1,353
	30-50 years old	Person	13,199	13,265	13,962	15,416
	Male	Person	10,191	10,194	10,683	11,472
	Female	Person	3,008	3,071	3,279	3,944
	Below 30 years old	Person	3,795	3,602	3,586	3,894
	Male	Person	3,007	2,832	2,815	2,848
	Female	Person	788	770	771	1,046
New Employee Hires *						
401-1	Total new employees	Person	2,042	1,822	3,295	3,999
	Male	Person	1,464	1,259	2,334	2,446
	Female	Person	578	563	961	1,553
Employee Turnover*		Full Time Employees				
401-1	Total employee turnover	Person	2,093	1,964	2,703	3,529
	Male	Person	1,502	1,413	1,951	2,392
	Female	Person	591	551	752	1,137
	Total employee turnover rate	Turnover rate (%)	9.50%	8.49%	11.42%	13.71%
	Voluntary employees turnover	Person	1,695	1,461	2,149	2,916
	Voluntary employees turnover rate	Turnover rate (%)	7.70%	6.32%	9.08%	11.33%
	Number of employees laid off	Person	0	93	148	243
	Number of negotiations	Person	0	58	37	50

GRI Standards		Unit	2019	2020	2021	2022
Parental Leave*						
401-3	Number of employees taken parental leave	Person	863	615	899	781
	Male	Person	601	328	584	266
	Female	Person	262	287	315	515
	Number of employees return to work after parental leave	Person	726	554	821	715
	Male	Person	559	321	534	261
	Female	Person	167	233	287	454
	Retention to work (after parental leave and still employed for the next 12 months)	Person	693	468	720	669
	Male	Person	532	242	497	232
	Female	Person	161	226	223	437
Employees Training*						
404-1	Total training hours provided to employee	Hours	728,206	429,886	708,106	789,313
	Male	Hours	552,725	335,311	552,323	591,984
	Female	Hours	175,481	94,575	155,783	197,328
	Total average training hours	Hours/Employee	33.06	18.58	29.92	30.66
	Male	Hours/Employee	32.09	18.47	29.98	30.52
	Female	Hours/Employee	36.54	19.01	29.72	31.11
	Total training hours by course	Hours	-	429,886	708,106	789,313
	Mandatory course (hours)	Hours	-	214,305	301,340	398,704
	Non-mandatory course (hours)	Hours	-	215,582	406,766	390,609
	Total amount spent (USD)	USD	-	2,070,050	2,400,752	3,590,000
	Mandatory course (USD)	USD	-	625,605	708,545	1,110,162
	Non-mandatory course (USD)	USD	-	1,444,445	1,692,207	2,479,838
	Region - Asia (USD)	USD	-	870,159	1,024,422	1,073,187
	Region - EMEA (USD)	USD	-	757,347	611,035	1,105,987
	Region - Americas (USD)	USD	-	442,544	765,295	1,410,825
Performance Review*						
404-3	Total employees receiving regular performance reviews	Person	22,027	15,648	15,959	16,549
	Percentage of employee receiving regular performance reviews	%	100.00%	67.64%	67.43%	64.29%
	Total employees receiving career development reviews	Person	21,281	6,505	7,641	7,803
	Percentage of employees receiving career development reviews	%	96.61%	28.12%	32.29%	30.31%
Remuneration Ratio of Women to Men						
405-2	Strategic (base salary only)	Ratio	0.962	0.964	0.965	0.966
	Strategic (base salary + other cash incentives)	Ratio	-	0.957	0.958	0.959
	Managerial (base salary only)	Ratio	0.947	0.949	0.951	0.953
	Managerial (base salary + other cash incentives)	Ratio	0.950	0.953	0.955	0.957
	Supervisory and operational	Ratio	0.931	0.934	0.937	0.940
Employee Engagement Score*						
	Employee satisfaction score	%	74.91	73.89	73.89	73.31
	Male	%	74.98	74.54	74.54	74.04
	Female	%	80.84	77.40	77.40	77.28
	Data coverage of employee satisfaction survey	%	93.43	82.87	82.87	84.06
	Employee Net Promoter Score (NPS)	%	-	76.20	76.20	75.85
Collective Bargaining						
102-41	Total employees covered by collective bargaining agreements	Person	11,337	9,578	9,914	10,900
	Percentage of total employees covered by collective bargaining agreement	%	51.47	41.40	41.89	42.35
	Number of consultations/negotiations with trade unions over organizational changes [unit]	Number	262	103	903	791



GRI Standards		Unit	2019	2020	2021	2022
Human Rights Integration						
412-2	Total number of hours of employees training on human rights policies or procedures concerning aspects of human rights that are relevant to operations	Hours	20,799	11,044	22,622	28,173
	Total number of employees trained in human rights policies or procedures concerning aspects of human rights that are relevant to operations	Person(s)	19,362	9,366	16,673	10,786
	Percentage of employees trained in human rights policies or procedures concerning aspects of human rights that are relevant to operations	% of total employees	85.3%	37.2%	64.7%	35.7%
Non-discrimination						
406-1	Total number of incidents of discrimination and corrective actions taken	Cases	0	8	12	17
	Number of incidents of discrimination and corrective actions taken regarding employees	Cases	0	5	10	16
	Number of incidents of discrimination and corrective actions taken to all excluding employee	Cases	0	3	2	1
Rights of Indigenous People						
411-1	Incidents of violations involving rights of indigenous people		0	0	0	0
Human Rights Assessment						
412-1	Total number of operations	Number	108	123	124	147
	Total number of operations that have been subject to human rights reviews or impact assessments	Number	108	123	124	147
	Percentage of operations that have been subject to human rights reviews or impact assessments [unit]	%	100%	100%	100%	100%
Human Rights Grievances						
103-2	Total number of grievances about human rights through formal grievance process	Cases	0	8	22	33
	Number of grievances about human rights (related to employees) through formal grievance process	Cases	0	7	12	29
	Number of grievance about human rights (not related to employees) through formal grievance process	Cases	0	0	0	1
	Total number of human rights grievances addressed in this reporting period	Cases	0	8	7	21
	Number of human rights grievances (related to employees) addressed during the reporting period	Cases	0	7	7	15
	Number of human rights grievances (not related to employees) addressed during the reporting period	Cases	0	0	1	0
	Total number of human rights grievances filed in previous reporting period resolved during the reporting period	Cases	0	0	1	3
	Number of human rights grievances (related to employees) filed in previous reporting period resolved during the reporting period	Cases	0	1	1	4
	Number of human rights grievances (not related to employees) filed in previous reporting period resolved during the reporting period	Cases	0	0	0	0
Labor Practice Grievance						
103-2	Total number of grievances about for labor practices filed through formal grievance mechanism	Cases	24	63	65	364
	Total number of grievances about labor practices addressed during the reporting period	Cases	18	80	58	73
	Total number of grievances about labor practices resolved during the reporting period	Cases	18	75	60	37
	Total number of grievances about labor practices filed prior to reporting period that were resolved during the reporting period	Cases	22	43	7	91

* Does not include temporary manpower.

Appropriate compliance training on Human Rights, Health & Safety has always been given to temporary manpower.

GLOBAL CSR DATA

GRI Standards		Unit	2019	2020	2021	2022
Local Community Engagement						
	Percentage of operations with implemented local community engagement, impact assessments, and development programs	%	88	91	91	78
	Total number of operations with any of the below local community engagement, impact assessments and developed programs (e.g. if site A has SIA and EIA, and site B has EIA the total number of sites with programs is 2)	Number	32	46	47	43
	Number of operation with implemented social impact assessment including gender assessment	Number	9	14	12	11
	Number of operation with implemented environmental impact assessment	Number	21	42	38	33
	Number of operation with implemented public disclosure of results of environmental and social impact assessment	Number	13	27	24	24
	Number of operation with implemented local community development programs	Number	18	25	23	19
	Number of operation with implemented stakeholder engagement plans	Number	12	21	24	22
	Number of operation with implemented broad base local community consultation committees and processes	Number	7	15	22	19
	Number of operation with implemented work councils, occupational health and safety committees and other employee representation bodies to deal with impacts	Number	23	42	39	35
	Number of operation with implemented formal local community grievance process	Number	7	18	25	22
Social Grievances						
	Number of grievances regarding society received through formal grievance process	Number	1	1	0	2
	Total number of societal grievances addressed during this reporting period	Number	0	1	0	2
	Total number of societal grievances resolved during this reporting period	Number	0	1	0	2
	Total number of societal grievances resolved in the previous reporting period	Number	1	0	1	2
Total Philanthropic Activities						
	Total philanthropic activities	%	100	100	100	100
	Charitable donations	USD	350,980	449,703	743,123	377,456
	Community investments	USD	715,351	451,890	751,889	1,654,785
	Commercial Initiatives in the community	USD	730,397	188,583	157,982	304,832
Philanthropic Contribution						
	Total cash contributions	USD	1,796,730	1,090,176	1,405,621	1,708,752
	Time: Estimate employee costs	USD	1,142,800	696,748	210,969	560,385
	Time: Employee volunteering during paid working hours	Hour	60,960	33,607	9,493	22,864
	Total in-kind giving	USD	153,140	250,528	200,981	472,446
	Total management overheads	USD	82,360	73,118	46,392	155,874



TÜVNORD

CERTIFICATE

Carbon Footprint 2022

according to DIN EN ISO 14064-1:2019 - Greenhouse gases - Specification with guidance at the organizational level for quantification and reporting of greenhouse gas emissions and removals

The Carbon Footprint was verified by TÜV NORD CERT GmbH in accordance with DIN EN ISO 14064-3: 2020 regarding its correctness and completeness for

Indorama Ventures Public Company Ltd.
75/102, Ocean Tower 2
28th Floor, Sukhumvit Soi 19
Bangkok 10110
Thailand



Acting as an independent Certification Body TÜV NORD CERT GmbH has verified the carbon footprint of the organization for the reporting period **01.01.2022 - 31.12.2022** (inclusive)

to be **39,692,506 t CO₂e** (details s. annex).

The level of assurance is Reasonable. The carbon footprint covers direct and indirect emissions. The calculation of the carbon footprint comprises of emissions arising from:

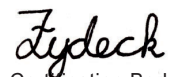
Scope 1: Stationary and Mobile Combustion, Fugitive Emissions, process off gas (Feedstock, PET, PTA, Fibers, Olefins), waste water treatment (anaerobic and aerobic), fire suppression equipment, SF6 in electrical equipment, compressed air, chilled water, cooling water, biogas and biomass combustion.

Scope 2: Electricity purchased (location and market based), third party electricity and heat, steam purchased.

Scope 3: Purchased goods and services (including Nitrogen), Upstream and Downstream transportation, Waste, Business travel, Employee commuting, WTT and T&D related to electricity and fuels.

On the basis of the verification, the greenhouse gas statement is materially correct and a fair representation of greenhouse data and information. Furthermore, it can be confirmed that the greenhouse gas statement has been prepared in accordance with the ISO 14064-1 standard.

Certificate Registration No. 44 776 180191-001
Audit Report No. 3534 8581



Certification Body
at TÜV NORD CERT GmbH

Essen, 2023-07-12

TÜV NORD CERT GmbH

Am TÜV 1

45307 Essen

www.tuev-nord-cert.com



TÜVNORD

ANNEX

to Certificate Registration No. 44 776 180191-001

for the **Carbon Footprint 2022** according to

DIN EN ISO 14064-1:2019 - Greenhouse gases - Specification with guidance at the organizational level for quantification and reporting of greenhouse gas emissions and removals

Indorama Ventures Public Company Ltd.
75/102, Ocean Tower 2
28th Floor, Sukhumvit Soi 19
Bangkok 10110
Thailand



Summary	t CO ₂ e
A – Greenhouse Gas Inventory	
Scope 1	7,195,277
Scope 2 (Location based)	2,606,124
Scope 1 and 2 (Location based)	9,801,401
Scope 2 (Market based)	2,534,847
Scope 3 Purchased Goods and Services (including Nitrogen)	25,343,626
Scope 3 Upstream Transportation	976,299
Scope 3 Waste	229,582
Scope 3 Business Travel	27,440
Scope 3 Employee Commuting	36,603
Scope 3 Downstream Transportation	1,555,676
Scope 3 Emissions from electricity (T&D, WTT)	865,368
Scope 3 Emissions from Fuels (WTT)	856,511
Scope 1, Scope 2 (location based), Scope 3	39,692,506



Certification Body
at TÜV NORD CERT GmbH

Essen, 2023-07-12

TÜV NORD CERT GmbH

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www.tuev-nord-cert.com



Deutsche
Akkreditierungsstelle
D-VS-12007-01-00



Independent Assurance Statement

To the Directors and Management
Indorama Ventures Public Company Limited,
Bangkok, Thailand

Indorama Ventures Public Company Limited (hereafter 'IVL') commissioned TUV India Private Limited (TUVI) to conduct independent external assurance of non-financial ESG indicators disclosed in IVL's Sustainability Report (hereinafter 'the Report') for the period January 01, 2022, to December 31, 2022. This engagement comprises a "limited assurance" of IVL's sustainability information for the applied reporting period. The Report is based on the principles of IIRC Integrated Reporting (<IR>), GRI Standards 2021, and AA1000AS v.3 (Type 1, Moderate Level).

Management's Responsibility

IVL has developed the Report content and is responsible for the identification of materiality (through the double materiality test), corresponding ESG issues, identifying, establishing, and reporting performance management, data management, and quality. The management team at IVL is accountable for the accuracy of the information provided in the Report and the process of collecting, analysing, and reporting that information in both web-based and printed Report. This includes the maintenance and integrity of the company's website. Furthermore, IVL's management team takes responsibility for the accurate preparation of the Report in reference to the applied criteria <IR> framework and GRI standards. They ensure that the Report is free of any intended or unintended material misstatements, so stakeholders can trust the information provided. IVL will be responsible for archiving and reproducing the disclosed data for the stakeholders upon request.

Scope and Boundary

The assurance engagement encompasses a review of the evidence (on a sample basis) for identified ESG indicators. Additionally, the verification team performed

- i. Verification of the application of the Report content, and principles as mentioned in the Global Reporting Initiative (GRI) Standards, the principles of IIRC Integrated Reporting (<IR>), and the quality of information presented in the Report over the reporting period;
- ii. Review of the policies, initiatives, practices, and performance described in the Report;
- iii. Review of the ESG disclosures made in the Report against the requirements of the GRI Standards and <IR> framework;
- iv. Verification of the reliability of the GRI Standards disclosure on environmental and social topics;
- v. The specified information was selected based on the materiality determination and needs to be meaningful to the intended users.

TUVI has verified the below-mentioned disclosures given in the report.

Topic	Indicator	GRI Disclosure
Energy	Energy consumption within the organization	302-1
	Energy intensity	302-3
Water and effluents ¹	Water withdrawal	303-3
	Water discharge	303-4
	Water Consumption	303-5
Emissions	Direct (Scope 1) GHG emissions	305-1
	Energy indirect (Scope 2) GHG emissions	305-2
	Nitrogen oxides (NO _x)/sulphide oxides (SO _x) and other significant air emissions	305-7
Waste	Waste generated	306-3
	Waste diverted from disposal	306-4

¹ "Out of total 141 reported sites, COD was monitored at 38 sites, 28 sites sent discharge wastewater to the third party for treatment, 41 sites reported negligible COD, and no liquid discharge reported by 5 sites."

	Waste directed to disposal	306-5
Occupational health and safety	Work-related injuries	403-9
Training and education	Average hours of training per year per employee	404-1
Process Safety Events (Tier 1 and 2): As per the American Petroleum Industry's recommended Practice API RP 754		

The reporting boundary for the above topics includes 141 operating sites across 33 countries. A remote verification (via web-based video conference calls) was conducted in January, February, and March 2023. The assurance encompassed IDPI Karnal in India; Glanzstoff Bohemia (Fibers) - Czech Republic; PHP Fibers Mobility - Germany, IVC - Turkey, IVOL Lake Charles - USA; and Indorama Ventures Polímeros S.A. (IVPSA) PET - Brazil. The assurance activities were done together with a desk review for all other IVL sites within the reporting boundary.

Our Responsibility

TUVI's responsibility as per the assurance engagement is to perform independent assurance and to express a conclusion based on the work performed. We conducted our engagement in reference to the AA1000 Assurance Standard v3 for identified non-financial ESG indicators. Our engagement did not include an assessment of the adequacy or effectiveness of IVL's strategy or management of sustainability-related issues or the sufficiency of the Report against the principles of IIRC Integrated Reporting (<IR>), GRI Standards, and AA1000 Assurance Standard v3, other than those mentioned in the scope of the assurance. The data is verified on a sample basis, the responsibility for the authenticity of data lies with the reporting organisation. The reporting organisation is responsible for archiving the related data for a reasonable period of time. TUV does not take any liability or co-responsibility 1) for any damages in the case of erroneous data reported. 2) for any decision a person or entity would make based on this assurance statement. This assurance engagement is based on the assumption that the data and information provided to TUVI by IVL are complete and true.

Verification Methodology

TUVI adopted a risk-based approach, focusing on verification efforts on issues of high material relevance to IVL business and its stakeholders. TUVI has verified the statements and claims made in the Report and assessed the robustness of the underlying data management system, information flows, and controls. In doing so,

- i. TUVI reviewed the approach adopted by IVL for the stakeholder engagement and materiality determination process (double materiality test).
- ii. TUVI verified the disclosures and claims made in the Report and assessed the robustness of the data management system, information flow, and controls;
- iii. TUVI examined and reviewed the documents, data, and other information made available by IVL for the reported disclosures, including the disclosure on management approach and performance disclosures;
- iv. TUVI conducted interviews with key representatives, including data owners and decision-makers from different functions of the IVL, during the remote assessments;
- v. TUVI performed sample-based reviews of the mechanisms for implementing the ESG related policies, as described in the IVL Report;
- vi. TUVI verified sample-based checks of the processes for generating, gathering, and managing the quantitative data and qualitative information included in the Report for the reporting period.

The Report was evaluated against the following criteria: adherence to the principles of stakeholder inclusiveness, materiality, responsiveness, completeness, neutrality, relevance, sustainability context, accuracy, reliability, comparability, clarity, and timeliness, as prescribed in the "<IR> Framework", GRI Standards, and AA1000AS v.3 along with AA1000 AP (2018).

Opportunities for Improvement

The following are the opportunities for improvement reported to IVL. However, they are generally consistent with management's objectives and programmes.

- 1) IVL can strengthen the interlinking of SAP data with ESG data to capture the disclosure in GRI 301-1 for 'associated process materials'
- 2) IVL may install the water intake totalizer meter and discharge meter at a few residual sites identified during the audit process.
- 3) IVL may apply the principles of ISO 20400:2017 Sustainable Procurement Guidance.
- 4) IVL is already taking continual measures for water saving, in addition to its existing water saving programme, IVL may opt for the principles and requirements of ISO 46001:2019, – Water Efficiency Management Standard, typically where water intensive processes exist.
- 5) IVL can accelerate the water positive index initiative, zero liquid discharge, Net Zero initiatives;
- 6) IVL may develop the LCA baseline study of a major range of products and implement the circular economy principles with interim and long-term targets to reduce the impact on the environment.



Our Conclusion

In our opinion, based on the scope of this assurance engagement, the ESG disclosures and reference information provide a fair representation of the material topics and meet the general content and quality requirements of the applied standards.

IVL appropriately discloses the KPIs and actions that focus on the creation of value over the short, medium, and long term. The selected KPIs disclosed by IVL are fairly represented. TUVI did not perform any assurance procedures on the prospective information, such as targets, expectations, and ambitions, disclosed in the Report. Consequently, TUVI draws no conclusion from the prospective information. This assurance statement has been prepared in reference to the terms of our engagement.

Disclosures: TUVI is of the opinion that the reported disclosures generally meet the GRI Standards reporting requirements. IVL refers to universal disclosure to Report contextual information about IVL, while the 'Management Approach' is discussed to Report the management approach for each material topic.

Universal Standard: IVL followed GRI 1 Foundation 2021: Requirements and Principles for using the GRI Standards; GRI 2: General Disclosures 2021: Disclosures about the reporting organization. General Disclosures were followed when reporting information about an organisation's profile, strategy, ethics and integrity, governance, stakeholder engagement practices, and reporting process. and GRI 3: Material Topics 2021: Disclosures and guidance about the organization's material topics. GRI3 was selected for management's approach to reporting information about how an organisation manages a material topic.

TUVI is of the opinion that this report has been prepared in reference to the GRI Standards and <IR> framework.

Topic-Specific Standards: 300 series (environmental topics), and 400 series (social topics); these topic-specific standards were used to Report information on the organisation's impacts related to environmental and social topics. TUVI is of the opinion that the reported material topics and topic-specific standards that IVL used to prepare its Report are appropriately identified and addressed.

Assurance Conclusion: Based on the procedures we have performed; nothing has come to our attention that causes us to believe that the information subject to the limited assurance engagement was not prepared in all material respects. TUVI found the ESG information to be reliable in all respects, with regards to the reporting criteria of the GRI Standards and <IR> framework.

TUV Nord Cert GmbH has verified the information on GHG Scope 1 and 2 emissions in reference to the GHG Protocol, ISO 14064-1, and ISO 14064-3 to ascertain the GHG reporting process in line with standards.

TUVI confirms that IVL has transparently reported major material information pertaining to all its six capitals in line with the <IR> framework, as below

Financial Capital: net worth, capex, investment spent, the economic value generated, gross revenue, etc.

Manufactured Capital: Manufacturing facilities, R & D centers, number of new products launched, new plants, buildings, infrastructure, etc.

Intellectual Capital: Knowledge-based intangibles, including intellectual property, R & D activities, patents, designs registered new product development, etc.

Human Capital: IVL's Engineers, technicians, skilling and re-skilling of employees to enhance their competencies, safety performance, capabilities, experience, motivations to innovate, etc.

Social and Relationship Capital: IVL's relationship with stakeholders such as customers, business partners, regulators, suppliers, business partners, communities, legislators, policy-makers, and benefits associated with brand and reputation, along with IVL's ability to share information to enhance wellbeing.

Natural Capital: Sourcing responsibilities for the majority of renewable and non-renewable environmental resources and processes that provide goods or services. Reporting of circular economy, emissions, water consumption, waste disposal, etc.

Evaluation of the adherence to AA1000 AccountAbility Principles along with other contemporary Principles

Stakeholder Inclusiveness: Stakeholder identification and engagement is carried out by IVL on a periodic basis to bring out key stakeholder concerns as material topics of significant stakeholders. In our view, the Report meets the requirements.

Sustainability Context: IVL established the relationship between ESG and organizational strategy within the Report, as well as the context in which disclosures are made. In our view, the Report meets the requirements with regards to the sustainability Context.

Materiality: The materiality assessment process (double materiality Test) has been carried out based on the requirements of the GRI Standards, considering topics that are internal and external to the IVL range of businesses. The Report fairly brings out the aspects, topics, and their respective boundaries of the diverse operations of IVL. In our view, the Report meets the requirements.

Responsiveness: TUVI believes that the responses to the material aspects (identified through the Double Materiality Test) are fairly articulated in the report, i.e., disclosures on IVL policies and management systems, including governance. In our view, the Report meets the requirements.

Impact: IVL communicates its sustainability performance through regular, transparent internal and external reporting throughout the year, aligned with GRI, IIRC Integrated Reporting (<IR>), TCFD and CDP as part of its policy framework encompassing environmental, social, ethical, and other policies. IVL reports on sustainability performance to the Board of Directors, who oversees and monitors the implementation and performance of objectives, as well as progress against goals and targets for addressing sustainability-related issues.

Completeness: The Report has fairly disclosed the selected non-financial KPIs, as per GRI Standards. In our view, the Report meets the requirements.

Reporting Principles for defining report quality: The majority of the data and information were verified by TUVI's assurance team during the remote assessment and found to be fairly accurate. The disclosures related to ESG issues and performances are reported in a balanced manner and are clear in terms of content and presentation. In our view, the Report meets the requirements.

Reliability: The majority of the data and information were verified by TUVI's assurance team and found to be fairly accurate. Some inaccuracies in the data identified during the verification process were found to be attributable to transcription, interpretation, and aggregation errors, and these errors have been corrected. Therefore, in reference to the GRI Standards and <IR> framework, TUVI concludes that the ESG data and information presented in the Report are fairly reliable and acceptable. In our view, the Report meets the requirements.

Neutrality: The disclosures related to ESG issues and performance are reported in a neutral tone, in terms of content and presentation. In our view, the Report meets the requirements.

Our Assurance Team and Independence

TUVI is an independent, neutral third party providing sustainability services with qualified environmental and social specialists. TUVI states its independence and impartiality and confirms that there is "no conflict of interest" with regard to this assurance engagement. In the reporting year, TUVI did not work with IVL on any engagement that could compromise the independence or impartiality of our findings, conclusions, and recommendations. TUVI was not involved in the preparation of any content or data included in the report, with the exception of this assurance statement. TUVI maintains complete impartiality towards any individuals interviewed during the assurance engagement.

For and on behalf of TUV India Private Limited

Manojkumar Borekar
Project Manager and Reviewer
Head – Sustainability Assurance Service



Date: 28-03-2023
Place: Mumbai, India
Project Reference No: 8120813961
www.tuv-nord.com/in



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Licensed Assurance Provider
000-138



ABOUT THIS REPORT



MANAGEMENT RESPONSIBILITY STATEMENT

The Sustainability Report 2022 is a part of IVL's continual commitment to meeting Environmental, Social, and Governance (ESG) standards. It presents IVL's all-encompassing approach to value creation, taking into account tangible and intangible, as well as financial and non-financial aspects of the business. This includes stakeholder identification, identifying critical matters, and the International Integrated Reporting (IR) Framework. In accordance with the 2021 GRI Sustainability Reporting Standards, we present our sustainability efforts and their interlinkages with our financial performance in this report, to assess our performance as a sustainable chemical company within the reporting scope.

The Chief Sustainability Officer (CSO) is responsible for the preparation of our annual Sustainability Report, guided by the GRI Reporting Principles in defining topics, content, and quality. Supplementary information is provided in the appropriate sections through links. In this report, "us," "our," "the Company," or "IVL" refer to Indorama Ventures.

OUR APPROACH

For more than 10 years, we have been publishing our Sustainability Report as one of our many channels to proactively communicate to our stakeholders regarding our sustainability-related initiatives, accomplishments, and future plans.

The Sustainability Report 2022 is produced in accordance with the GRI Standards and with close reference to other global standards such as the International Integrated Reporting (IR) Framework, UN SDGs, UNGC principles, and AA1000 Assurance Standard. This report also serves as a Communication on Progress report on IVL's implementation of the ten principles in the UNGC's main pillars of human rights, labor, the environment, and anti-corruption.

Through our commitment in annual sustainability reporting consistent with these frameworks, we offer readers the accessibility to our sustainability performance over the years and sectors, in relation to similar global organizations. The information and statements provided in this report have also been verified by independent auditors.

SCOPE AND BOUNDARY OF REPORTING

The <IR> Framework mandates that we provide an overview of our organization, governance approach, business model, performance, risks, opportunities, future outlook, and material information to our business and stakeholders. Furthermore, this report covers topics that may impact our value creation in the short, medium, and long term, which are discussed and tested with our diverse stakeholder groups, and disclosed within our reporting boundary.

In this report, we provide consolidated data for entities where IVL holds more than 50% ownership and for joint ventures where we have management control. Data from entities in which we have minority ownership or no management control were excluded. Our quantitative environmental data is collected through meter readings, production system outputs, detailed accounting models, and estimations with specific ground rules, where necessary.

We disclose consolidated information from 141 operational sites, including global operations, subsidiaries, and factories located in 35 countries (exceptions are noted below for excluded entities). The data covers activities between January 1, 2022, and December 31, 2022, with newly acquired entities reported upon their acquisition dates. In certain cases, we also consider significant global events that occurred after December 31, 2022. Additional information on our reporting boundaries is available in the GRI Content Index on our website. Previous Sustainability Reports from IVL are accessible here.

REPORTING PRINCIPLES

Value Creation

As a globally integrated company, it is our responsibility to create value. Hence, we prioritize robust governance, and have a clear purpose and a well-defined strategy that enables us to transform capitals into valuable outcomes and outputs for our diverse stakeholder groups. In IVL, the value creation process connects the top management decision-making to performance targets and outcomes, providing us with insights into our operations and supply chains and enabling us to make strategic commitments that ensure our long-term success.

Report Content

This sustainability report corroborates our sustainability efforts and their measurable impact, which go beyond complying with external obligations. Ongoing and integrated information flows within and across IVL and our stakeholders are critical to the long-term success of the organization. By actively engaging with our stakeholders and addressing their concerns, we are able to create long-term value for them with our expertise, resources, and time.

Additionally, we benchmark our sustainability efforts against social, environmental, and economic issues and scenarios and adapt accordingly. This enables us to identify new innovations, growth and business opportunities, while integrating sustainability in our daily operations to maintain our competitive advantage.

IVL also performed a materiality assessment by taking into account the feedback received from our stakeholders to identify topics that could affect the company's long-term value in the economics, governance, environment, and social areas. The raised issues were compared to GRI topics, assigned relevant indicators, and reviewed by the Sustainability Team and the SRMC. The assessment led to the identification of 18 key material topics with enhanced performance indicators and targets to promote internal performance improvements. Further details are available on pg. 68-69 of the report and on our website.

Report Quality

IVL's position as a leading company in the chemicals industry motivates us to prioritize environmental, social, and economic growth equally in our sustainability framework. We believe that Integrated Reporting is the future of corporate reporting and is an essential part of our sustainability framework. Our Sustainability Report 2022 collates qualitative and quantitative information with close reference to <IR> guiding principles instead of specific indicators to highlight interdependencies within the organization and external environment, apply transparency in resource allocation, and demonstrate our commitment to sustainable value creation.

Furthermore, through reporting in accordance with GRI standards, we are able to communicate to our stakeholders in an accurate, balanced, clear, comparable, complete, timely and verifiable manner within the sustainability context. As an important part of our report's preparation, we consolidated feedback from our diverse stakeholder groups to identify the most significant material topics.

Sustainability Report Assurance and GHG Verification

Obtaining external verification helps to establish our credibility and enhances the transparency and integrity of our report. We engaged independent external auditors TUV India Private Limited to verify and assure that the information provided in our Sustainability Report 2022 is in accordance with the GRI Standards, <IR> Framework and the AA1000 Assurance Standard. The Independent Assurance Statement issued by TUV India Private Limited is available on pg. 194-197 of this report.



TUV Nord CERT GmbH is the independent external assurance auditor that verified the information on GHG Scope 1, 2 and 3 [for nine categories] emissions in compliance with the GHG Protocol, ISO 14064-1, and ISO 14064-3. Our senior leadership, including our Chief Technology Officer, Chief Sustainability Officer and Chief Executive Officer, review the final report prior to publication.

GREENHOUSE GAS (GHG) ACCOUNTING

We adhere to the Greenhouse Gas Protocol on Corporate Accounting and Reporting as outlined by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). Our GHG accounting was implemented systematically and consolidated throughout all of our global operations in accordance with these requirements.

DATA METHODOLOGY

Data Coverage

In 2022, we increased our data verification coverage from 112 sites to 141 sites. We provide data for our operations based on 100% ownership unless stated otherwise (e.g. for an 80% owned operation, we report 100% of the data).

The information presented in the report pertains to the Company, and the metric system and US\$ (dollars) are used to report data, unless otherwise stated.

There are inherent limitations in measuring and reporting non-financial information, which subject this information to an undetermined number of uncertainties. Measurement techniques and data selection criteria can vary between IVL and our subsidiaries. However, we remain steadfast in reporting the most comprehensive and accurate metrics within our capabilities.

Changes in size, structure, ownership, and developments

The list of entities acquired, incorporated and/or other developments is available in the 2022 Annual Report on pg. 20 and on our website under "investor-relations newsroom."

Exceptions

We curated the content for the 2022 Sustainability Report using environmental, safety, governance and human resources data derived from all entities including joint ventures in which we hold a minimum share of 50% and have management control. There is an exception where the environmental and safety information excludes the following:

- Joint ventures with a 50% or less shareholding and no management control
 - ES FiberVisions (Thailand) Co., Ltd., Thailand
 - ES FiberVisions (Suzhou) Co. Ltd., China
 - Shenma-PHP (Pingdingshan) Air Bag Yarn Manufacturing Co., Ltd., China
 - Corpus Christi Polymers LLC, the United States
 - Huvis Global Corporation, the United States

- Sales and corporate offices
- Human resources information other than human rights and employee engagement excludes the joint ventures with a 50% or less shareholding and no management control
- The information of the entities acquired, or operations commenced on or after July 1, 2022

FORWARD-LOOKING STATEMENTS

The Sustainability Report for 2022 incorporates 'forward-looking statements' with reference to the future performance of IVL, based on projections. These statements are intended to provide stakeholders insights into IVL's vision for long-term success. The forward-looking statements relay anticipated future outcomes using expressions including but not limited to 'aim,' 'believe,' 'estimate,' 'expect,' 'goal,' 'intend,' 'may,' 'plan,' 'target,' and 'will'.

By nature, these forward-looking statements are subject to risks and uncertainties such as changes in legal and regulatory frameworks, national fiscal complexities, and shifting trends in the industry and geographical markets. The complexity of these external conditions may affect IVL's ability to deliver our targets, and we undertake no obligation to update any forward-looking statements shall there be new information or future events.

Therefore, readers are asked to accept a degree of ambiguity inherent within forward-looking statements when assessing the information provided therein. Investors are cautioned not to place undue reliance on any such forward-looking statements, which speak only as of the date they are made. All forward-looking statements herein are qualified by reference to the cautionary statements set forth in this section.

FEEDBACK

We welcome your comments, thoughts and remarks. Please direct them to: sustainability@indorama.net

SUSTAINABILITY KEY FOCUS

ROAD TO NET ZERO CARBON

SECURING SUSTAINABLE FINANCING

BIODIVERSITY

A SOLUTION IN CIRCULAR FEEDSTOCKS

GENDER DIVERSITY, EQUITY, AND INCLUSION





3D °C	Three Dimensional Celsius	EMS	Environmental Management System	LCA	Life Cycle Assessment	RSPO	Roundtable on Sustainable Palm Oil
ACC	American Chemistry Council	EPA	Ethylene Oxide	LGBTI	Lesbian, Gay, Bisexual, Transgender, Intersex		
ADB	Asian Development Bank		U.S. Environmental Protection Agency	LLC	Limited Liability Company	S&P	Standard and Poor's
AFPM	American Fuel and Petrochemical Manufacturers	EPR	Extended Producer Responsibility	LMA	Loan Market Association	SAP	System Applications and Products in Data Processing
AI	Artificial Intelligence	EPS	Core Earnings Per Share	LNG	Liquefied Natural Gas	SBTI	Science Based Targets Initiative
API	American Petroleum Institute	ERM	Enterprise Risk Management	LPG	Liquefied Petroleum Gas	SBTs	Science Based Targets
APC	Advanced Process Control	ERP	Enterprise Resource Management	LSS	Lean Six Sigma	SCB	Siam Commercial Bank
APR	Association of Plastics Recyclers	ESG	Enterprise Resource Planning Environmental, Social and Governance	LTIFR	Lost Time Injury Frequency Rate	SDA	Chemicals Sectoral Decarbonization Approach
AR	Annual Report					SDS	Safety Data Sheet
ASEAN	The Association of Southeast Asian Nations	ETP	Effluent Treatment Plant	m³	Cubic Metre	SDGs	Sustainable Development Goals
		ETS	Emissions Trading Schemes	MFA	Multi-factor Authentication	SET	Stock Exchange of Thailand
		EU	European Union	mg/L	Milligrams Per Litre	SIN	Substitute It Now
BCM	Business Continuity Management	EU RED	European Renewable Energy Directive	ML	Machine Learning	SLBs	Sustainability-linked Bonds
BCP	Business Continuity Plan	EUR	The Euro	MSCI	Morgan Stanley Capital International	SLBP	Sustainability-Linked Bond Principles
BOD	Biochemical Oxygen Demand	EUROPEAN	The European Organization for Packaging and the Environment	MTBE	Methyl t-Butyl Ether	SLLP	Sustainability-Linked Loan Principles
		EVP	Employee Value Proposition	Mwe	Megawatt Electrical	SOP	Standard Operating Procedures
CAC	Coalition Against Corruption			MWh	Megawatt Hour	SO	Sulfur Oxide
CAPEX	Capital Expenditures	FDA	Food and Drug Administration	MWp	Megawatt Peak	SPTs	Sustainability Performance Targets
CARB	California Air Resources Board	FSSAI	Food Safety and Standards Authority of India	MS	Microsoft		
CBAM	Carbon Border Adjustment Mechanism	FSC	Forest Stewardship Council	NAPCOR	National Association for PET Container Resources	SR	Sustainability Report
CCUS	Carbon Capture Utilization and Storage	FTE	Full Time Equivalent	NARs	Non-accident Releases	SRMC	Sustainability and Risk Management Committee
CDP	Carbon Disclosure Project	FTSE4Good	Financial Times Stock Exchange-Russell Group	NCCG	Nomination, Compensation and Corporate Governance Committee	SROI	Social Return on Investment
CEO	Chief Executive Officer			NCI	Non-Controlling Interest	STCP	Short-Term Cybersecurity Plan
CG	Corporate Governance	GBS	Global Business Service	NDC	Naphthalene Dicarboxylate	STEM	Science, Technology, Engineering and Mathematics
CGPAC	Corporate Governance Policy Awareness Campaign	GCEO	Group Chief Executive Officer	NDCs	Nationally Determined Contributions	SVHC	Substance of Very High Concern
CHRO	Chief Human Resource Officer	GCNT	Global Compact Network Thailand	NGFW	Next-generation Firewalls		
CIO	Chief Information Officers	GDP	Gross Domestic Product	NO _x	Nitrogen Oxide	T&E	Testing & Exercising (T&E)
CIRFS	European Man-Made Fibres Association	GDPR	General Data Protection Regulation	NPS	Net Promoter Score	TBCSD	Thailand Business Council for Sustainable Development
CO ₂	Carbon Dioxide	GEE	Global Employee Engagement			TBA	t-butanol
COD	Chemical Oxygen Demand	GHG	Greenhouse Gas	OCS	Operation Clean Sweep	tCO ₂	Tonnes of Carbon Dioxide
CoE	Center of Excellence	GJ	Gigajoule	OHS	Occupational Health and Safety	tCO ₂ e	Tonnes of Carbon Dioxide Equivalent
COO	Chief Operating Officer	GMC	Global Management Conference	OHSAS	Occupational Health and Safety Assessment Series	TCFD	Task Force on Climate-Related Financial Disclosures
COMA	Contribution Margin			OPEX	Operating Expenditures	TEI	Thai Environment Institute
COP	Conference of the Parties	GMO	Genetically Modified Organism	OSINT	Open-source Intelligence	THB	Thai Baht
CoP	Communication on Progress	GPAP	Global Plastic Action Partnership	OSHA	Occupational Safety and Health Administration	THIS	Thailand Sustainability Investment
COSO	Committee of Sponsoring Organizations of the Treadway Commission	GRI	Global Reporting Initiative			TNFD	Task Force on Nature-Related Financial Disclosures
COVID-19	Coronavirus Disease of 2019			PCL	Public Company Limited		
CPET	Combined PET	HDPE	High Density Polyethylene	PCR	Post-consumer Recycled	TRIR	Total Recordable Injury Rate
CPME	The Committee of PET Manufactures in Europe	HR	Human Resources	PCRC	Product Compliance Risk Characterization	TRIS	Thai Rating and Information Services
CRM	Customer Relationship Management	HRBP	Human Resources Business Partners	PDPA	Personal Data Protection Act		
CRR	Customer Retention Rate	HVA	High Value-Added	PE	Polyethylene	UN	United Nations
CSI	Customer Satisfaction Index			PET	Polyethylene Terephthalate	UNGC	United Nations Global Compact
CSO	Chief Sustainability Officer	I2P2	Injury and Illness Prevention Program	PETCORE	PET Container Recycling Europe	UNGC COP	UNGC Communication on Progress
CSR	Corporate Social Responsibility	ICMA	International Capital Markets Association	PETRA	PET Resin Association		
CSV	Creating Shared Value			PHAS	Process Hazard Analysis	UNPRB	United Nations Principles for Responsible Banking
CTO	Chief Technical Officer	IFC	International Finance Corporation	PIA	Purified Isophthalic Acid		
CyBA	Cybersecurity Behavioral Assessment	IIRC	International Integrated Reporting Council	PLA	Polylactic Acid	UN PRI	United Nations Principles for Responsible Investment
		ILO	International Labour Organization	PLN	Perusahaan Listrik Negara		
DEG	Deutsche Investitions-und Entwicklungsgesellschaft			PND A	Purified 2, 6-Naphthalene Dicarboxylic acid	US	United States
DEI	Diversity, Equity, and Inclusion	ILO	International Labour Organization	PO	Propylene Oxide	USD	United States Dollar
DJSI	Dow Jones Sustainability Indices	IMC	Indorama Management Council	POY	Partially Oriented Yarn	US\$	US Dollar
		IOD	Integrated Oxides and Derivatives	PP	Polypropylene		
DOT	Department of Transportation			PPE	Personal Protective Equipment	VAPT	Vulnerability Assessment and Penetration Testing
DRP	Disaster Recovery Plan	IPA	Isophthalic Acid	PR	Public Relations	VOC	Volatile Organic Compound
		IPET	Integrated PET	PRE	Plastics Recyclers Europe	VPPA	Virtual Power Purchase Agreement
EAG	Educator Advisory Group	IR	Integrated Reporting	PSM	Process Safety Management		
EAG	Expert Advisory Group	ISCC	International Sustainability & Carbon Certification	PSA	Portfolio Sustainability Assessment		
EAP	Employee Assistance Program			PTA	Purified Terephthalic Acid	WBCSD	World Business Council for Sustainable Development
EBITDA	Earnings Before Interest, Taxes, Depreciation, and Amortization	ISO	International Organization for Standardization	PX	Paraxylene	WEEC	Wetlands Edge Environment Center
EBM	Extrusion Blow Molding	IT	Information Technology	R&D	Research and Development	WEF	World Economic Forum
ECHA	European Chemicals Agency	IVEX	Indorama Ventures Excellence	RE	Renewable Energy	WEP	Women's Empowerment Principles
EDANA	European Disposables and Nonwovens Association	IVIH	Indorama Ventures Investments & Holding	REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals	WHC	Wildlife Habitat Council
EDR	Endpoint Detection and Response	IVL	Indorama Ventures Public Company Limited			WHRA	Workplace Human Rights Assessment
EG	Ethylene Glycol	JTETC	Japan Textile Evaluation Technology Council	RECOUP	Recycling of Used Plastics Limited	WPO	Workplace Options
EFSA	European Food Safety Authority			RLP	Risk Leadership Programs	WRAP	Waste and Resources Action Programme
EHS	Environment, Health, and Safety	Kg	Kilogram	RMC	Risk Management Council		
		KPI	Key Performance Indicator	RNG	Renewable Natural Gas	WRI	World Resources Institute
EIA	Environmental Impact Assessment	kt	Kilo tonnes	ROCE	Return on Capital Employed	WWF	World Wide Fund for Nature
EMEA	Europe, Middle East, and Africa	KWp	Kilowatt Peak	rPET	Recycled Polyethylene Terephthalate	ZWTLF	Zero Waste to Landfill

For More
Information



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INDORAMA VENTURES PUBLIC COMPANY LIMITED

75/102 Ocean Tower 2, 37th Floor, Soi Sukhumvit 19 (Wattana),
Asoke Road, Klongtoey Nua, Wattana, Bangkok 10110, Thailand



For More
Information

+66 2 661 6661

+66 2 661 6664-5

E-mail: sustainability@indorama.net

www.indoramaventures.com



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