



Sustainability - Possible through Action

SUSTAINABILITY REPORT 2023





KEY SUSTAINABILITY RECOGNITIONS AND AWARDS IN 2023



Member of Dow Jones Sustainability Indices

Powered by the S&P Global CSA

Listed in **DJSI World and Emerging Markets**
for the **5th and 7th** consecutive year respectively
in the Chemicals sector. Indorama Ventures was
ranked in the 92nd percentile

Indorama Ventures Public Company Limited
Chemicals

Sustainability Yearbook Member

S&P Global Corporate Sustainability
Assessment (CSA) Score 2023

S&P Global CSA Score 2023: 73/100
Score date: February 7, 2024
The S&P Global Corporate Sustainability Assessment (CSA) Score is the S&P
Global ESG Score without the inclusion of any modelling approaches.
Position and scores are industry specific and reflect exclusion screening criteria.
Learn more at <https://www.spglobal.com/esg/csa/yearbook/methodology/>

S&P Global

Sustainable 1



Achieved a **B rating**
in the CDP's Climate Change,
and Water Security



Achieved a **B- ranking, Rank #2**
in the 2023 ChemScore assessment,
among 50 global chemical companies



Achieved an **AA rating**
for the first time in 2024
(improved from A Ratings in 2023)



Achieved an **ESG rating in the**
12th percentile in the Chemical Industry Sector
(lower percentile indicates better performance)
among 563 companies



Achieved a **total score of 80**
with an **AA grade**, surpassing the
"Industrials" group's average score
of 67 for companies with a market cap
beyond THB 100 Billion



**Sustainability
Disclosure Award 2023**
for the **5th consecutive year**



Achieved **99th percentile**
among assessed basic chemical companies



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



Winner of the 'Best Environmental
Corporate Approach Award' and recipient
of the 'Appreciation Award' Thai Investors
in the Netherlands from the Netherlands
Chamber of Commerce (NTCC)



Received AMCHAM's Corporate Social Impact
award at the **Silver Recognition level**
and **Best-In-Class award**
from the American Chamber
of Commerce in Thailand



TABLE OF CONTENTS

2	Key Sustainability Recognitions and Awards in 2023
6	Deputy Group CEO and Group Chief Financial Officer Message
8	Chairman of ESG Council Message
10	Chief Sustainability Officer Message
12	Performance in Our Sustainability Ambitions
14	Indorama Ventures' Key ESG Highlights 2023

Chapter 1 WHO WE ARE

20	Business and Value Chain Overview
20	Indorama Ventures at a Glance
22	Location of Our Operations
24	Strategic Business Segments
28	Indovinya
30	Combined PET
32	Fibers
34	Thought Leadership in Action
35	Sharing Insights on Our Sustainability Culture
36	Showcasing Sustainable Innovations and Commitments
37	Sharing Sustainable Solutions at the Climate Change Conference 2023
39	Major Industry Associations, Memberships and Collaborations

Chapter 2 VALUE CREATION

42	Our Approach to Sustainability
42	Our Sustainability Strategy
43	Our Contributions to the UN SDGs
45	Elevating Our Impact via Sustainability Enablers
52	Our Value Creation Model
52	Sustainable Value Creation
54	Strategic Trade-Offs
57	Sustainability-Related Risk Mitigation Plan
58	Actions for Sustainability
59	Making Strides Towards a Sustainable Future

Chapter 3 OUR MATERIALITY

62	Materiality Assessment Approach
63	Materiality Assessment Outcomes

Chapter 4 BRIDGING INNOVATION & CIRCULARITY

66	Our Innovative and Sustainable Products
67	Our Sustainable Impacts Through Innovation
69	Open Innovation
69	Safe and Sustainable Products
69	Product Stewardship
71	Assessing the Product Life Cycle
71	Minimizing Hazardous Chemicals and Substances
71	Ensuring Product Safety
74	Overview of Circulatory Across Our Value Chain
75	PET Bottle Recycling and Plastic Waste Management
78	Advocacy at Indorama Ventures
79	Industry Collaborations and Partnerships in 2023
80	Customer-Centric Approach to Sustainability

Chapter 5 ENVIRONMENTAL PERFORMANCE

86	Driving Decarbonization for Sustainable Future
86	Decarbonization Strategies
89	Climate Strategy
90	Decarbonization in Own Operations
90	Energy Management
91	Renewable Energy and Electricity
94	GHG (Scope 1 & 2) Management
96	Decarbonization in the Supply Chain
96	GHG (Scope 3) Management
97	Sustainable Supply Chain Management Program
98	Ensuring Environmental Stewardship
98	Environmental Commitments and Governance
99	Environmental Management System (EMS)
100	Water Management
102	Waste Management
104	NO _x , SO _x , and VOCs Emissions
106	Biodiversity

Chapter 6 SOCIAL IMPACT

110	Empowering Our People
110	Human Resources Management
118	Human Capital Development
126	Performance Management and Recognitions
129	Health and Safety
130	Occupational Health and Safety Performance
132	EHS Management and Compliance System
134	Employee Participation in Health and Safety
135	Human Rights
135	Human Rights Commitment
137	Our Processes for Monitoring Human Rights Performance
138	Human Rights in the Supply Chain
139	Supply Chain Management
139	Responsibility in Our Supply Chain
141	Supplier ESG Assessment and Compliance Management
144	Continued Commitment to Responsible Supply Chains
146	Community Engagement
146	Giving Back to Our Communities
151	Circular Economy Education
154	Empowering Young People Through Thailand Recycling Education
155	Social Return on Investment (SROI)

Chapter 7 ROBUST GOVERNANCE

158	Visionary Leadership
158	Our Board of Directors
158	Board Expertise and Industry Experience
158	Sustainability Governance
158	Incentivizing Performance
159	Embedding Responsible Business Practices
159	Our Approach to Corporate Governance and Responsible Business Practices
161	Employee Training to Ensure Responsible Business Practices
162	Anti-corruption
163	Whistleblowing
165	Acting with Transparency
165	Political Activities and Contributions
166	Sound Risk Management
166	Internal Risk Management Processes
167	Risk Management Enhancement through Robust Auditing
167	Embedding Our Risk Culture
168	Emerging Risks
173	Cybersecurity Management
173	Cybersecurity Governance
175	Cybersecurity Training and Culture
176	Incident Response

Chapter 8 APPENDICES

180	Global ESG Performance Data
194	About this Report
198	Independent Assurance Statement
202	GHG Scope 1, 2, and 3 Audit Certificate



DEPUTY GROUP CEO AND GROUP CHIEF FINANCIAL OFFICER MESSAGE

[GRI 2-22]



Business strategic imperative requires ESG action and commitment to turn our vision and purpose into values and impacts that can make a difference.

DILIP KUMAR AGARWAL

- Deputy Group CEO and Group Chief Financial Officer
- Member of the Sustainability and Risk Management Committee

What are your overall thoughts on Indorama Ventures' operational performance from 2023?

In 2023 we continued to strengthen our core businesses, expand our value-added portfolio, and enhance our operational excellence. Through our past acquisitions and greenfield projects, we have unmatched market reach and offer diversified products to our customers. Our integrated portfolio spans a diverse geographical footprint, coupled with our people's diligence and resilience. We are proud to be a part of the solution for a more sustainable future by producing essential materials that are used in everyday products, such as food and beverage packaging, personal hygiene products, medical supplies, automotive parts, textiles, and many more.

In 2023, our business faced significant macroeconomic and geopolitical challenges, resulting in a 53% decline in full-year EBITDA to \$1.12 billion from its peak of the year before. These headwinds were characterized by conflicts in Ukraine and the Middle East, customer destocking, rising inflation, higher interest rates, and dampened global growth. We also faced margin and volume pressure from new supply in China and the U.S., especially as China's recovery from the pandemic lagged other markets. Increased imports from Asia weighed on our higher-cost operations in Western markets.

Despite the challenging market conditions, we maintained our strong credit rating of AA- by TRIS. We also expanded our share of sustainability-linked to harmonize our financing strategy with our sustainability and circularity goals.

As the year progressed, we saw that the global chemicals industry was facing significant structural shifts that required a renewed approach to our long-term sustainable growth path. We recognized that what worked for us in the past will not work going forward, and we had to evolve our strategy to adjust to the new market environment. In the second half of the year, we developed a new plan that utilized our distinctive global integration competencies, which we have built over 30 years. Our Indorama Ventures 2.0 strategy, which we announced in March 2024, is a significant transformation of our business approach, signaling a new era of sustainable growth for our company.

In this ever-evolving landscape, how do you see Indorama Ventures navigating its path forward?

The chemical industry is facing unprecedented challenges and opportunities regarding global environmental and social issues, such as climate change, resource scarcity, human health, and the circular economy. The impact of climate change, for example, underscores the need for a low-carbon, circular, and bio-based economy – and we are responding by taking proactive measures.

Amid these challenges, we remain agile, and our primary concerns are the health, safety, and well-being of our employees, customers, and communities. At the same time, we are ensuring business continuity by delivering essential products and services that meet our customers' evolving needs and accelerating our efforts to reduce our environmental footprint.

Through continuous focus and investments in technologies and processes for producing recycled and bio-based PET, the development of our sustainable solutions like Deja™ recycled products, HVA resin modifiers, and Glanz™ PET films, are reducing our dependence on fossil-based feedstocks, driving circularity within our product portfolio and lowering product carbon footprint. Additionally, we are transitioning our operations towards renewable energy sources and supporting low-carbon solutions for customers and society.

Based on the World Economic Forum's (WEF) Global Risks Report 2023, which monitors the most severe short- and long-term global risks facing economies and societies, we are addressing our financial and regulatory impact by analyzing our carbon pricing, emission standards, environmental taxes, subsidies, and incentives.

Beyond adapting to shifts in consumer preferences and technological innovation to address some of the risks highlighted by the WEF, we are monitoring our legal and reputational impacts. We adhere to high standards of product stewardship and perform regular life cycle assessments to enhance our sustainability performance. To tackle sustainability challenges in the chemical industry, we are increasing our energy efficiency and use of renewable energy sources, enhancing water stewardship and waste management, and supporting low-carbon solutions.

How is Indorama Ventures shaping the next generation of leaders?

As a people-centric global sustainable chemical company, we recognize the critical importance of hiring and retaining talent, but also nurturing the next generation of leaders who will steer the future trajectory of growth and performance.

In addition to promoting a culture of innovation, collaboration, and diversity across our global operations, we have established an Innovation Center in Thailand to showcase research and product testing and enable an exchange of expertise. We have also established partnerships with universities, research institutes and industry associations to promote knowledge, best practices, and innovation that advances the circular economy.

As a leader in the chemical industry, what is Indorama Ventures focusing on to create a sustainable future?

To promote a sustainable future, we are leveraging our unmatched global footprint, diverse workforce, and innovation to deliver value for stakeholders. We are implementing circular practices throughout our operations, from the procurement of raw materials to end-of-life solutions. This approach involves minimizing waste to reduce our environmental impact.

We generate positive social outcomes by engaging with communities and through employee development programs. These initiatives have a positive impact on every area of our work and reinforce our position as a preferred partner for our customers, suppliers, investors, and communities.

Our sustainability strategy is the foundation of our decision-making process and ensures long-term value creation and business resilience. Its pillars include a low-carbon business model, circular economy principles, recycling regulations, stakeholder collaboration, future-needs modeling, and innovation.

We face several challenges in our pursuit of a sustainable future. To address the absence of a standardized global regulatory framework for plastics and recycling, we are advocating greater alignment and coordination between policymakers, regulators, and our industry to promote improved clarity and compliance.

Our partnerships, collaborations, and investments across the value chain are helping to make sustainable feedstocks and technologies more available and affordable by promoting innovation through a full understanding of technical, economic, and environmental hurdles as they arise.

Finally, we are addressing the increasing expectations of our stakeholders by implementing improved processes for data collection, reporting, and assurance. These efforts include enhancing our ESG management and communication systems, and aligning with global frameworks and standards, such as the International Sustainability Standards Board.



CHAIRMAN OF ESG COUNCIL MESSAGE

[GRI 2-22]



Amplifying our sustainability commitment and actions to seize the opportunities for greater success and resilience.

YASH LOHIA

- Chairman of the ESG Council
- Member of the Sustainability and Risk Management Committee

Can you elaborate on Indorama Ventures investments in ESG?

In alignment with our purpose of “Reimagining Chemistry Together to Create A Better World”, we are committed to reducing our greenhouse gas emissions and environmental footprint, while increasing the use of renewable energy and recycled materials.

One of our strategic priorities is to invest in ESG initiatives that enhance our long-term value creation and resilience, while addressing the environmental and social challenges faced by the chemical and plastic industries and society. Our ESG investment is directed towards three areas: decarbonization, innovation, and people development. In terms of decarbonization, Indorama Ventures has invested in renewable energy projects, such as solar, wind and biogas, to increase our self-generation capacity, minimize our dependence on fossil fuels, and lower our product carbon footprint. Furthermore, we are investing in low-carbon technologies, like carbon capture, utilization, and storage to reduce emissions from production processes and transportation.

A portion of the investment was subsequently assigned to key innovation initiatives, including research and development as well as strategic partnerships to formulate and commercialize new products and solutions that meet the growing demand for sustainability and circularity from customers and consumers. Additionally, investment in digital transformation and automation is improving operational efficiency, agility, and customer experience and engagement.

Finally, the investment intended for people development has been allocated to the areas of talent attraction, retention, and developing a future-ready organization that can thrive in a dynamic and competitive environment. The investment also accounts for diversity and inclusion, employee well-being and safety, and the community.

What have been some of the biggest drivers of change impacting Indorama Ventures' sustainability efforts in the past year?

The single biggest driver for Indorama Ventures has been the increasing appetite for circular products from our customers. Our global recycling footprint helps achieve a circular economy to address the mismanagement of PET plastic waste, offers products with a lower carbon footprint, and satisfies our customers.

What are the key sustainability enablers that have allowed Indorama Ventures to elevate its impact?

Towards progressing on our sustainability agenda, we leveraged our global footprint, diversified our portfolio, and established value-driven partnerships, while aligning our financial and sustainability strategies. This approach has allowed Indorama Ventures to access funding totaling more than \$ 2.4 billion through green and blue loans, sustainability-linked loans and bonds, revolving credit facilities, and ESG financing instruments. The funding has been used to support a range of programs including our environmental and social objectives, such as recycling and operational efficiency projects. Indorama Ventures has also leveraged our R&D capabilities and centers of excellence to develop new products and solutions that meet our customers' evolving sustainability, quality, and functionality needs.

None of this would be possible without developing our human capital to promote a culture of sustainability, diversity, equality, inclusion, learning, growth, performance, and accountability. We have invested in attracting and retaining our talented and diverse workforce, with initiatives centered on developing leaders, managing talent, and engaging with employees, as well as wellness and recognition. In addition, we have enhanced our governance and risk management processes and implemented policies to ensure a culture of compliance, ethics and integrity across our operations. We are continuously fostering a collaborative and agile work environment that empowers our employees to adapt, innovate, and thrive amid the uncertainties of an ever-changing business landscape.

What measures has Indorama Ventures taken to promote a circular economy?

We have invested in circular business models that optimize the use of resources, reduce waste and emissions, and enhance the value and lifespan of products, alongside increasing our recycled and renewable raw material sourcing, expanding our recycling capacity and capabilities, and developing innovative solutions for hard-to-recycle plastics. We are also investing in circular advocacy and education to raise awareness and promote best practices among our stakeholders, including the public.

We have also engaged with customers and partners across the value chain to design products that are easier to recycle, reuse or compost. This work delivers outstanding products with closed-loop systems that prioritize the highest quality and safety standards.

The development of Deja™, Indorama Ventures' global sustainable brand platform, underscores our dedication to promote a circular economy. Deja™ presents a diverse selection of top-notch and adaptable PET and rPET solutions tailored for diverse applications used in apparel, home textiles, automotive interiors, hygiene products, food and beverage, and other end-use products. The Deja™ brand highlights the lower environmental footprint associated with PET production and consumption, adds value for our customers, and contributes to a sustainable and responsible approach to serving end-use markets.

In the area of PET recycling education, Indorama Ventures has partnered with Yunus Thailand, an international non-profit foundation co-founded by 2006 Nobel Peace Prize Laureate Professor Muhammad Yunus, to launch a free education program called “Waste Hero: Reduce to Zero”. The free-to-use teaching resources are designed for K-12 and university-level students, and focused on three pillars: recycling fundamentals, creating zero waste, and building the circular economy. An Educational Advisory Group of teachers, academics, and zero-waste specialists from 17 countries guided the creation of 19 lesson plans and activity worksheets, with the aim to educate one million young people globally by 2030.



CHIEF SUSTAINABILITY OFFICER MESSAGE

[GRI 2-22]



Sustainability continued to be at the heart of Indorama Ventures' activities in 2023. Whether we were welcoming global customers to our Bangkok headquarters or presenting our sustainability journey at COP28 in Dubai, we held strong in our commitment to do things the right way.

What do you consider the most notable ESG achievements for Indorama Ventures over the last year?

As mentioned by my colleagues, we hit a major milestone in September 2023: 100 billion PET bottles recycled. The scale of the challenge demands that we move faster, and we are indeed active in several domains: expanding our mechanical recycling footprint, working with governments to demonstrate the safety and efficacy of decarbonized rPET, driving recycling education through our Waste Hero program and investing in innovation like chemical recycling. Recycling our first 50 billion PET bottles took almost a decade (2011-2020). Recycling our second 50 billion took three years (2020-2023).

Many of our other key achievements were internally focused, to build both culture and capabilities within Indorama Ventures. For example, my team and I worked even more closely with our business segments to ensure Indorama Ventures was in the best position to serve our customers' sustainability needs in terms of circularity, decarbonization, data and broader collaboration.

As an example of this greater integration, we delivered Sustainability Roundtables in Thailand, Indonesia, and India. These multi-day workshops succeeded in fostering greater understanding of our common decarbonization agenda with our manufacturing sites across Asia. They are culminating in our inaugural Sustainability Data Awards in 2024.

Value creation is a key driver for Indorama Ventures' sustainability leadership. It was an important part of our impact in 2023 as we recycled over 300,000 tons of post-consumer waste.

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

Another example was the launch of our new Sustainability Academy. Initially targeted at the most senior executives in our company, the Academy is now open to the full Indorama Ventures family while also having more learning modules added each year. Continuous learning needs to be at the center of every successful corporation and ESG must be an integral part of such learning.

Both of these initiatives are designed to build on Indorama Ventures' capabilities so that we can continue to be a key partner for our customers.

We also internalized Life Cycle Assessment (LCA) expertise in 2023. This was a big step, once again, in better serving our customers' requirements around product carbon footprints. The added collaboration with our segment colleagues had the corollary benefit of building even more internal awareness and culture around sustainability.

What plays a central role in Indorama Ventures' sustainability strategy?

At Indorama Ventures, sustainability drives both value protection and value creation. The latter is a key driver for Indorama Ventures and our stakeholders. As we look forward to 2024, we will create value through innovation and technology to further strengthen the circularity of our business. We will create value through an evolving roster of strategic partnerships. Additionally, we will continue to create value from sustainable products across all three segments of our business for our customers, our shareholders and our planet.

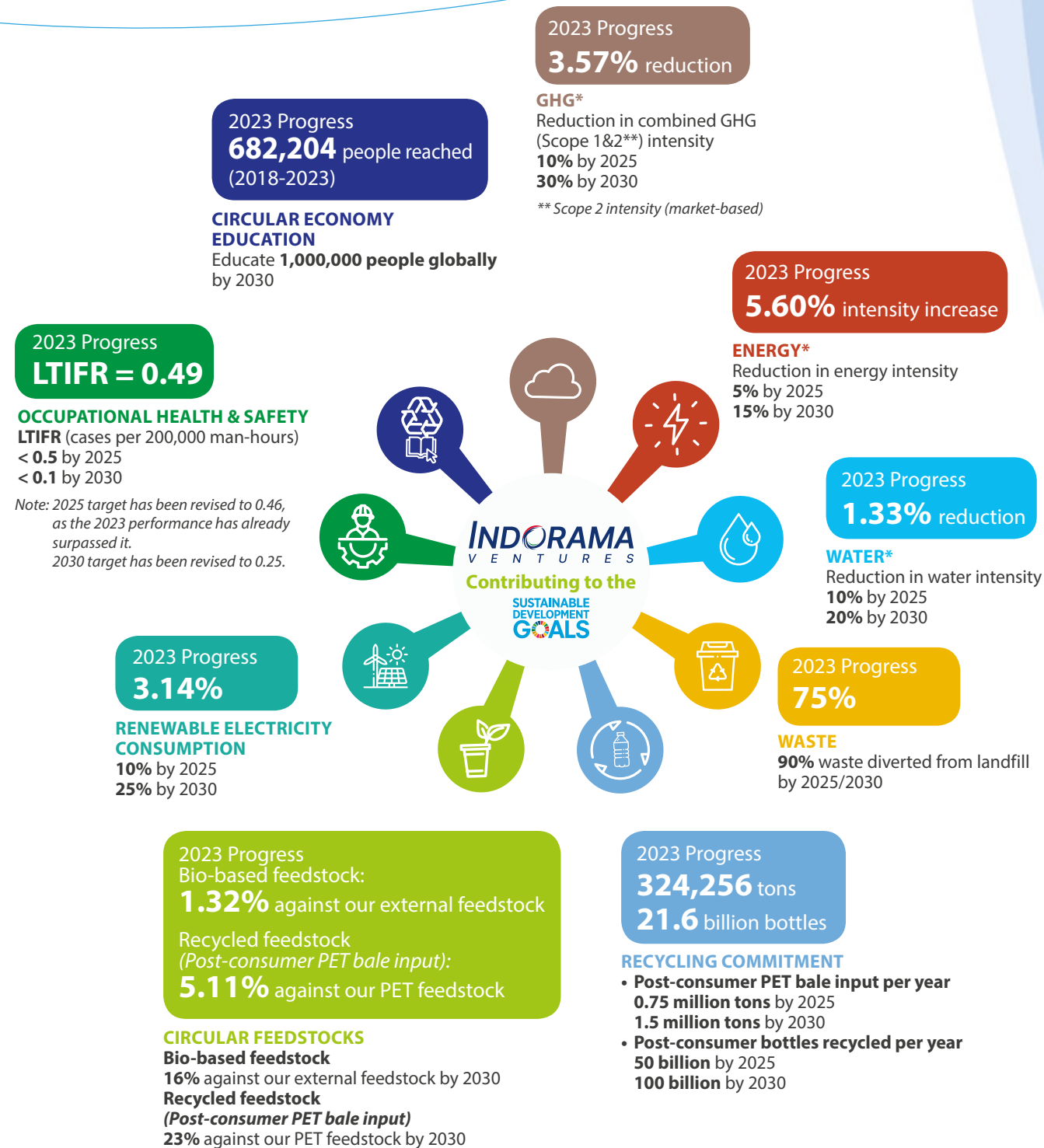
As Chief Sustainability Officer, what do you see as the primary challenges or opportunities that Indorama Ventures should focus on to further advance in its sustainability Journey?

Indorama Ventures indispensable chemistry is built on bonds. The bonds of monomers that make up the world's most circular polymer, PET. The bonds we have with our global customers that span across time (three decades) and space (six continents). The relationship bonds that make our unique Indorama Ventures culture. The technological bonds that build our innovation, the internal bonds that build our value creation, and the stakeholder bonds that build our partnerships.

This is all a part of what makes Indorama Ventures an employer of choice to over 26,000 global colleagues and an indispensable partner to some of the world's leading consumer brands.



PERFORMANCE IN OUR SUSTAINABILITY AMBITIONS



* Base year 2020

FOR MORE
INFORMATION



INDORAMA VENTURES' KEY ESG HIGHLIGHTS 2023

ENVIRONMENT



Total Energy Consumption

120.9 million GJ

Total Energy Intensity

7.54 GJ / ton of production

Total Renewable Energy Consumption

1.41 million GJ

Total Renewable Electricity Consumption

3.14%



Total Water Withdrawal Intensity

5.21 m³ / ton of production

Total Recycled / Reused Water

6.96%



GHG emissions

GHG Emissions (Scope 1) Intensity

0.4430 tCO₂e / ton of production

GHG Emissions (Scope 2) Intensity*

0.1482 tCO₂e / ton of production

GHG Emissions (Scope 1&2) Intensity*

0.5911 tCO₂e / ton of production

* Market-based



Hazardous Waste Intensity

0.0092 tons / ton of production

Waste Diverted from Landfill**

75%

** Including waste incinerated with energy recovery.

RECYCLING



Recycling of Post-Consumer PET Bale Input

324,256 tons

2,258,509 tons
(From 2011 - Dec 2023)

Equivalent to

21.6 billion PET bottles

109 billion PET bottles
(From 2011 - Dec 2023)

CIRCULAR FEEDSTOCKS



Bio-based Feedstock

1.32%
against our external feedstock



Recycled Feedstock (Post-consumer PET bale input)

5.11%
against our PET feedstock



SOCIAL



HUMAN RESOURCES

Total Employees*

29,056

Female

24.26%

Employee Net Promoter Score

75.85% (NPS)

Average Training

31.88 hours

Total Employee Turnover Rate

13.57%



HEALTH AND SAFETY

Total Recordable Injury Rate: TRIR

0.68

cases per 200,000 man-hours

Lost Time Injury Frequency Rate: LTIFR

0.49

cases per 200,000 man-hours



CORPORATE SOCIAL RESPONSIBILITY

Total CSR contribution

\$ **3.23** million

Total in-kind giving

\$ **327,693**

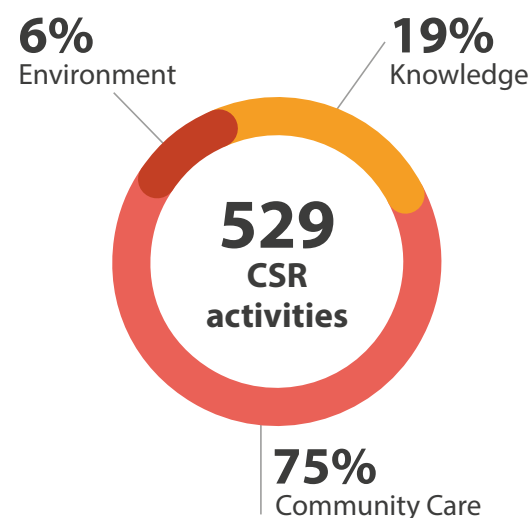
15,126

Volunteer hours

Circular Economy Education

437,465

people reached



ECONOMIC & GOVERNANCE



FINANCIAL HIGHLIGHTS

Total Production Volume

13.92 million tons

Consolidated Revenues

\$ **15.56** billion

Core EBITDA

\$ **1,284** million

Core Net Profit after Tax and NCI

\$ **67** million

Operating Cash Flow

\$ **1,526** million

Core Earnings per Share

THB **0.28**

AA-
Rating



CORPORATE GOVERNANCE POLICY AWARENESS CAMPAIGN (CGPAC) IMPLEMENTATION

88%

Employee attendance



HUMAN RIGHTS DECLARATION

100%

Signed by Business Heads
and Site Heads



CUSTOMER SATISFACTION STUDY*

Customer Satisfaction Index

84.82%

Customer Retention Rate (CRR)

78%

Net Promoter Score (NPS)

48

* This number combines permanent and temporary employees.

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



Chapter 1

WHO WE ARE

20 Business and Value Chain Overview

- 20 Indorama Ventures at a Glance
- 22 Location of Our Operations

24 Strategic Business Segments

- 28 Indovinya
- 30 Combined PET
- 32 Fibers

34 Thought Leadership in Action

- 35 Sharing Insights on Our Sustainability Culture
- 36 Showcasing Sustainable Innovations and Commitments
- 37 Sharing Sustainable Solutions at the Climate Change Conference 2023
- 39 Major Industry Associations, Memberships and Collaborations



BUSINESS AND VALUE CHAIN OVERVIEW

INDORAMA VENTURES AT A GLANCE

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

Indorama Ventures, founded in 1994, is a global chemical company and the world's largest PET producer and recycler. We have 149 operating sites, 20 recycling facilities, and 27 R&D centers across 35 countries on six continents. Our diverse portfolio includes three primary business segments — Indovina (formerly Integrated Oxides and Derivatives: IOD), Combined PET (CPET) and Fibers — each offering distinctive products tailored to meet the requirements of our customers.

As of 2023, our business employs 29,056 people worldwide (permanent and temporary), with a total production volume of 16 million tons and consolidated revenue of \$ 15.6 billion.

Our platform

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

29,056*
Total
Employees



24.26%
Female



148**
Sites

6
Continents

35
Countries

20
Recycling
facilities

27
R&D
centers

* This number includes permanent and temporary employees.
** The Sustainability Report 2023 consists of data from 149 sites.
Further details are provided in this report under "About this Report."

AT A GLANCE

Revenue
\$ 15.6 B

Core EBITDA
\$ 1.3 B

EBITDA Margin
8%

ROCE
4%

Americas

EMEA

Asia

51
Sites

5
Countries

50%
Revenue

41
Sites

20
Countries

22%
Revenue

56
Sites

10
Countries

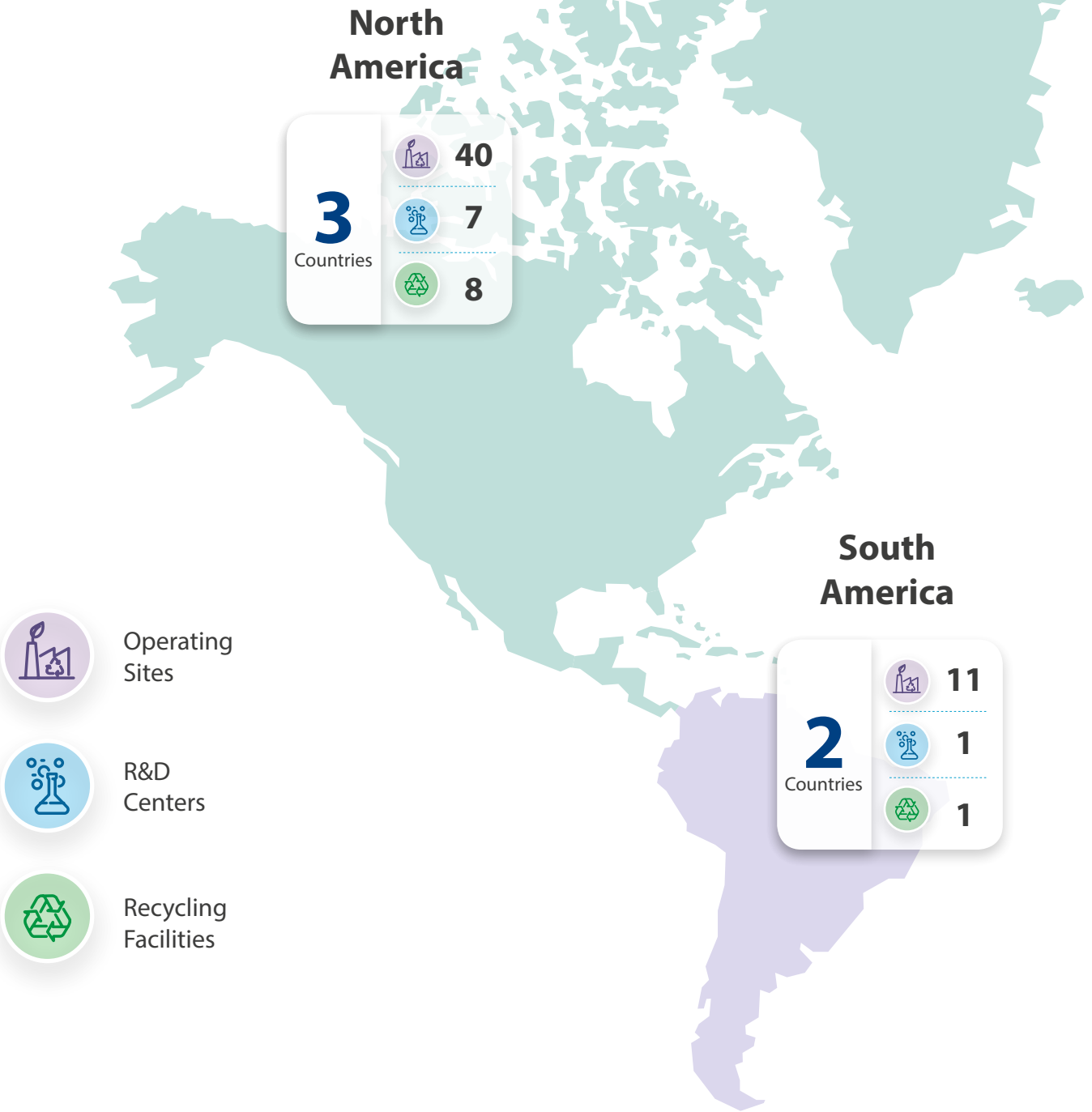
29%
Revenue

Note: Asia includes Egypt and EMEA includes Portugal

FOR MORE
INFORMATION

LOCATION OF OUR OPERATIONS

[GRI 2-1, 2-2]



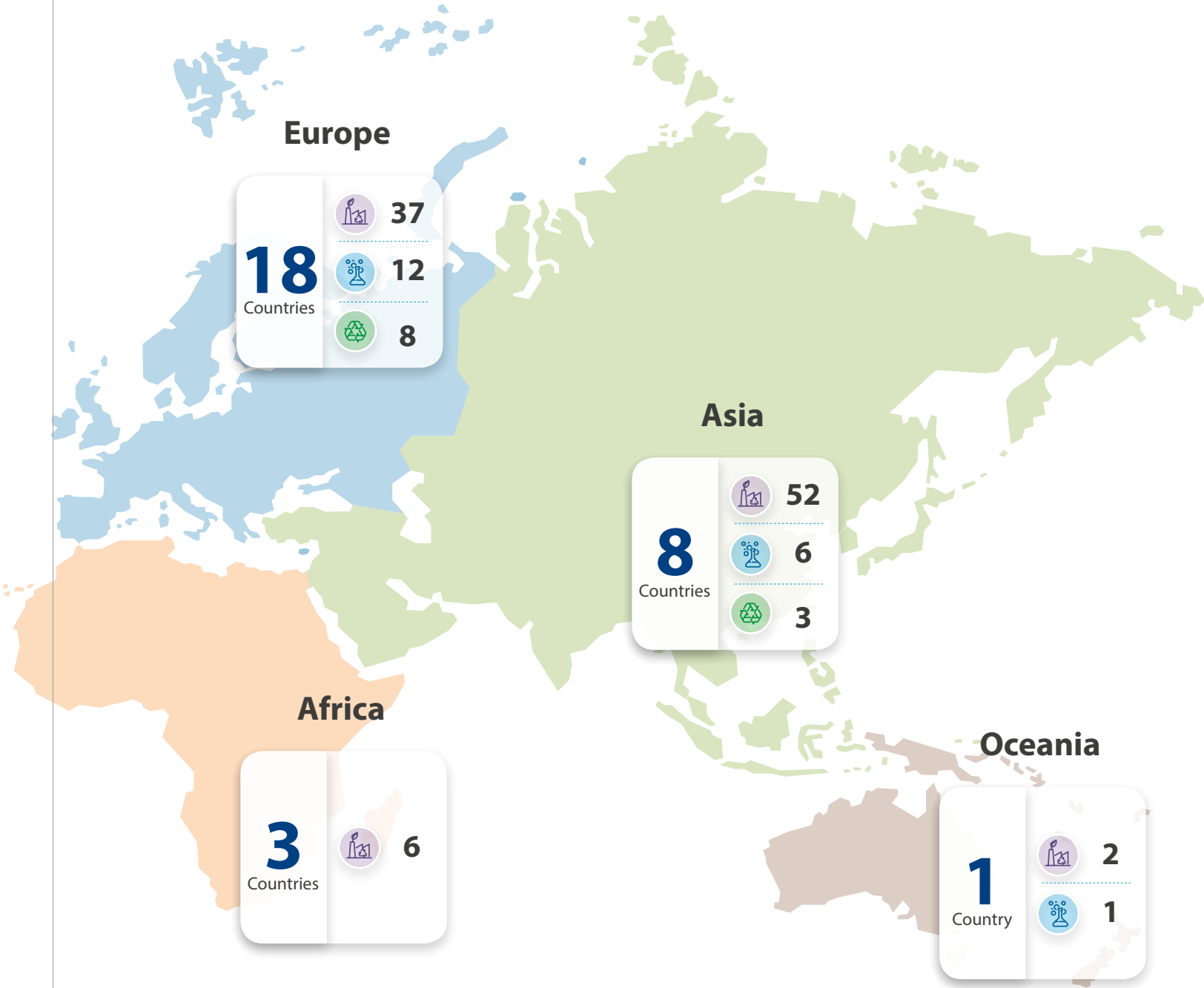
North America	
• Canada	
• Mexico	
• The United States	

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	 				



STRATEGIC BUSINESS SEGMENTS

[GRI 2-6, 3-3]



Indovinya (formerly Integrated Oxides and Derivatives: IOD)

Description

IndoVinya is pivotal to our chemical intermediates and surfactants value chain, serving various markets including Home and Personal Care, Agrochemicals and Coatings. Our strategy is now shifting towards specialized surfactants in the downstream segment, which play an important role in reducing energy and water consumption, while our agrochemicals boost crop yields and decrease the need for extensive land utilization. Additionally, we are transitioning to more bio-based and less harmful products.

Key End Markets

- Home & Personal Care
- Agrochemical
- Oil & Gas
- Coating



Combined PET*

Description

A core component of our polyester value chain, our combined PET business acts as the foundational material for diverse applications, such as beverage containers, food packaging, and household products. PET is vital in the shift towards a circular economy, and its adaptability is demonstrated through related sectors, like Specialty PET and Packaging.

Key End Markets

- Food & Beverage
- Consumer Goods
- Automotive
- Pharmaceutical
- Electrical & Electronics

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



Fibers

Description

Our fibers and yarns are utilized across numerous sectors, comprising Mobility, Lifestyle and Hygiene verticals. We are a top global supplier within the tire and automotive safety domains, known for our safety, comfort, and performance. Within the Lifestyle market, we are a dependable provider of top-quality fibers and yarns in key growth markets, blending style with functionality. Furthermore, as a trusted manufacturer in the hygiene market, we offer safety and comfort fibers and yarns for personal care and medical applications to millions of people globally.

Key End Markets

- Personal Care
- Medical
- Industrial
- Apparel
- Home Interior
- Tires
- Airbags

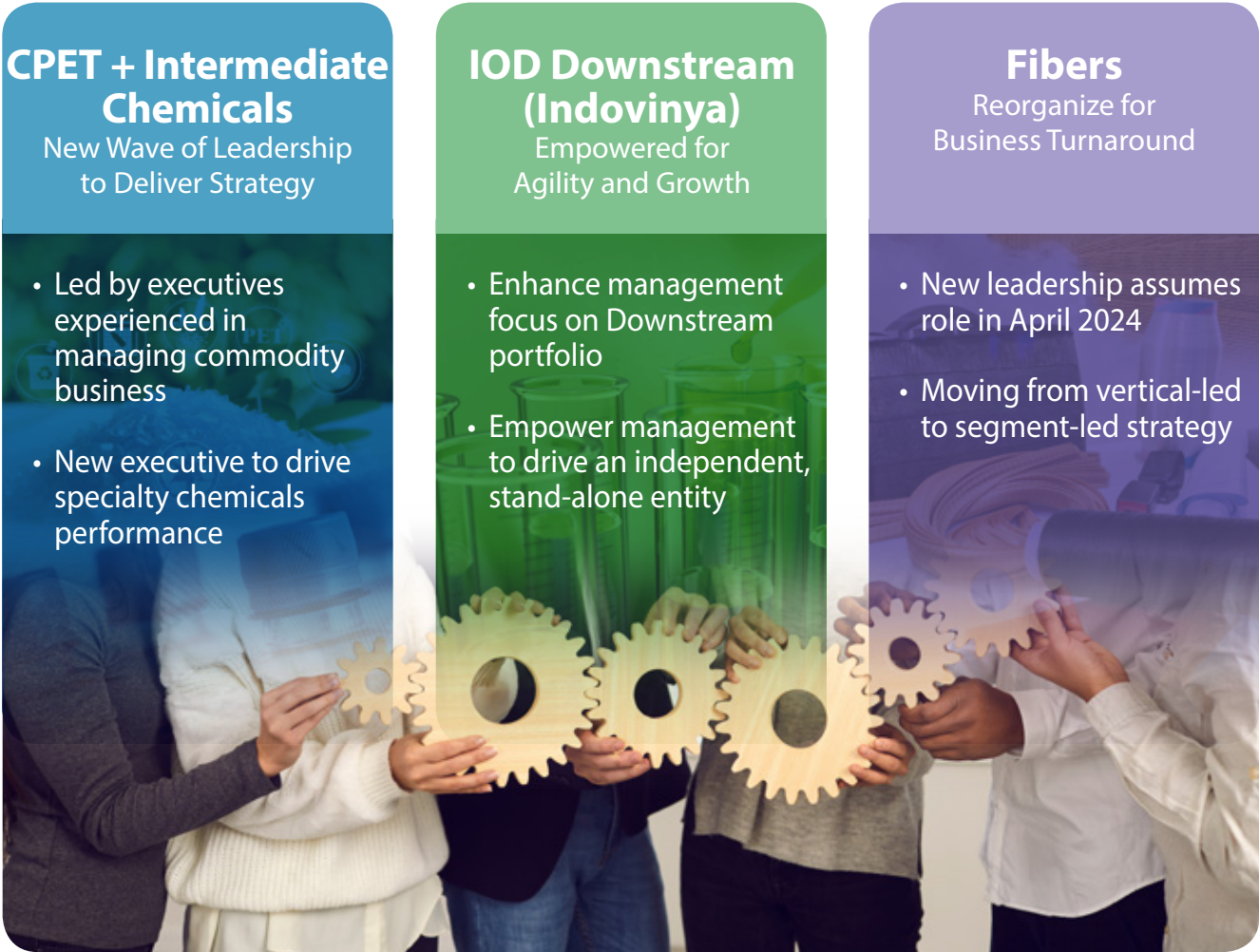
Indorama Ventures delivers high-quality, innovative, and safe products worldwide across our three main business segments. Our business is strategically structured with three vertically integrated and interconnected segments, creating a diversified product portfolio. This integration seamlessly links our global platform, optimizing the supply chain by connecting upstream and downstream operations. This approach enhances cost-competitiveness and secures business continuity through an integrated value chain.

We Operate in Attractive Markets with Ample Growth Opportunities



Note: F&B Packaging: CAGR 2022-27; Home & Personal Care: CAGR 2021-26; Crop Solutions: CAGR 2023-26; Tires & Airbags: CAGR 2023-28; Apparel: CAGR 2023-28; Hygiene: CAGR 2023-28 Source: Woodmac, Industry Data, Indorama Ventures Analysis

For all three segments, we operate in attractive markets with ample growth opportunities. Over 70% of our portfolio serves daily consumer needs, which are growing at rates multiple times that of GDP, supported by megatrends like population growth, improved quality of life, urbanization, and sustainability. These factors contribute to market growth rates in various applications of approximately 4-5% per annum, presenting unique opportunities for business expansion.



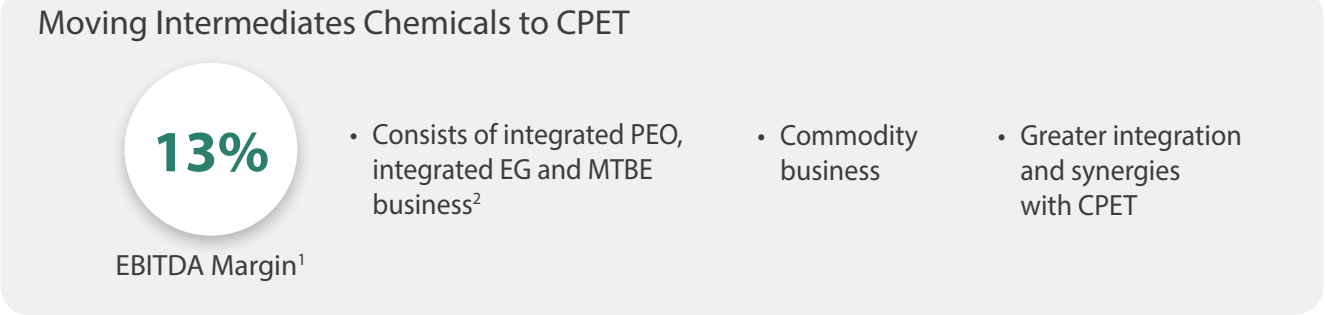
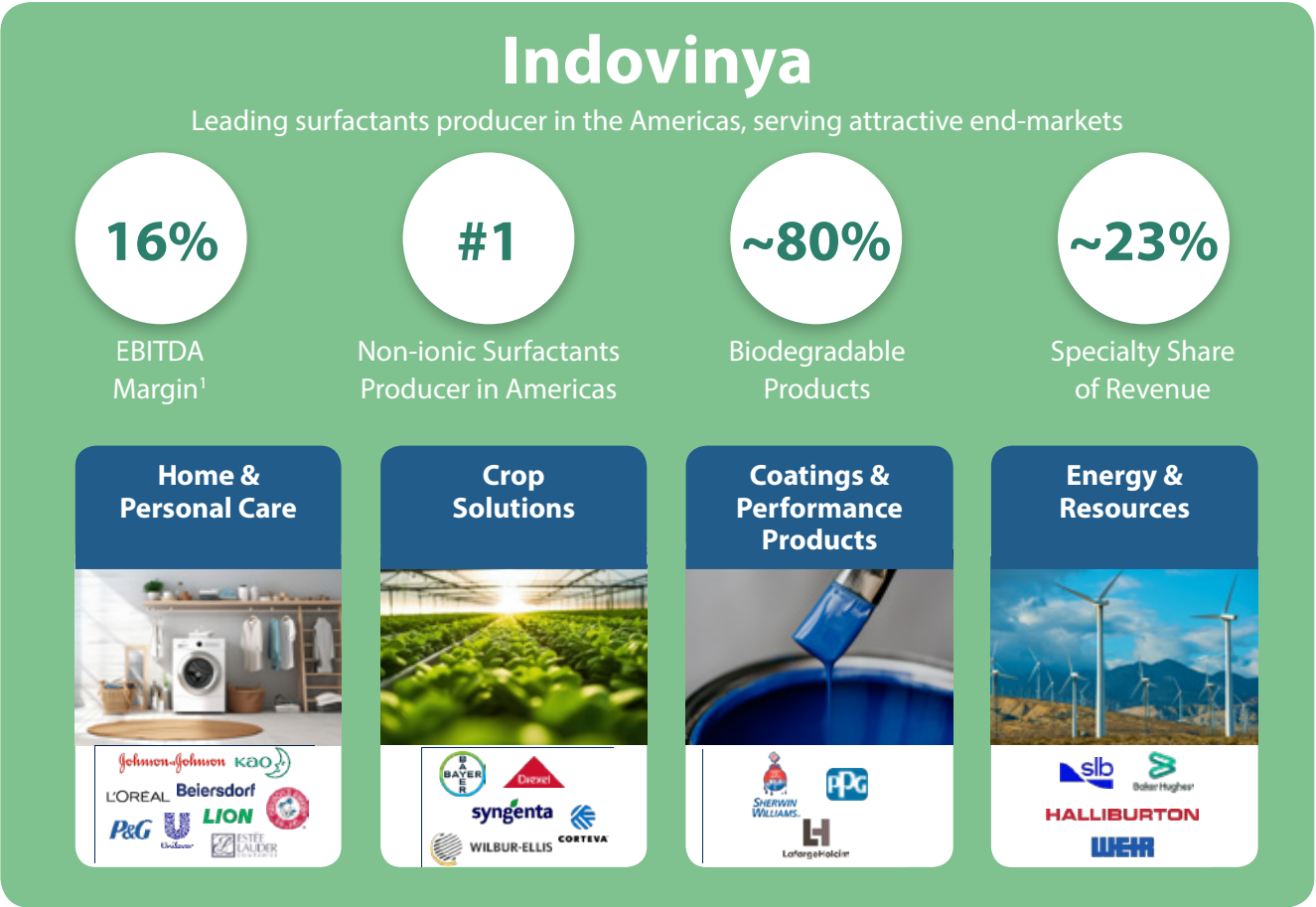
As we embark on the Indorama Ventures 2.0 journey, our focus on developing the next generation of leadership has become crucial. Through various initiatives, including the implementation of comprehensive succession planning processes, we have identified successors for over 100 key management positions globally, underscoring our commitment to leadership development. Concurrently, we are empowering segment-level management by emphasizing the importance of enabling segment leadership to take ownership, remain agile, and apply innovative thinking.

INDOVINYA

The previous name of the business division was Integrated Oxides and Derivatives (IOD)

Within the original IOD, we have created a strong, integrated platform that serves both important downstream and high-volume commoditized markets within a combined business model. Now, we have restructured the IOD portfolio into Intermediates Chemicals and Downstream verticals. From this restructuring, a new IOD Downstream will emerge, to be renamed Indovinya. This change is aimed at boosting management focus, promoting synergies, and ultimately generating more consistent and higher earnings for the Company. We are repositioning our Intermediates Chemicals to enhance vertical integration with MEG supply and MTBE. This serves as a hedge for our PX business, as both PX and MTBE are octane enhancers for motor gasoline. As the business processes transition to CPET, we will continue to leverage the deep operational and technical knowledge within Indovinya to operate these intermediate production units on behalf of CPET.

Indovinya: The New IOD Downstream



Note: ¹ Avg. 2021-2023 core pro-forma financials;
² Intermediates Chemicals include ethylene at Lake Charles, PEO and EG at Clear Lake, and EG and MTBE at Port Neches

Indovinya: Targeting Four Growth Markets in Daily Essentials



Note: ¹ End market growth and Indovinya revenue growth 2024-2028; ² Core pro-forma ROCE; ³ Net Capital Employed

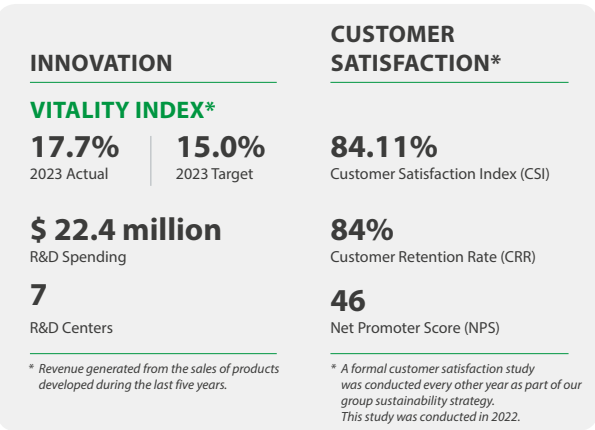
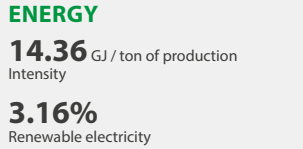
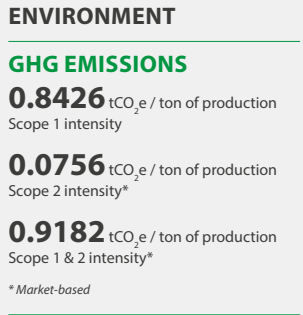
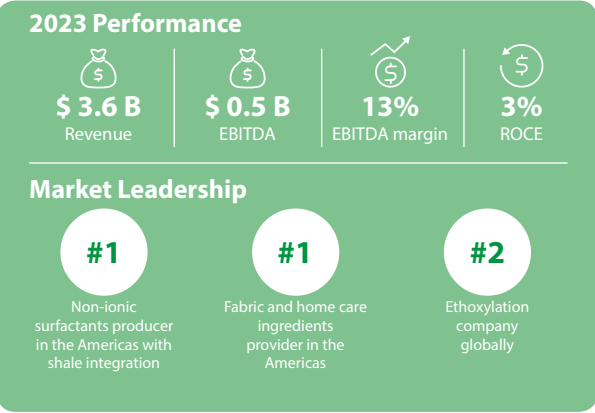
A strong platform for downstream products enabled us to become the leading EO and surfactant producer in the Americas, with global recognition in ethoxylation. This, in tandem with strengthening customer intimacy, has helped us to grow locally with key national and multinational customers. We are projecting 4-8% growth in Indovinya's key end-markets, driven by factors such as population growth and increased demand for crop production, urbanization, a focus on hygiene, and environmental consciousness.



INDOVINYA

KEY ESG HIGHLIGHTS 2023

The previous name of the business division was Integrated Oxides and Derivatives (IOD).



COMBINED PET

CPET: Well-Positioned to Capture Global Growth Opportunities



	Avg. 2021-2023	2023	2026F
CPET	17%	9%	~22%
Int. Chemicals	1%	3%	~5%
ROCE ³	13%	7%	~16%
Capital Employed ⁴	\$6.8B	\$7.0B	\$5.8B

Note: ¹Cumulative demand growth 2022-2027; ²CAGR 2023-2026; ³Core ROCE; ⁴Net Capital Employed

Indorama Ventures is recognized as the world’s number-one PET producer and largest PET recycler. Our well-diversified global PET portfolio makes our business model very resilient. With the operational changes we are executing as part of Indorama Ventures 2.0, we expect an increase in returns across our portfolio.

Additionally, our Packaging business positions us as a leading PET converter in emerging markets, where we anticipate a more than five million ton increase in PET demand driven by urbanization and a rising middle class. We also expect a 10% Compound Annual Growth Rate (CAGR) in rPET demand and a 6-10% CAGR in PET demand for specialty applications in the coming years.

Our CPET performance shows an average ROCE of 17% for 2021-2023, considering the destocking effect of 2023. Looking ahead to 2026, we anticipate an improved ROCE driven by volume increases, enhancements from Project Olympus 2.0, reduced capital employed, and increased operating rates through rationalization efforts. These projections are based on a stressed scenario, assuming that margins remain at trough levels.

We expect the performance of Intermediates Chemicals to improve in the coming years given that the current level of MEG margins in Asia is unsustainable, resulting in a number capacity rationalizations. This, combined with higher operating rates, will result in improved returns. CPET, combined with Intermediates Chemicals, will deliver a blended 2026 ROCE of over 16%.

Packaging: Unlock Hidden Value and Facilitate Higher Growth

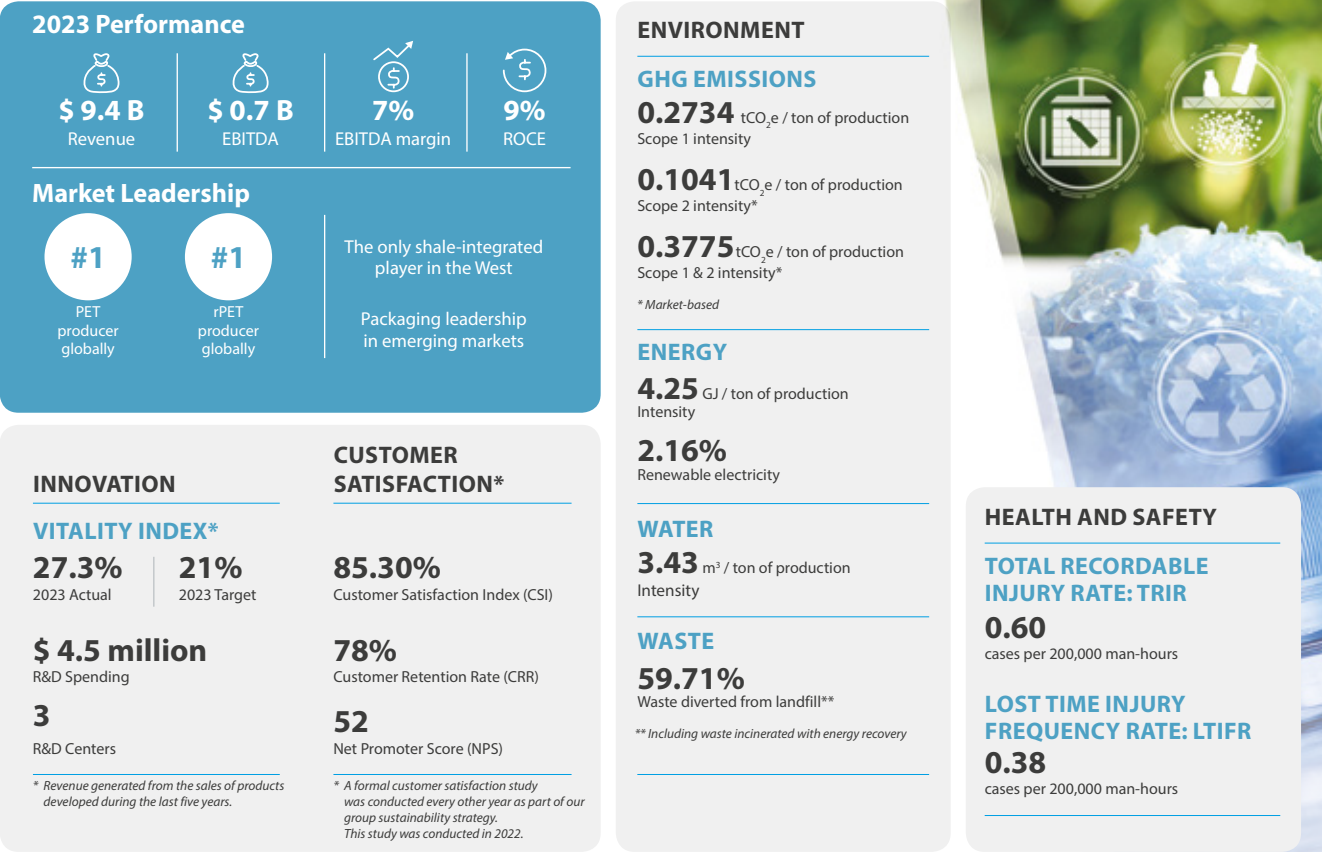


Note: ¹ Avg. 2021-2023 core financials; ²Sales volume CAGR 2021-2023

Our business has demonstrated strong growth over the years by establishing our footprint in strategic locations and maintaining attractive margins of 21% on average from 2021 to 2023, translating into value accretive returns.

Given the demand in emerging markets like India and Africa, along with a decade of consistent financial performance, we see a compelling opportunity to list the business at an attractive valuation, while further strengthening our industry presence through innovative solutions and sustainable practices aligned with our sustainability ambitions.

COMBINED PET (CPET) KEY ESG HIGHLIGHTS 2023



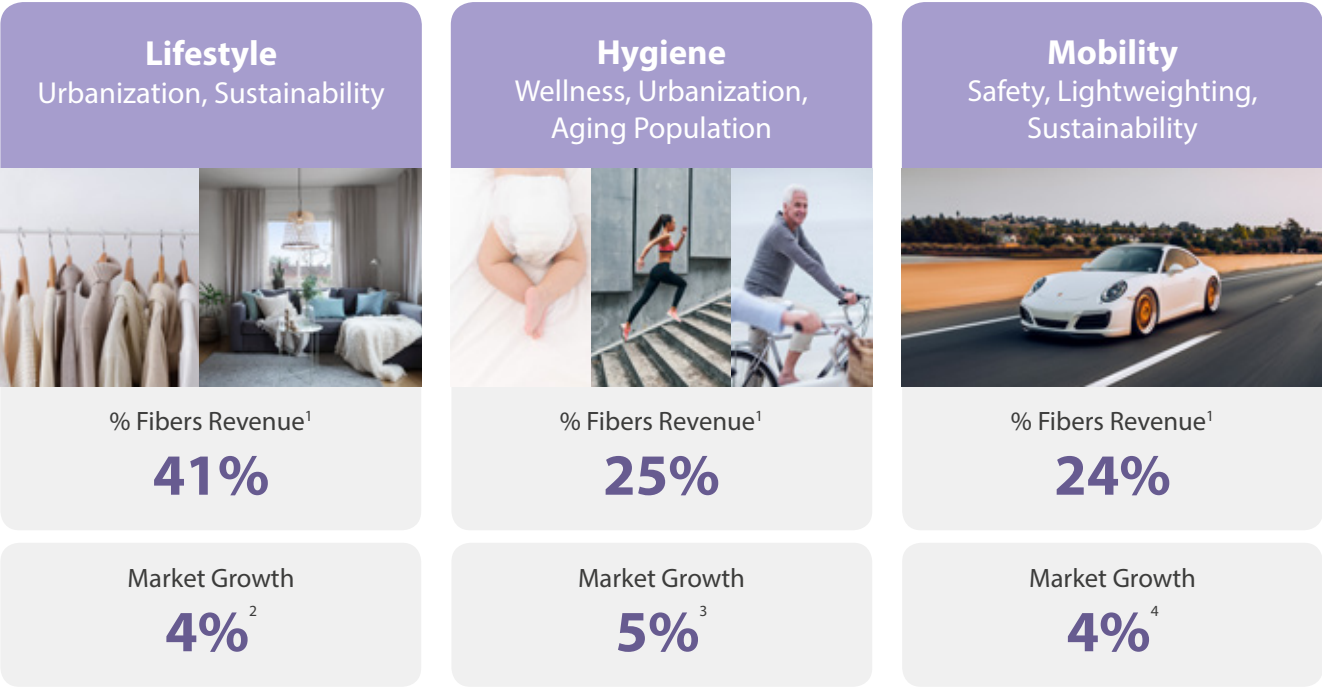
FIBERS

The Fibers segment operates in three large markets with strong growth fundamentals. Our largest participation, which is approximately 40%, lies in the Lifestyle segment—primarily a polyester business that experiences annual growth of 4%. Hygiene, accounting for about 25% of our operations, encompasses both nonwoven fibers and fabrics, serving a global market and growing at 4-5% annually. Mobility, representing around 24% of the segment, comprises businesses in tires, airbags, and other specialties.

Our leading market positions, global presence, and relevance set us apart. However, our performance has fallen short, especially in 2023, which proved to be the most challenging year. This was due to a combination of factors, including reduced demand, and overcapacity especially in Lifestyle, where Chinese players—particularly integrated ones with favorable cost positions—significantly impacted our margins, reaching unprecedented lows.

In response to these challenges, we have implemented management actions, including reconfigured manufacturing, portfolio, and organizational strategies, as steps towards achieving a respectable double-digit ROCE of 10+% in our Fibers segment. Our plan includes increasing operating rates to 88% by 2026, enhancing variable cost productivity, reducing working capital days by 19, optimizing our footprint, and divesting assets to reduce capital employed to \$ 2 billion by 2026, all aimed at improving ROCE and overall performance.

Fibers: Growing Market with Leading Positions Across Three Verticals

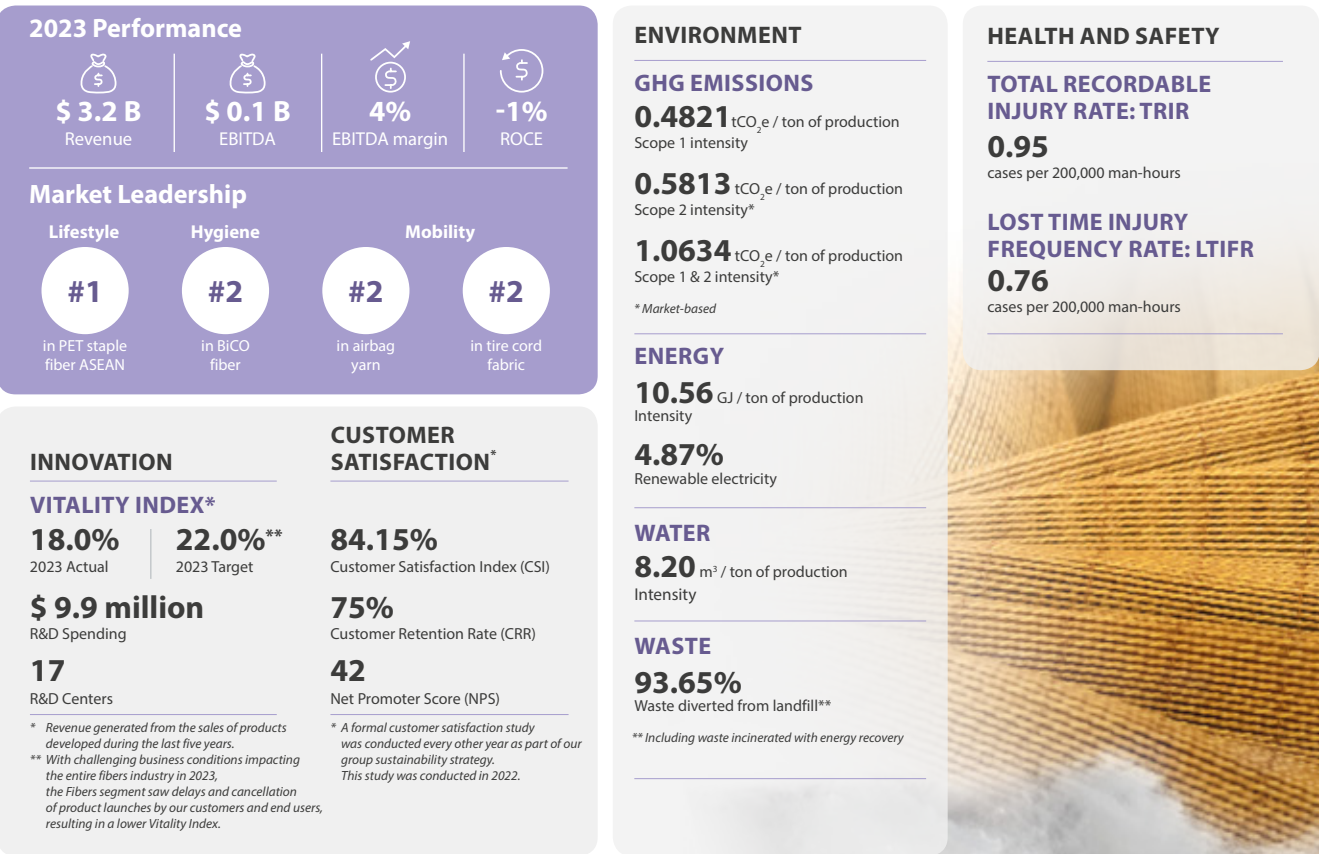


	Avg. 2021-23	2023	2026F
ROCE ⁵	2%	-1%	~11%
Capital Employed ⁶	\$2.4B	\$2.3B	~\$2.0B

Note: ¹Revenue avg. 2021-2023; ²Global polyester fibers demand growth 2023-2028;
³Nonwoven demand growth for hygiene and medical product 2023-2028;
⁴PET airbags and tire cord demand growth 2023-2028; ⁵Core ROCE; ⁶Net Capital Employed
Source: Woodmac, Price Hana, S&P, Global Data, Indorama Ventures' Analysis



FIBERS KEY ESG HIGHLIGHTS 2023





THOUGHT LEADERSHIP IN ACTION

[GRI 2-6, 3-3]



**United Nations
Global Compact**

Since 2020, we have been a member of UN Global Compact and Local Network Thailand.



The Federation of Thai Industries supports businesses developing sustainable growth in industrial operations.



**Alliance of
CEO Climate
Leaders**

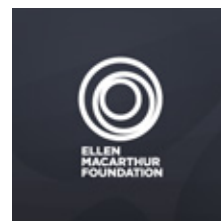
We are proud of our membership in the World Economic Forum Alliance of CEO Climate Leaders and are actively committed to ambitious climate actions.

In support of

**WOMEN'S
EMPOWERMENT
PRINCIPLES**

Established by UN Women and the UN Global Compact Office

As a signatory to the UN Women's Empowerment Principles (WEP), we are dedicated to promoting gender equality and empowering women.



We take pride in our involvement with the Ellen MacArthur Foundation's New Plastic Economy Initiatives and have committed to advancing recycling efforts globally.



We are an active member of the American Chemistry Council (ACC) and our Group CEO serves on the ACC board.



RESPONSIBLE CARE®
OUR COMMITMENT TO SUSTAINABILITY

Our US subsidiaries follow the 'Responsible Care' program established by the ACC and obtained certification in 2022.

TCFD | TASK FORCE ON
CLIMATE-RELATED
FINANCIAL
DISCLOSURES

We have been a signatory to the Task Force on Climate-Related Financial Disclosures since 2020, demonstrating our commitment to integrate climate considerations into our decision-making processes and enhancing our risk assessments over the short-, medium-, and long-term.

SHARING INSIGHTS ON OUR SUSTAINABILITY CULTURE

Embedding ESG Risks into our Core Strategy and Culture at the TMA Forum 2023



Mr. Alope Lohia, our Group CEO, recently addressed the 2023 Thailand Management Association's (TMA) Sustainability Forum, focusing on "Embedding ESG Risks into Core Strategy and Culture." He highlighted the growing significance of ESG policies, especially in Europe, and our commitment to adopting sustainability technologies and prioritizing safety and hygiene.

Dedicating 50% of his time to people, Mr. Lohia emphasized our commitment to workforce development, reflecting our core values of "Reimagining Chemistry Together to Create a Better World".

Education emerged as a key theme, with Mr. Lohia highlighting Indorama Ventures' commitment to recycling education. The Company has initiated numerous educational initiatives and established partnerships, including a valuable collaboration with the Bangkok Metropolitan Administration and Bangchak Corporation PCL. This is a testament to the Company's commitment to engaging people and promoting a culture of environmental responsibility.

FOR MORE
INFORMATION

SHOWCASING SUSTAINABLE INNOVATIONS AND COMMITMENTS



Sustainability commitments with the Thai government at the Sustainability Expo 2023

Indorama Ventures actively took part in and sponsored the Sustainability Expo 2023, ASEAN’s largest sustainability event, held from October 2-8, in Bangkok. The event showcased our sustainability commitments and innovations in recycling under the theme “The Future of Recycling.” Our recycling and biochemistry advancements are the result of collaborations with a range of start-ups.

Our booth spotlighted sustainable solutions that are revolutionizing PET recycling, such as innovations in biotransformation technology, and the exploration of bio-PTA and bio-PET. Beyond PET’s versatility and circularity as a sustainable packaging material, visitors gained insights in our product portfolio, sustainability strategy, alignment with the UN Sustainable Development Goals (SDGs), and corporate social responsibility efforts.

Thailand’s Prime Minister, Mr. Srettha Thavasin, and other cabinet members visited our booth, where Mr. Alope Lohia, Founder and Group CEO, provided a tour. Our Chief Sustainability Officer, Mr. Anthony M. Watanabe, also took part in a panel discussion on “Business Leadership in Sustainability,” sharing the company’s sustainability challenges and opportunities.

Additionally, our CSR team hosted a recycling education workshop for children at the SX Kids Zone at the sustainability event, encouraging environmental responsibility and waste management education among younger generations. This showcased the efficacy of cross-functional collaboration and the “One Indorama Ventures” mindset, pooling expertise from our Corporate Communications, Sustainability, CSR, SFM, and Packaging teams.



SHARING SUSTAINABLE SOLUTIONS AT THE CLIMATE CHANGE CONFERENCE 2023

At the 28th United Nations Climate Change Conference (COP28), held from November 30 to December 12, 2023, at Expo City in Dubai, Indorama Ventures showcased its innovative sustainability solutions and decarbonization strategy, emphasizing its pioneering investments in developing sustainable solutions to mitigate PET’s environmental impacts while driving the global circular economy.

Mr. Yash Lohia, Chairman of the ESG Council, emphasized Indorama Ventures’ commitment to environmental responsibility, pledging to intensify the use of renewable energy, produce low-carbon products, and optimize resource efficiency.



Our participation at COP28 underscores collaborative environmental stewardship with the Thai government in addressing global climate challenges. Mr. Anthony M. Watanabe, our Chief Sustainability Officer, took part in a keynote session and panel discussion at the conference, sharing insights on the role of circularity in building a low-carbon world. He highlighted our groundbreaking initiatives, such as the world’s first sustainable monolayer PET sparkling wine bottle and advancements in biotransformation technology for hygiene items with global start-ups like SIPA and Polymateria, which aim to develop sustainable solutions and drive the global circular economy while emphasizing the Company’s dedication to sustainability and climate action.





In September 2023, Indorama Ventures’ Chief Sustainability Officer, Mr. Anthony M. Watanabe, participated in a series of leadership meetings during UN Climate Week in New York, hosted by the World Economic Forum. These discussions covered a wide range of climate issues, ranging from a global plastics treaty, to promoting circular trade and green foreign direct investment, in addition to building the business case for climate adaptation.

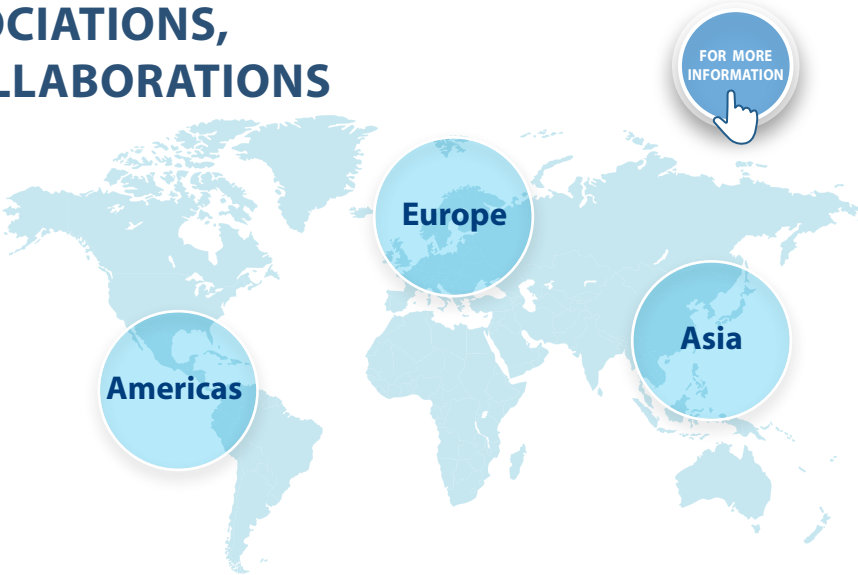
The World Economic Forum organizes a Community of Chief Sustainability Leaders, which brings together over 100 Chief Sustainability Officers from top global companies across 24 industries and 28 countries to gain insights and remain updated on the latest nature and climate trends and their impacts on business.

Chief Sustainability Leaders play a vital role in helping CEOs and their organizations navigate this shifting landscape. Among the different topics, climate adaptation is a major concern for the community, not only because of the impacts leaders are already observing in their businesses but also because climate risk is a reporting requirement under the new Corporate Sustainability Reporting Directive (CSRD) framework in the EU.

MAJOR INDUSTRY ASSOCIATIONS, MEMBERSHIPS AND COLLABORATIONS

[GRI 2-28, 2-29]

As a prominent chemical company, Indorama Ventures exemplifies leadership through our joint efforts with external alliances, partners, and industry experts to collectively address global sustainability challenges and accelerate sustainable development. In addition, we participate in various industry associations and promote partnerships at both company-wide and segment levels.



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
- Roundtable on Sustainable Palm Oil (RSPO)
- The Recycling Partnership (TRP)
- United Nations Environment Programme (UNEP)

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)
- Associação Brasileira da Indústria do PET (ABIPET)
- Association of Ghana Industries (AGI)
- Associação Brasileira da Indústria Químicas, Brazil
- Asociación de Combustibles Eficientes de Latinoamérica, México
- Asociación de Industrias Químicas del Uruguay, Uruguay
- American Fuel & Petrochemical Manufacturers, USA
- Council for LAB/LAS Environmental Research, USA
- Association Nacional de la Industria Química (ANIQ)
- Plastic Industry Association (PIA)
- Container Recycling Institute (CRI)
- Ecología y Compromiso Empresarial (ECOCE)
- Cámara Nacional de la Industria de Transformación (CANACINTRA)
- Instituto de Embalagens

Europe

- The Committee of PET Manufacturers in Europe (CPME)
- European Man-Made Fibers Association (CIRFS), Belgium
- Industrievereinigung Chemiefaser e.V. (IVC), Germany
- World Economic Forum (WEF), Switzerland
- Plastics Recyclers Europe (PRE)
- American Fuel and Petrochemical Manufacturers (AFPM)
- International Association of the Nonwoven Fabrics Industry (EDANA)
- The European Organization for Packaging and the Environment (EUROPEN)
- Treuhandgemeinschaft Deutscher Chemiefasererzeuger GmbH
- PATRI Políticas públicas & Public Affairs Ltda.
- Petcore Europe
- PET EUROPE
- RECOUP
- Le Syndicat des Régénérateurs de matières Plastiques (SRP)

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
- Thai Chamber of Commerce, Thailand
- Plastic Industry Club, The Federation of Thai Industries, Bangkok
- Netherlands Chamber of Commerce (NTCC)
- American Chamber of Commerce in Thailand



Chapter 2

VALUE CREATION

42 Our Approach to Sustainability

42 Our Sustainability Strategy

43 Our Contributions to the UN SDGs

45 Elevating Our Impact via Sustainability Enablers

52 Our Value Creation Model

52 Sustainable Value Creation

54 Strategic Trade-Offs

57 Sustainability-Related Risk Mitigation Plan

58 Actions for Sustainability

59 Making Strides Towards a Sustainable Future



OUR APPROACH TO SUSTAINABILITY

[GRI 2-6, 3-3]

OUR SUSTAINABILITY STRATEGY

Indorama Ventures' success as a whole has relied on our ability to embed sustainability into the fabric of our business. As we progress on our sustainability journey, the environment, society, and the resilience of our business will continue to be the core of our strategy. Through key initiatives and actions, we are targeting a 30% reduction in GHG intensity, a 25% increase in renewable electricity consumption, a 20% reduction in water intensity, a 15% reduction in energy intensity, a 90% waste diverted from landfill as well as an increase in post-consumer PET bale input for recycling to 1.5 million tons, by 2030. This will enable us to advance our commitments towards achieving better operational eco-efficiency, increasing the use of renewable electricity, adopting decarbonization technologies, and enhancing PET recycling capabilities.

Our sustainability priorities are further strengthened by integrating various business segments, enabling segment-specific plans that uphold targets. Embracing a holistic approach, we aim to generate value for stakeholders, minimize our environmental impact, and contribute to societal advancement. Through these collective efforts, we are dedicated to forging a more promising and sustainable future for all.

Indorama Ventures' 2023 Sustainability Highlights

Investments Areas			
Operational Eco-efficiency • GHG and Energy projects: \$ 13.1 million • Water Conservation project: \$ 63,000	Innovation • Research and Development Spending: \$ 36.4 million	People Development • Human Capital Development Investment: \$ 3.1 million	IT and Cybersecurity • IT and Cybersecurity investment: \$ 1.5 million
Sustainability Initiatives			
11 decarbonization projects, resulting in a reduction in GHG emissions of 31,503 tCO₂e	Responsible Sourcing Program to engage suppliers to leverage the sustainable supply chain and GHG Scope 3 emission initiatives towards decarbonization.	Achieved our commitment of recycling 100 billion of post-consumer PET bottles in September 2023 (Cumulative since 2011)	
First-ever Indorama Ventures Sustainability Data Awards in 2024 to strengthen ESG Data governance.	Launched the Sustainability Academy – platform with the first five courses developed to enhance the ESG knowledge and capabilities of Indorama Ventures employees.		
Internalized LCA expertise in 2023 to better provide for our customers in terms of our product carbon footprint as well as building increased internal awareness and culture around sustainability.	In 2023, recycled over 300,000 tons of post-consumer PET waste as content for recycled product production.		

OUR CONTRIBUTIONS TO THE UN SDGs

By aligning our strategy with the UN Sustainable Development Goals (SDGs), we have built a solid foundation for sustainability through strategic actions. Five key focus areas have been identified to contribute to the SDGs. Considering the nature of our business, we are optimistic about achieving positive impacts in these areas while accelerating business growth and advancement. These initiatives help us align with 13 of 17 of the SDGs amounting to 39 targets.



Indorama Ventures is committed to ensuring the health and safety of our products, employees, and contractors (SDG 3). Throughout our operations, we actively manage water consumption and discharge in order to minimize the effect of the global water crisis (SDG 6), prioritize the use of renewable energy, and implement low-carbon strategies to improve resource use and energy efficiency (SDG 7 and 13). In pursuit of sustainable development, Indorama Ventures has invested in advancing its innovation and technology (SDG 9) while also promoting recyclability and circularity in product packaging to combat ocean waste (SDG 12 and 14). We are also working to minimize the environmental impacts of our operations on surrounding areas while preserving the natural environment to protect vulnerable communities (SDG 11 and 15).

With our commitment to a sustainable workforce, we provide learning and development opportunities for all employees as well as promote recycling education in the community (SDG 4). Additionally, we work towards ensuring decent working conditions, non-discriminatory environments, and equal opportunities across our supply chain (SDG 8). Furthermore, we advocate for gender equality by increasing women's participation in our management and advancing the skills of women in vulnerable communities (SDG 5).

To further cement our dedication to the SDGs, we have partnered with diverse external organizations to intensify our contributions towards achieving these goals (SDG 17).

SDGs COLLABORATION PROJECT HIGHLIGHTS

PET Bottle Circularity Drive to Encourage Responsible Consumption and Reduce GHG Emissions

Indorama Ventures and the Faculty of Engineering and Industrial Technology at Silpakorn University joined together to drive the SDGs Collaboration Project, as part of the “Green Campus Kickstart: Step One to Sustainability.” This initiative is one of the key components within the “Circular Economy” course, and aims to raise awareness about environmental issues caused by plastic waste while promoting sorting practices in line with the university’s waste management policies. It serves as an inspiration for students to contribute to the circular economy by sustainably utilizing existing resources.

This event focused on collecting post-consumer PET bottles for recycling and other environmentally responsible purposes. Initiatives like these play a vital role in reducing plastic waste and promoting sustainability. Indorama Ventures supported Recycling and Circular Economy Education to demonstrate how post-consumer PET bottles can be turned into new products, such as rPET resin and fibers. This aligns with responsible production and consumption (SDG 12), and also delivers other value in terms of carbon footprint reductions (SDG 13), and diverting PET waste from landfills (SDG 10).

Engaging with 300 undergraduate students, professors, and staff, the faculty collectively contributed a total of 900 kilograms of PET bottles during this one-day event. The PET bottles collected were sent for recycling at our recycling plant in Nakhon Pathom, contributing to a GHG reduction of almost one tCO₂e.



The progress we have made in our contribution to the UN SDGs has been monitored throughout the year and is publicly reported in our Sustainability Report 2023, SDGs Report, and in the SDGs section on our website.



ELEVATING OUR IMPACT VIA SUSTAINABILITY ENABLERS

Our vision of becoming a world-class sustainable chemical company that makes great products for society is driven by three key enablers: Sustainable Financing, Technology and Digitalization, and Human Capital.

Our Sustainability Enablers

Sustainable Financing

The strategic use of sustainability-linked financing mechanisms has given us access to capital and other resources critical for expediting our progress towards a more sustainable future. As a result, the Indorama Venture Sustainability-Linked Finance Framework was established in 2021, in accordance with the International Capital Markets Association (ICMA) and the Sustainability-Linked Loan Principles (SLLP), which are aligned with the Sustainability-Linked Bond Principles (SLBP) published by the Loan Market Association (LMA).

In July 2023, Indorama Ventures and Sumitomo Mitsui Banking Corporation (SCBC) signed Thailand’s first sustainability-linked trade finance facility worth \$ 50 million to support our sustainability commitment. This new facility reflects the Company’s leadership in leveraging sustainable financing in Thailand. The new facility’s short-term working capital finance is linked to the Company’s sustainability performance targets.

Technology and Digitalization

We are committed to strategically promoting sustainable business growth through external mergers and acquisitions, alongside internal operational and digital transformation programs. In pursuing our financial and sustainability goals, we are dedicated to integrating ESG principles into our business strategy, as well as upholding our culture of innovation and continuous improvement.

In 2023, Indorama Ventures introduced the Digital Target Price Model (TPM). A pricing recommendation tool targeting sales managers, price managers, and tech administrators, the Digital TPM will incorporate historical pricing analysis and value-based pricing algorithms to facilitate consistent value-based commercial decisions. Looking ahead, we plan to focus on preparing for Release 2.0, which will expand the tool’s reach to new entities, streamlining pricing and increasing cost transparency insights.

Human Capital

Our human capital is integral to the continued success and prosperity of our business. This reinforces our empowerment culture and our respect for human rights, diversity, talent development, and capacity building, all enabled by a spirit of inclusivity. The integration of sustainability into our human capital development allows us to empower our workforce with the knowledge and skills necessary to address current and future challenges faced by our planet and business.

In 2023, a total of \$ 3.1 million was invested in people development. Our average training hours per employee increased to 31.88, amounting to a total of 831,855 training hours. All of the programs are designed to ensure that our employees are fully supported, empowered in their day-to-day work, and suitably equipped for future challenges.

Sustainable Financing Case Study

Between 2018 and 2022, Indorama Ventures secured a total of \$ 2.4 billion in long-term sustainable financing through green and blue loans, sustainability-linked loans and bonds, as well as revolving credit facilities and ESG financing instruments.

In 2023, Indorama Ventures completed the nearly tripled expansion of its PET recycling facility in Brazil, supported by a ‘Blue Loan’ from the International Finance Corporation (IFC), a member of the World Bank.

The recycling facility, located in Juiz de Fora, Minas Gerais, Brazil, is increasing its production capacity from 9,000 tons to 25,000 tons per year of PET made from post-consumer recycled (PET-PCR) material. The project is part of Indorama Ventures’ ambition to continue building a sustainable global company, including spending \$ 1.5 billion to increase its recycling capacity to 50 billion PET bottles per year by 2025.

In November 2020, the IFC provided \$ 300 million in Blue Loan funding to Indorama Ventures with the objective of increasing recycling capacity and diverting plastic waste from landfills and oceans in Thailand, Indonesia, the Philippines, India, and Brazil—countries which are grappling with mismanaged waste and serious plastic pollution in the environment.

//

 This is the IFC’s first Blue Loan focused exclusively on combating marine pollution. Working together with a global industry leader such as Indorama Ventures demonstrates our mutual commitment towards sustainability.

Mr. Carlos Leiria Pinto,

 IFC Country Manager, Brazil



Over the last three years, we have focused on a number of strategically important priorities to future-proof our organization, including Project Olympus, Digital Transformation, Enabling Functions, and Leadership Management.

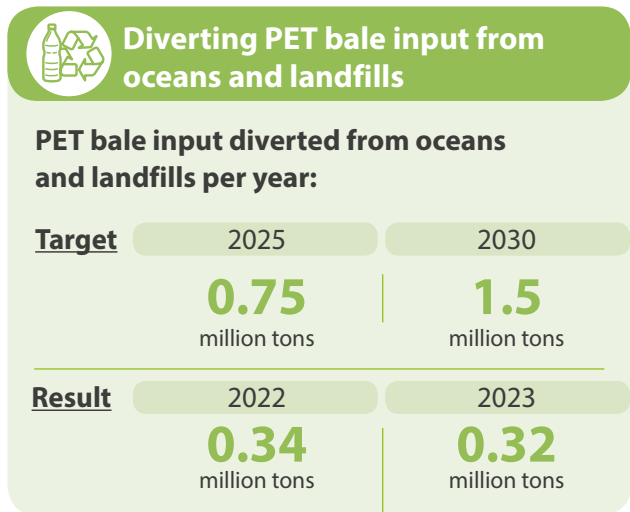
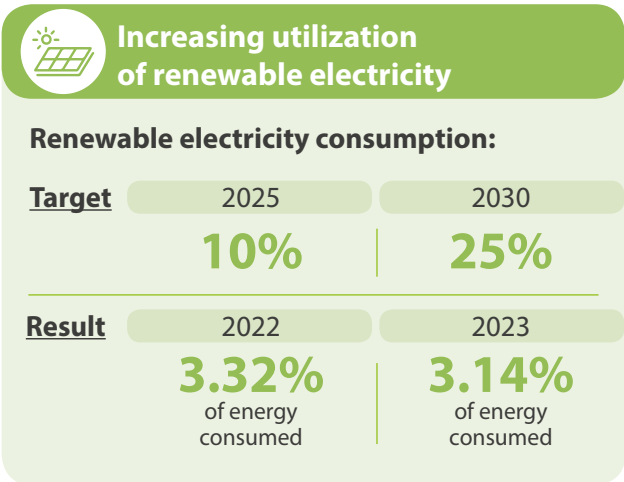
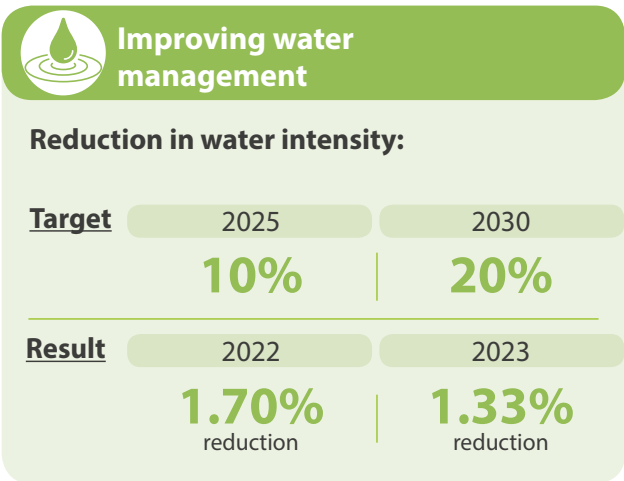
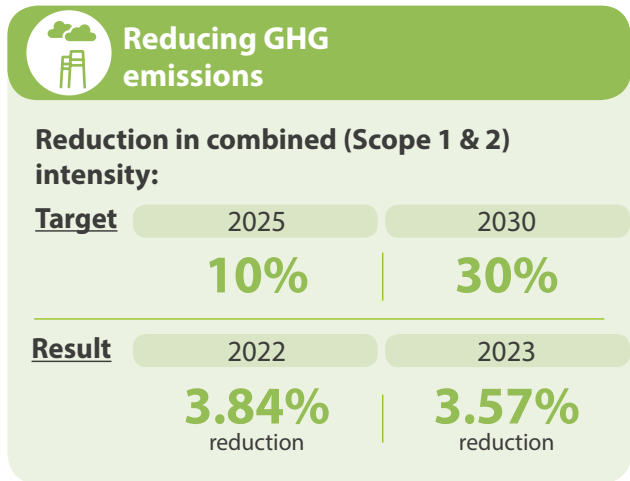
Initiative	Project Olympus	Digital Transformation	Enabling Functions	Leadership Management
Objective	This initiative was aimed at achieving operational excellence and continuous improvement.	This initiative focused on rolling out digital tools to improve our visibility across the organization.	This initiative concentrated on developing six new centralized capabilities within Corporate headquarter to enhance our operational and managerial efficiency, helping us better execute our strategy.	This initiative is focused on developing the next generation of leadership within Indorama Ventures.
Significant milestones achieved	<ul style="list-style-type: none"> Project Olympus 1.0 successfully delivered run-rate efficiency gains of \$ 527 million Promoted a disciplined culture of continuous improvement 	<ul style="list-style-type: none"> Successfully implemented S/4 Hana, covering approximately 70% of our revenue. This was the largest greenfield S/4 HANA ever done in a chemical business globally. Enhanced business visibility, enabling agile decision-making 	<ul style="list-style-type: none"> Centers of Excellence Applying best practices across the organization Creating One Indorama Ventures 	<ul style="list-style-type: none"> Next-generation leaders identified for the top 100 management positions globally through a global succession planning process

Impact on Planet



Responsible Operations for a Decarbonized Future

Our operations focus on operational eco-efficiency in producing environmentally friendly and sustainable products, contributing to the circular economy. We are expanding the scope of our environmental stewardship to our value chain and are committed to operating in compliance with all applicable regulatory, reputational, and market risks related to climate change, aiming to lower the GHG emissions.

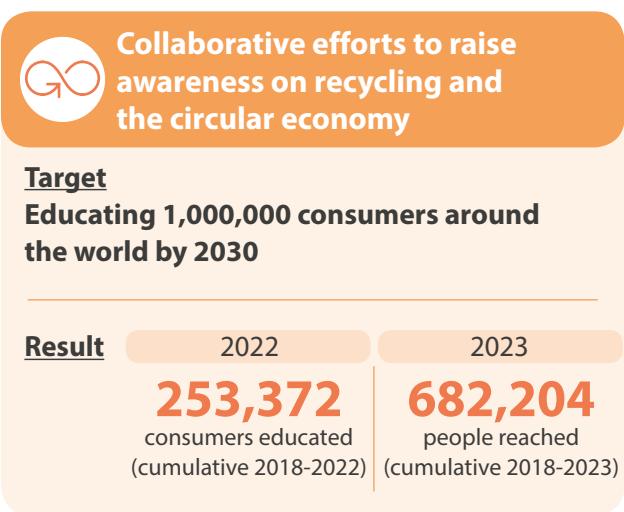
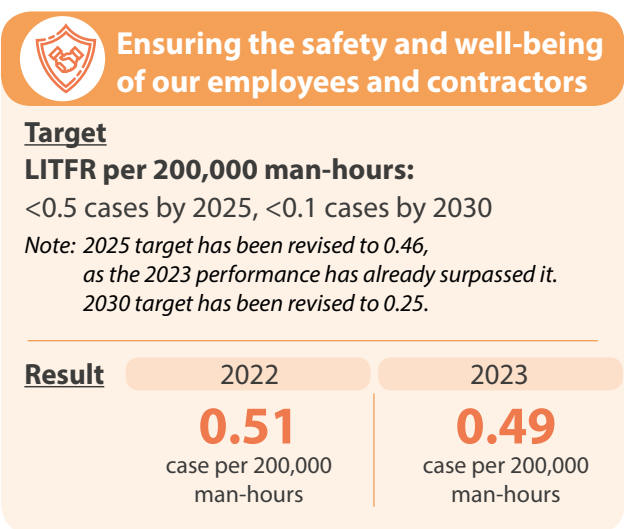


Impact on Society



Empowerment Culture that Supports Future Generations

We maintain healthy and safe communities by motivating employees within our workplace and building strong connections with stakeholders. Our respect for human rights, stakeholder engagement, investments in capacity building, and creating shared value demonstrates our commitment to empowering individuals and promoting sustainable development.





Impact on Prosperity

Business Potential for Growth and Resilience

Our business is based on integrity and ethical principles, driving customer experiences through innovation. Anticipating and managing current and future economic risks and opportunities for both our business and stakeholders helps us think in a more integrated way about sustainability, allowing us to further expand our business strategy and move forward in meeting societal needs, positioning ourselves as leaders in sustainability.



Securing sustainable financing to fund our operations

Sustainable financing supports our expansion in line with our Sustainability Ambitions

Result

2021 | **\$ 1.3** billion

2022-2023 | **\$ 2.4** billion



Investing in our recycling facilities

\$ 1.5 billion total investments by 2030

Result

2022 | **20** recycling facilities

2023 | **20** recycling facilities



Strengthening our capabilities through innovation

Investments in R&D

Result

2022 | **\$ 42.4** million

2023 | **\$ 36.4** million



Driving business efficiencies through Project Olympus

\$ 610 million run-rate cost saving in 2025

Result

2022 | **\$ 475** million in cost savings

2023 | **\$ 527** million in cost savings

OUR VALUE CREATION MODEL

SUSTAINABLE VALUE CREATION

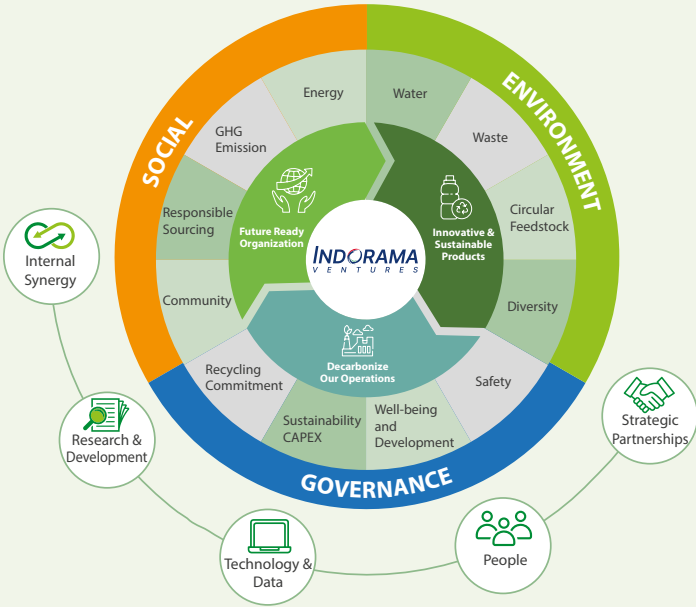
Sustainable value creation is imperative for businesses, signifying a commitment to both immediate stakeholders and the environment and society over the long-term. This strategic approach mitigates our environmental impact, positioning us competitively in the market, and establishes a legacy that benefits future generations. For the fifth consecutive year, we have employed the International Integrated Reporting Council (IIRC)

Value creation model, providing a comprehensive framework to detail our sustainability performance and impact. This model enhances our understanding of the effects and dependencies of diverse forms of capital, facilitating their sustainable management. The adoption of this model empowers us to make informed decisions and amplifies transparency and accountability, ultimately creating value for all stakeholders.

OUR SIX CAPITAL INPUTS

Capital	Indicators
<div></div> <div>Financial</div>	<div>We create value for our stakeholders by acquiring and deploying funds to optimize our operations and strengthen our position as a leading global sustainable chemical company.</div> <div>Total equity THB 178,067.9 million Total current assets THB 189,354.2 million Total current liabilities THB 201,347.2 million Sustainable financing \$ 2,400 million</div>
<div></div> <div>Manufactured</div>	<div>We consistently pursue merger and acquisition opportunities to reinforce our supply chain. Leveraging our extensively interconnected global presence, we can proficiently sustain our operations even during unexpected disruptions.</div> <div>Operating sites 148* Countries with operations 35 Recycling facilities 20 Capex of GHG and energy projects \$ 13.1 million</div>
<div></div> <div>Natural</div>	<div>We prioritize the adoption of efficient and sustainable practices. By minimizing the capital required to sustain our operations, this aligns with our ambition to achieve net-zero carbon emissions through tailored decarbonization strategies.</div> <div>Total materials consumption 16.31 million tons Total water consumption 39,669,070 m³ Total energy consumption 120,904,857 GJ Renewable energy consumption 1,408,918 GJ</div>
<div></div> <div>Human</div>	<div>We regard success as a team effort. Therefore, we adopt a proactive approach to develop the necessary skills and capabilities within our workforce, empowering them to exceed their full potential and reinforce ourselves as a future-ready organization.</div> <div>Total workforce 29,056 headcount Total training expenditure \$ 3.1 million Average training hours 31.88</div>
<div></div> <div>Social & Relationships</div>	<div>Our success is the result of the trust we have from our stakeholders, and we are dedicated to investing in education programs that promote recycling, encouraging safety and well-being throughout our operations, and maintaining positive relationships with our suppliers. This ensures our positive impact on people and the environment.</div> <div>Total CSR contributions \$ 3,226,922 Total number of CSR activities 529 Total volunteer hours 15,126 hours</div>
<div></div> <div>Intellectual</div>	<div>Continuous innovation in our technologies and processes, coupled with the development of sustainable products that minimize our environmental impacts, is essential to maintaining our market leadership.</div> <div>Total R&D expenditures \$ 36.4 million Indovinya R&D expenditures \$ 22.4 million CPET R&D expenditures \$ 4.5 million Fibers R&D expenditures \$ 9.5 million Total R&D employees 330 headcount Total R&D centers 27</div>

OUR BUSINESS ACTIVITIESOUR OUTCOMES



<div>Financial Capital</div> <div>Total Revenue = \$ 15.56 billion Core EBITDA = \$ 1,284 million Core Earnings per Share = THB 0.28</div> <div></div>
<div>Manufactured Capital</div> <div>PET bottles recycled 21.6 billion bottles PET bale inputs 324,256 tons ISO 14001 certification 80% Renewable electricity consumption 3.14%</div> <div></div>
<div>Natural Capital</div> <div>Reduction in total energy intensity (+) 5.60% Reduction in combined GHG (Scope 1 & 2) intensity 3.57% GHG reduction from renewable energy consumption 138,750 tCO₂e Water intensity 5.21 m³ / ton of production Water reused and recycled 6.96% Hazardous waste intensity 0.0092 ton / ton of production Waste diverted from landfill 75%</div> <div></div>
<div>Human Capital</div> <div>Retention rate 86.43% 1,828 leadership positions involved in succession planning 2,211 leaders involved in leadership development TRIR 0.68 cases per 200,000 man-hours LTIFR 0.49 cases per 200,000 man-hours</div> <div></div>
<div>Social and Relationships</div> <div>Customer Satisfaction Index (CSI) 84.82% (same as 2022) Customer retention rate 78% (same as 2022) Net promoter score 48 (same as 2022) Total Circular Economy Education beneficiaries 682,204 people reached (cumulative 2018-2023)</div> <div></div>
<div>Intellectual Capital</div> <div>Vitality Index for Indovinya 17.7% Vitality Index for CPET 27.3% Vitality Index for Fibers 18% Total new products 483 233 collaborative projects with customers, suppliers, and academia</div> <div></div>

* The Sustainability Report 2023 consists of data from 149 sites. Further details are provided in the full Sustainability Report 2023 (under "About this Report").

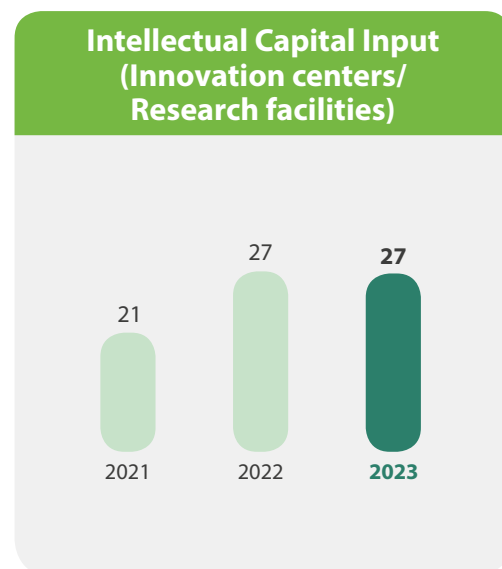
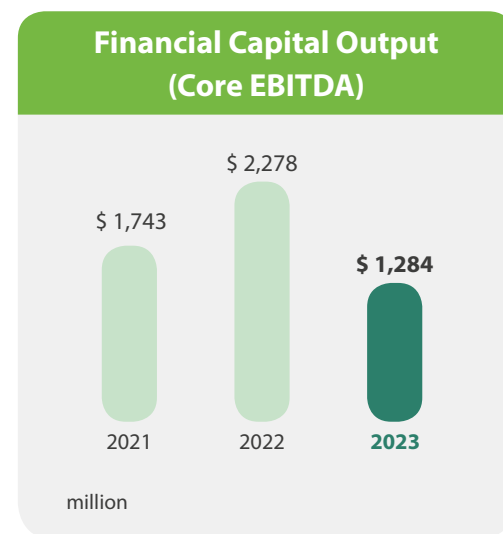
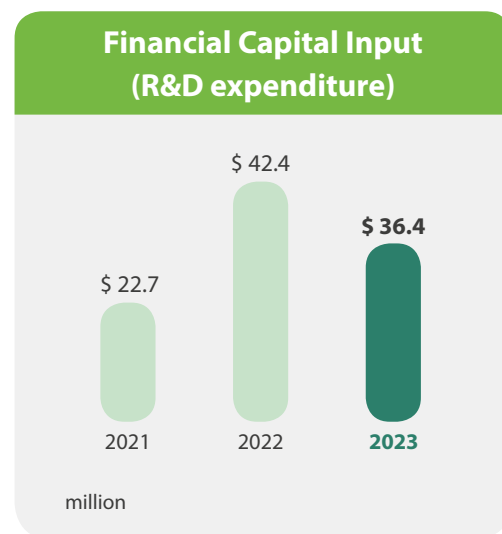


STRATEGIC TRADE-OFFS

Strategic trade-offs play a pivotal role in organizational decision-making, as they enable effective resource allocation, risk management, and focus. To enhance the efficiency of resource allocation, Indorama Ventures carefully weighs both the benefits and drawbacks of different factors and outcomes. This allows us to focus on strategic trade-offs, thereby gaining a competitive advantage and encouraging adaptability in the long-term. Ultimately, these trade-offs serve as the cornerstone of our informed decision-making, enabling us to navigate the complexities of an ever-changing business market.

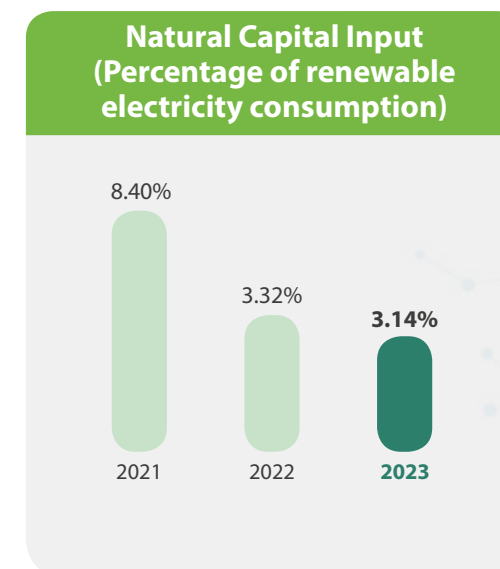
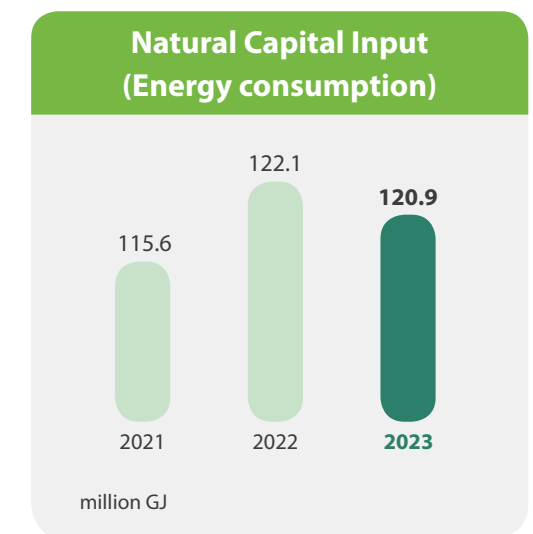
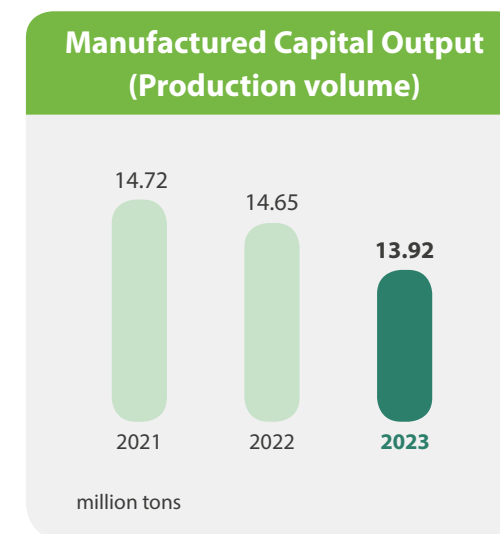
Having transformed risks into opportunities through innovation, we have become the largest ethylene oxide producer in the Americas as well as the largest PET staple fiber producer in ASEAN. Comprising 27 centers, our global R&D platform has allowed us to actively pursue research that develops innovative products and ensures significant returns on investment, strengthening our business resilience. This focus on innovation is further reinforced by our \$ 36.4 million investment in research and development in 2023.

Interconnection between Innovation Expenditure, Market Share, and Sales Volume (2021, 2022, 2023)

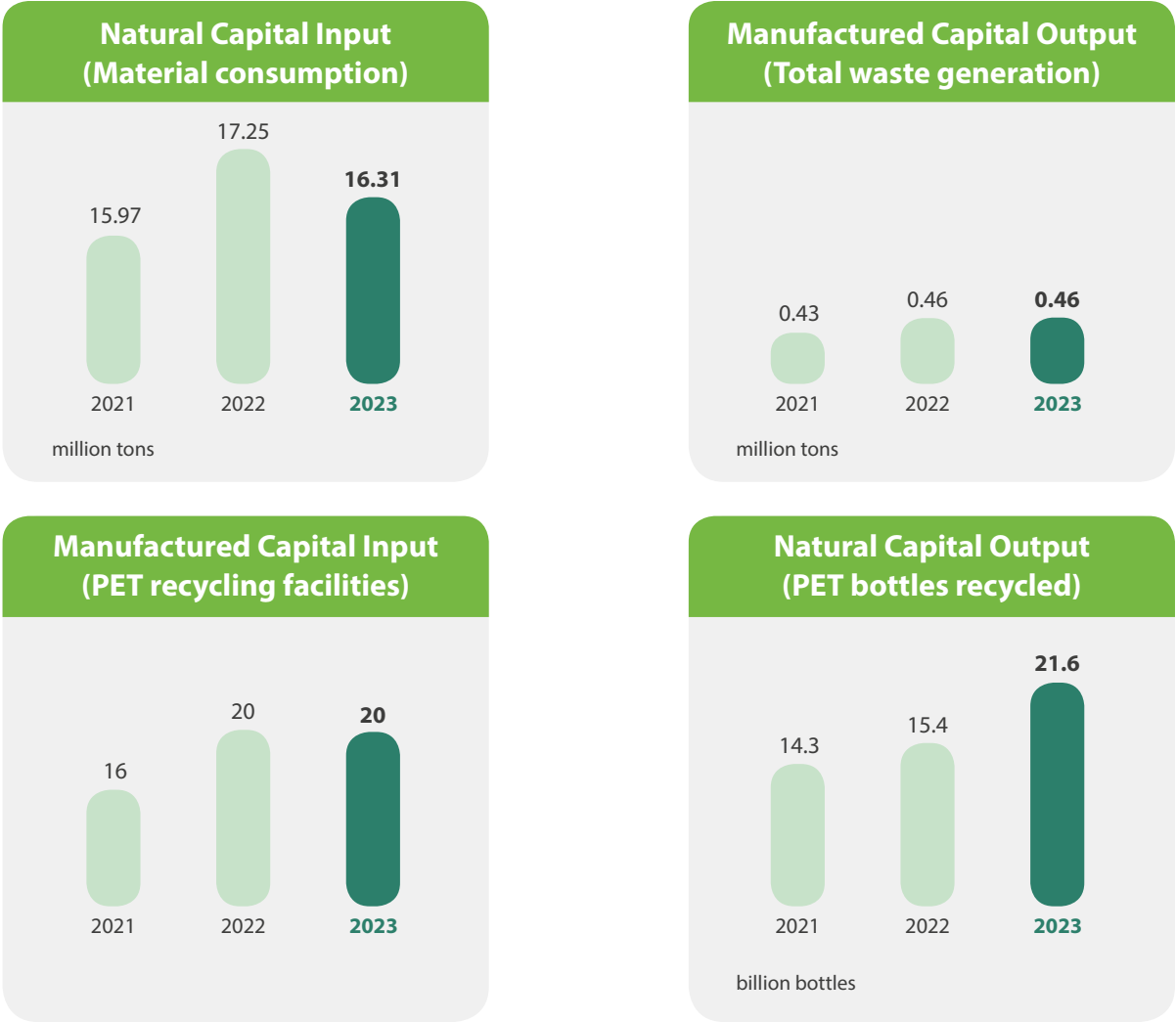


Indorama Ventures is aware of the negative environmental impacts of our energy consumption, which directly corresponds with our production capacity and volume. In response, to reduce our environmental footprint, we have invested roughly \$ 13.1 million in energy and GHG reduction projects in 2023. In addition, we are increasing our utilization of renewable energy sources and decreasing our overall consumption levels as we boost production levels. Despite incurring a significant costs for us in the short-term, these investments will lead to cost savings and extensive positive impacts on the environment in the long run.

Interconnection between Short-term Financial Profitability vs Long-term Value Creation (2021, 2022, 2023)



Interconnection between Business Strategy and Environmental Impacts (2021, 2022, 2023)



Conversely, significant challenges in our European operations due to high-cost feedstock, energy prices, and competition from cheaper imports from Asia, have led to only a 3.7% average return on capital employed (ROCE) over the past three years. To address this, Indorama Ventures is strategically evaluating seven underperforming sites globally, accounting for about 10% of total production capacity and 7% of group capital employed. These sites, primarily in the Western hemisphere and part of the CPET and Fibers segments, are being considered for right-sizing or mothballing to optimize the asset base and achieve first-quartile performance in cost efficiency.

While the rationalization of these sites will lead to a reduction in production capacity, it is expected to significantly improve segment operating rates, EBITDA per ton, and return on capital employed. We anticipate several positive outcomes from these strategic actions, including increased operating rates, reduced fixed costs, and the reversal of hedging losses incurred in 2023, ultimately leading to improved earnings quality and a nearly 3% increase in ROCE. More importantly, despite lower production capacity, Indorama Ventures plans to maintain revenue levels by serving customers from other assets or procuring raw materials at lower costs, aligning with our commitment to navigating challenging market conditions while enhancing profitability.

SUSTAINABILITY-RELATED RISK MITIGATION PLAN

[GRI 201-2]

Indorama Ventures integrates risk management to identify, evaluate, and mitigate sustainability-related risks linked to our operations. Consequently, a set of actions has been formulated to address sustainability-related risks and challenges, aimed at enhancing our operational and sustainability performance in alignment with our commitment to improving sustainable growth and development. These actions are directed towards preventing severe repercussions, such as operational and business interruptions, regulatory non-compliance, reputation damage, financial loss, and penalties.

GHG & Energy Management

Challenges

- Exposure to the effects of energy transition as well as the associated fluctuations in energy supply and market conditions
- Sluggish development in carbon regulations and the elevated costs of decarbonization technologies due to their maturity level

Mitigation Strategies

- Monitor market conditions and deploy our energy cost hedging policy to mitigate fluctuations
- Seek opportunities through energy transitions to increase our use of renewable energy, further reducing our carbon footprint and maintain contingency plans for temporary energy supply rationing
- Expedite strategic decision-making and the execution of key projects, such as coal phase-out, Carbon Capture, Utilization, and Storage (CCUS), and Virtual Power Purchase Agreements (VPPA)

Climate Change Adaptation

Challenges

- Exposure to changes in legal/regulatory requirements, which could potentially result in project delays or cancellations, operating restrictions, and additional compliance obligations
- Exposure to the adverse effects of the changing climate, with increasing frequency of extreme weather episodes and rising sea levels

Mitigation Strategies

- Implement and leverage the building of internal capabilities through the Sustainability Academy
- Proactively monitor potential regulatory changes, continue to focus on efficiency improvements, and adhere to GHG reduction goals and set targets
- Commit to sustainable water management and comply with applicable environmental laws and standards wherever we have operations
- Work with business segments to evaluate water risks and opportunities, identify water stress locations, and collaborate with agencies and authorities to understand the local water supply
- Facilitate environmental compliance by developing a heatmap to recognize prevailing environmental and plastic compliance requirements, while also assessing the impacts to Indorama Ventures across the different regions

Supply Chain Management

Challenges

- Global economic conditions
- Meeting customer expectations despite material supply issues
- Lack of reliable data due to the industry's maturity level

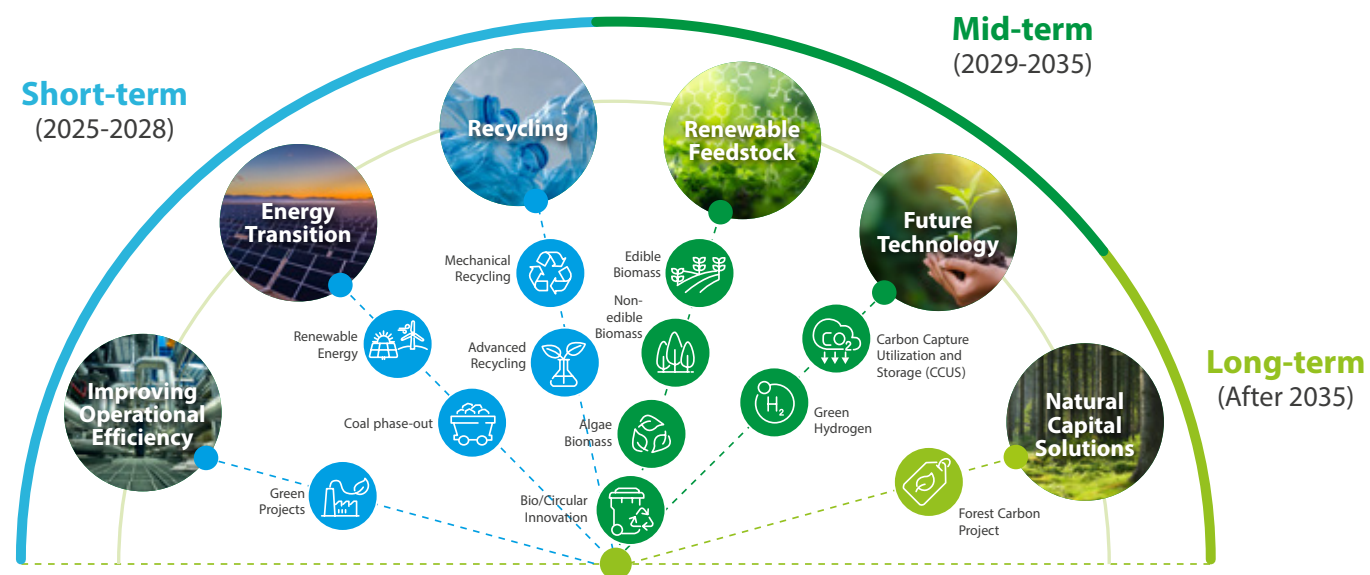
Mitigation Strategies

- Implement and conduct Indorama Ventures' Supplier ESG Compliance Assessment through EcoVadis and other vendors
- Integrate and leverage digital solutions
- Expand the team's bandwidth and capabilities through talent acquisition
- Initiate Sustainable Supply Chain Program to engage suppliers to leverage the sustainable supply chain and GHG Scope 3 emission



ACTIONS FOR SUSTAINABILITY

We are focused on achieving decarbonization journey progress in key areas over the next decade.



Decarbonization Strategies - Driving Towards Sustainable Future

Our six-pronged decarbonization strategies, involve improvements in operational efficiency, transitioning towards cleaner energy sources, promoting recycling, utilizing renewable feedstock, and exploring innovative technologies like Carbon Capture, Utilization, and Storage (CCUS).

Energy Transition Case Study

In 2023, Indorama Ventures had an active onsite renewable project portfolio with installations covering 16 sites in China, India, Indonesia, Thailand, Lithuania, the United States, Italy, and Egypt. This brings our combined installed capacity to 42 MW, generating 15,000 MWh of electricity. Notably, a 5.4 MW solar farm project was completed at our Asia PET site in October 2023.

In line with our strategy to transition away from coal, we successfully converted one Hot Oil Coal Heater to natural gas in India, resulting in an estimated annual GHG saving of 35,000 tCO₂e. This marks a continued step towards our overarching goal of achieving 100% coal phase-out by 2030.

Future Technology Case Study

Among some notable initiatives is our collaboration at the Indorama Ventures Polymers Mexico site, where we are currently capturing CO₂ from heaters, with the potential to mitigate emissions by 29,000 tCO₂e. Additionally, we are investing in carbon capture at our Port Neches site, with the potential to mitigate up to 650,000 tCO₂e annually.

MAKING STRIDES TOWARDS A SUSTAINABLE FUTURE

Our priority has been to generate value beyond the organization, accounting for the broader environment and society since the beginning of our sustainability journey in 2010. It was, therefore, essential for us to incorporate the UN SDGs into our business practices, ensuring that our investment decisions and strategic operations revolve around achieving meaningful impacts that help in solving global challenges while contributing to a sustainable future for all. By incorporating the SDGs, we encourage innovation, create new market opportunities, and highlight our dedication to both people and the planet.





Key Sustainability
Recognitions and
Awards in 2023

Deputy Group CEO and
Group Chief Financial
Officer Message

Chairman of ESG
Council Message

Chief Sustainability
Officer Message

Performance in Our
Sustainability Ambitions

Indorama Ventures'
Key ESG Highlights 2023

Chapter 1:
Who We Are

Chapter 2:
Value Creation

Chapter 3:
Our Materiality

Chapter 4:
Bridging Innovation &
Circularity

Chapter 5:
Environmental
Performance

Chapter 6:
Social Impact

Chapter 7:
Robust Governance

Chapter 8:
Appendices

Chapter 3

OUR MATERIALITY

62 Materiality Assessment Approach

63 Materiality Assessment Outcomes



OUR MATERIALITY

[GRI 2-28, 3-1, 3-2, 3-3]

MATERIALITY ASSESSMENT APPROACH

Indorama Ventures conducts biennial materiality assessments to define the key environmental, social, economic, and governance topics crucial to both our business and internal/external stakeholders. The process integrates input from external stakeholders, trend analyses, and internal engagement across our business group, concerning the influence of stakeholder interests on our operations and the significance of the business impacts. We believe that developing effective sustainability strategies that fully account for the interconnection of material topics will lead to improved performance in the long run. Our latest assessment in 2022 identified ten key material topics. Further information is available in our 2022 Materiality Assessment Summary and 2022 Sustainability Report.

Moreover, we deep drive more on our assessment to align more with the Double Materiality Approach (DMA). This approach has been incorporated into the EU Corporate Sustainability Reporting Directive (CSRD), Dow Jones Sustainability Index (DJSI), and Global Reporting Initiative (GRI) standard. The DMA enables the Company to understand and efficiently manage potential organizational risks, opportunities, and impacts aligning with the expectations of stakeholders in a comprehensive and effective manner.



MATERIALITY ASSESSMENT OUTCOMES

[GRI 3-2]

From our 2022 Materiality Assessment, we identified 30 material topics for the 2023 Sustainability Report under the EESG (Economic, Environmental, Social and Governance) pillars, linked with the SDGs. Nine of these are classified as highly material topics: Post-consumer PET Bottles Recycling and Plastic Waste, Climate Change and Decarbonization, Occupational Health and Safety, Human Rights, Supply Chain Management, Business Ethics and Transparency, Compliance Management, Risk and Crisis Management, and Cybersecurity.

This year, we are bringing attention to three critical areas: Occupational Health and Safety (OHS), Risk and Crisis Management, and Climate Change and Decarbonization. These areas have significant impacts, risks, and opportunities for Indorama Ventures, both socially and environmentally.

Given our chemical manufacturing business, OHS management is crucial to protect our workforce, the value chain, as well as the environment. Similarly, robust risk and crisis management are essential to safeguard the Company against internal and external threats.

In regard to Climate Change and Decarbonization, increasing regulations and standards present compliance risks as well as reputational and financial impacts. However, these challenges also offer opportunities for implementing renewable energy, innovation, waste management, and water management. Our emphasis on renewable energy is driven 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 efficient water use, as our production requires substantial amounts.

These results were endorsed by the Sustainability and Risk Management Committee (SRMC), a sub-committee of the Board of Directors, and our materiality assessment process is verified by a third-party. By focusing on these areas, we are ensuring the well-being of our employees, protecting the environment, and maintaining our commitment to sustainability while driving business success.

FOR MORE
INFORMATION



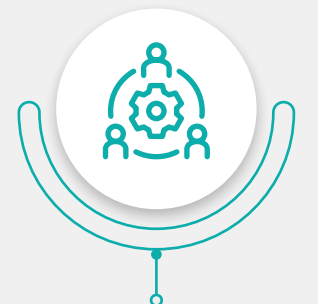
ENVIRONMENT

- Post-consumer PET Bottles Recycling and Plastic Waste
- Climate Change and Decarbonization



SOCIAL

- Human Rights
- Supply Chain Management
- Occupational Health & Safety



GOVERNANCE

- Business Ethics
- Compliance Management
- Risk and Crisis Management
- Cybersecurity

FOR MORE
INFORMATION



Chapter 4 BRIDGING INNOVATION & CIRCULARITY

66 Our Innovative and Sustainable Products

67 Our Sustainable Impacts Through Innovation

69 Open Innovation

69 Safe and Sustainable Products

69 Product Stewardship

71 Assessing the Product Life Cycle

71 Minimizing Hazardous Chemicals and Substances

71 Ensuring Product Safety

74 Overview of Circulatory Across Our Value Chain

75 PET Bottle Recycling and Plastic Waste Management

78 Advocacy at Indorama Ventures

79 Industry Collaborations and Partnerships in 2023

80 Customer-Centric Approach to Sustainability



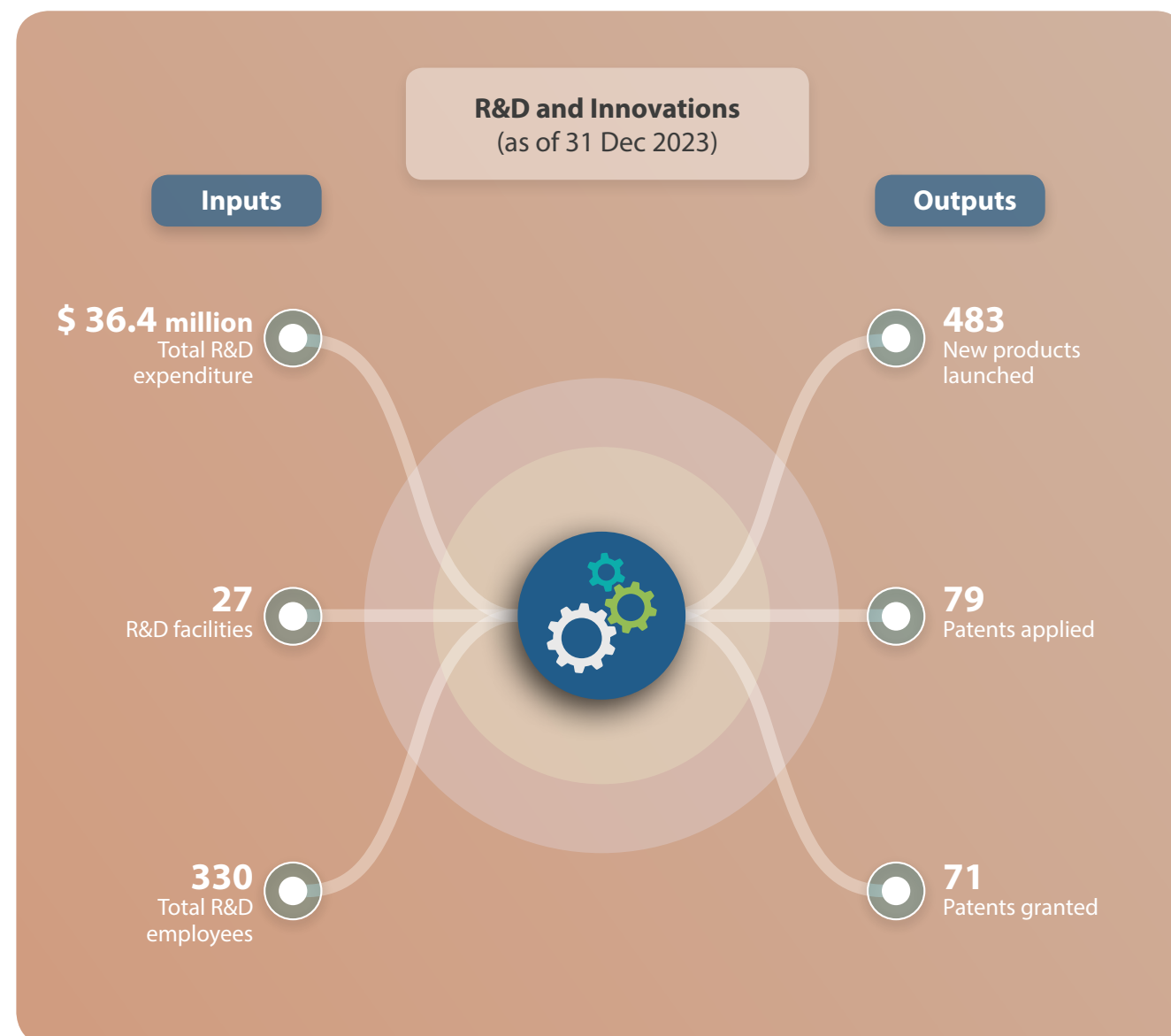


OUR INNOVATIVE AND SUSTAINABLE PRODUCTS

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

To maintain a competitive edge and drive sustainable business growth, we prioritize innovation and sustainable practices within our product portfolio. A substantial investment totaling nearly \$ 36.4 million was allocated to Research and Development (R&D) initiatives in 2023, highlighting our commitment to continuous value creation through innovation.

Our focus on innovation is driven by the need to differentiate our products, reduce environmental impacts, lower costs, enhance process efficiency, and strengthen brand equity. By incorporating circular feedstocks (bio-based and recycled PET) and implementing novel product design and packaging, we aim to advance our climate-friendly and circular approach for environmental objectives while addressing pressing societal concerns and global challenges. These efforts contribute significantly to reducing our global carbon footprint and diverting plastic waste from landfills.



OUR SUSTAINABLE IMPACTS THROUGH INNOVATION

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

Innovation management requires a strategic vision, a culture of creativity, a collaborative approach, and a continuous learning mindset. It also involves measuring and reporting the sustainability impacts of innovation, using indicators such as the Vitality Index. By doing so, innovation management can deliver positive sustainability impacts and create value for customers, stakeholders, and society in various ways, as well as an ability to create long-term value for all.

Reducing our environmental footprint

- Reduce the use of natural resources
- Improve operational eco-efficiency to reduce waste generation and emissions
- Enable the use of renewable energy sources and bio and degradable materials
- Integrate circular economy models

Enhancing social well-being

- Use greener raw materials and safer chemicals in product manufacturing
- Social entrepreneurship opportunities
- Reductions in emissions and waste that would lead to health issues
- Awareness of product recyclability and biodegradability

Creating shared value

- Create economic value for both the Company and stakeholders
- Create new markets, products, or business models that meet the needs and preferences of underserved or emerging customer segments
- Create long-term value for all

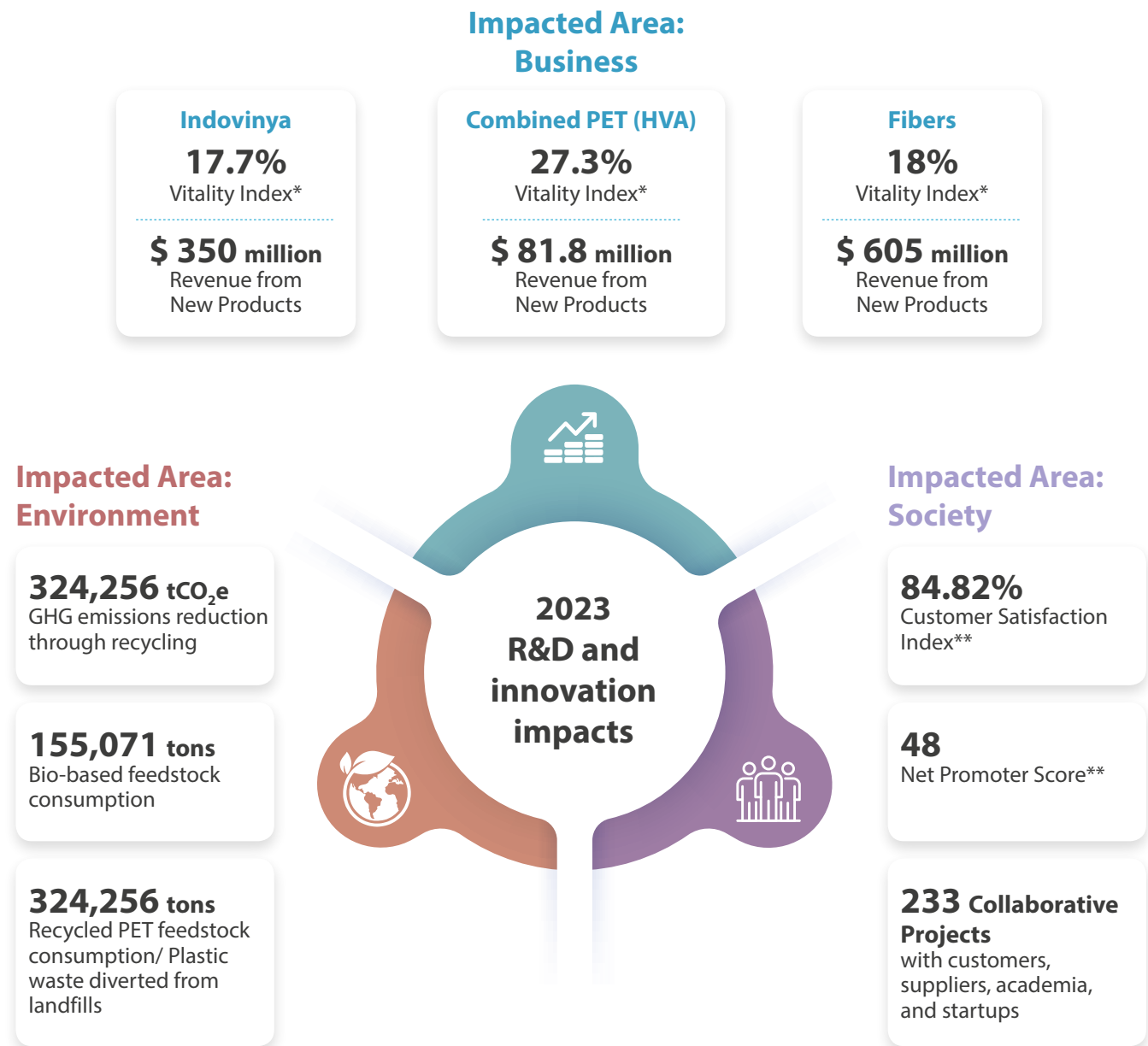
Building brand reputation and trust

- Differentiate ourselves from our competitors
- As an industry leader in circular solutions, contribute to the global sustainability agenda and SDGs
- Attract investors for sustainable financing

We employ a systematic methodology to evaluate our advances in product innovation, leveraging the Vitality Index metric, which quantifies the revenue stream generated by products conceived within the past five years. A strong showing on the Vitality Index not only reflects our proficiency in addressing customer needs but also underscores our commitment to introducing environmentally and socially responsible products to the market. It stands as a pivotal measure of the effectiveness of our innovation endeavors, showcasing our dedication to achieving both business success and sustainability goals and leadership.

Indorama Ventures' strategic shift towards investing in products made from recycled and bio-based feedstocks is driven by the imperative to advance circularity within the chemical industry. By pioneering innovative solutions, we not only maintain our leadership position but also actively promote the industry's transition towards sustainability. This commitment underscores our dedication to sustainable practices and our contribution to the global shift towards circular and environmentally responsible solutions.

FOR MORE INFORMATION



Culture and Learning

Management Approach

Comprehensive training and education are provided to relevant teams and employees on product and chemical safety.

Outcome

In 2023, Indorama Ventures was represented at key global conferences including:

- The PSX2023 Conference hosted by the U.S. Product Stewardship Society
- The EDANA Sustainability Forum
- Plastics Recycling Conference, Association of Plastics Recyclers, NAPCOR Conference

Management and Inventory

Management Approach

Chemical/substance management and monitoring systems are utilized to ensure compliance and prevent potential incidents, issues, and hazards.

Outcome

Our monitoring and compliance system is made up of both internal and external mechanisms. Internally, we utilize both a site-based legacy platform and an Excel-based system, while externally, we utilize solutions from 3E Exchange for the authoring of safety data sheets. We ensure that both mechanisms are up-to-date with regulatory substances listed in REACH SVHC and California Proposition 65.

Risk Assessment

Management Approach

Through our Product Compliance Risk Characterization (PCRC) process, we evaluate the associated environmental, human health, and safety impacts

Outcome

We work with our suppliers and customers to evaluate Product Compliance Risk Characterization (PCRC) for our raw materials and products' intended uses. This helps oversee and control the use of chemicals/substances across all own operations and supply chain activities, preventing potential incidents, issues, and hazards.



Regulatory and Compliance

Management Approach

- REACH regulation
- Substances of Very High Concern (SVHC) list
- Substitute It Now (SIN) list
- European Chemicals Agency's (ECHA) SVHC list

Outcome

All materials/chemicals used by Indorama Ventures products are reviewed and managed under relevant regulations. Moreover, we consider development of a Sustainable Product Portfolio by using the WBCSD Product Sustainable Assessment Framework to evaluate our products, in addition to Life Cycle Assessment (LCA).

Customer Engagement

Management Approach

We promptly respond to customer enquiries to address the product safety concerns.

Outcome

Over 1,000 customer issues were resolved directly through dedicated channels of Indorama Ventures. All issues raised were dealt with on a case-by-case basis to ensure quality assurance and were recorded for further product and service improvements.

Innovation and Mitigation Strategies

Management Approach

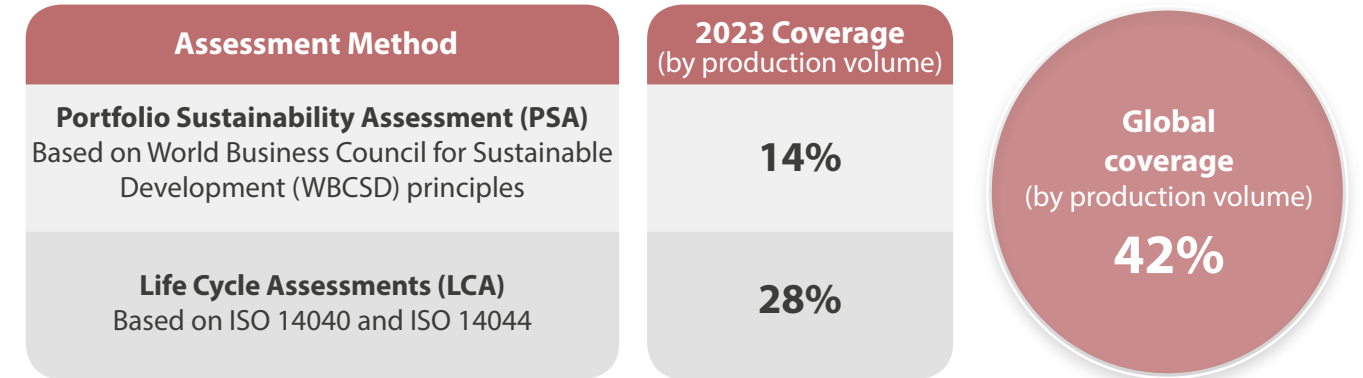
Hazardous chemicals and substances listed that will be in finished goods are identified and considered for substitution with safer and greener alternatives, if feasible.

Outcome

Based on careful evaluation, no harmful substances, we continuously monitor the feasibility of substituting and reducing out concerning substances according to updated regulations across our products.

ASSESSING THE PRODUCT LIFE CYCLE

We classify the sustainability performance of our current product portfolio and new solutions by using two methods: First, the Portfolio Sustainability Assessment (PSA) to measure the environmental impacts across the value chain of our supplies/feedstocks, products, and processes, aiming to reduce our environmental footprint and provide information to customers. Secondly, the Life Cycle Assessments (LCA).



MINIMIZING HAZARDOUS CHEMICALS AND SUBSTANCES

Indorama Ventures is committed to providing safe, sustainable, and high-performance products for both our customers and consumers, as well as minimizing hazardous chemicals and substances during the manufacturing process. We conduct a Product Compliance Risk Characterization (PCRC) process for every product to evaluate its associated environmental and human health impacts. The Product Compliance Risk Characterization (PCRC) process undertaken for 100% of our raw materials and products is the mechanism by which this assessment is performed for their potential impact on human health and the environment. Upon detection of hazardous chemicals/substances, a mid- to long-term strategy is devised to replace them with safer and greener alternatives. This effort is spearheaded by various departments, including R&D, product stewardship, procurement, and quality control.

ENSURING PRODUCT SAFETY



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



100%
compliance with the
ECHA SVHC list



Our finished products
do not contain more
than 0.1%
by weight of any
Substance of Very
High Concern (SVHC)*



Zero violations
of domestic
and international
regulations

*Listed in the SVHC Candidate List in accordance with Article 33 of the REACH Regulations (EC) 1907/2006



2023 HIGHLIGHTS

**Indorama Ventures Ranked Second
in the 2023 ChemScore Report**

Indorama Ventures has maintained its position at the forefront of the global chemical industry for two consecutive years, securing second rank among the 50 largest chemical companies worldwide as per the ChemScore ranking system by ChemSec. This achievement reflects our ongoing commitment to minimizing our chemical footprint and advancing toward the principles of green chemistry.

**Indorama Ventures - Indovinya
Wins The Kurt Politzer
Technology Award****Sustainable Innovation with
OXISENSE® H 1000**

To develop cleaning products, one must consider the challenge of using ingredients that guarantee a stable system, which is often achieved through hydrotropes. Although they are very efficient, the most commonly used type of ingredient has been Sodium Xylene Sulfonate (SXS), made from fossil and aromatic sources, and its use has been linked to the emergence of certain cancers.

Through our global business segment, Indovinya, we invested in the development of OXISENSE® H 1000, a plant-based hydrotrope that is 100% renewable. This hydrotrope allows for cold processing, generating energy savings while also being free of phosphates and any other phosphorus derivative, which prevents the eutrophication of water bodies such as rivers and lakes. Furthermore, 100% of this product's ingredients are active, allowing it to be supplied in smaller packaging, reducing the consumption of packaging materials such as plastic, thus ensuring a more sustainable production process, meeting marketing, environmental, and social demands.

**Surfom® 9115 – A Potent
Solution for Managing Water
Scarcity in Soil**

Soil health is a significant concern in modern agricultural practices, including adopting improved agronomic practices, using lower volumes of more efficient crop protection products, and directly managing the soil.

Introduced in 2023, SURFOM® 9115 not only helps farmers overcome drought periods but also reduces water consumption in irrigated areas. It is biodegradable and biocompatible, enhancing water penetration in hydrophobic soils, improving horizontal water distribution in the soil profile, and retaining water near the roots for longer periods.

Available from 2024, SURFOM® 5015 with Renewable EO has great potential for reducing value chain emissions – especially our customers' Scope 3 emissions. The product also has a blend, SURFOM® 8963, that works as a high-load herbicide formulation, allowing reductions in dosage in the field and in packaging usage. This represents a reduction of 40.2% of CO₂e emissions in logistics and reverse logistics in the agro chain.



2023 HIGHLIGHTS

INDORAMA
VENTURES

SIPA

**World's First Sustainable Monolayer PET
Sparkling Wine Bottle**

In 2023, the world's first sustainable monolayer PET sparkling wine bottle was introduced through a collaboration involving SIPA's Packaging Development Team and made from Indorama Ventures bottle resin and OxyClear® barrier. The new bottle was awarded top prize in the 2023 Best Packaging contest at Milan Design Week. The bottle offers the same look, functionality, and feel as a traditional glass sparkling wine bottle.

**Key features of the world's first sustainable, monolayer PET
sparkling wine bottle:**

- Helped the European wine industry address a glass shortage due to supply chain, energy, and raw material challenges, which saw the average cost of a glass wine bottle increase 23% from April 2020 to April 2023.
- The award-winning PET packaging solution for sparkling wine bottles provides brands with a fully recyclable option, maximizes logistics efficiencies, minimizes handling risks, runs on existing glass-filling lines, and has a lower carbon footprint compared to conventional options.
- OxyClear® PET wine bottles offer the same benefits and functionality as glass after 24 months in storage at 15 °C.

A Solution for Sustainable Car Seat Foams

Auraloop, a new sustainable and innovative solution from Faurecia and Indorama Ventures, is based on 100% recyclable polyester, designed to replace traditional car seat foams. This new material will allow for a twofold reduction in the

INDORAMA
VENTURESauraloop
COMFORTABLE & SUSTAINABLE

carbon footprint of car seat pad solutions compared to current materials. It not only meets the dynamic new market for car seats with improved performance and comfort, but also embraces sustainability by integrating materials that combine comfort with the circular economy into future vehicles.

Key features of Auraloop:

- Enhanced seating comfort: A more open fiber structure and better air permeability than current seating pad solutions.
- Improved breathability: The seating facilitates superior passive thermal regulation for occupants.
- Increased durability: The seating's resilience is sustained by limited subsidence over its lifetime.



OVERVIEW OF CIRCULATORY ACROSS OUR VALUE CHAIN

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

We prioritize circularity within our value chain as a fundamental commitment to environmental sustainability and resilient business practices. Central to this commitment is our innovative management system, which continuously assesses and refines our systems, processes, and product offerings. Through incremental enhancements, we not only improve overall performance but also actively promote circularity throughout the value chain. In line with our overarching Decarbonization Strategies, we integrate improved energy- and water-saving measures by optimizing operational efficiencies and embracing innovative solutions.

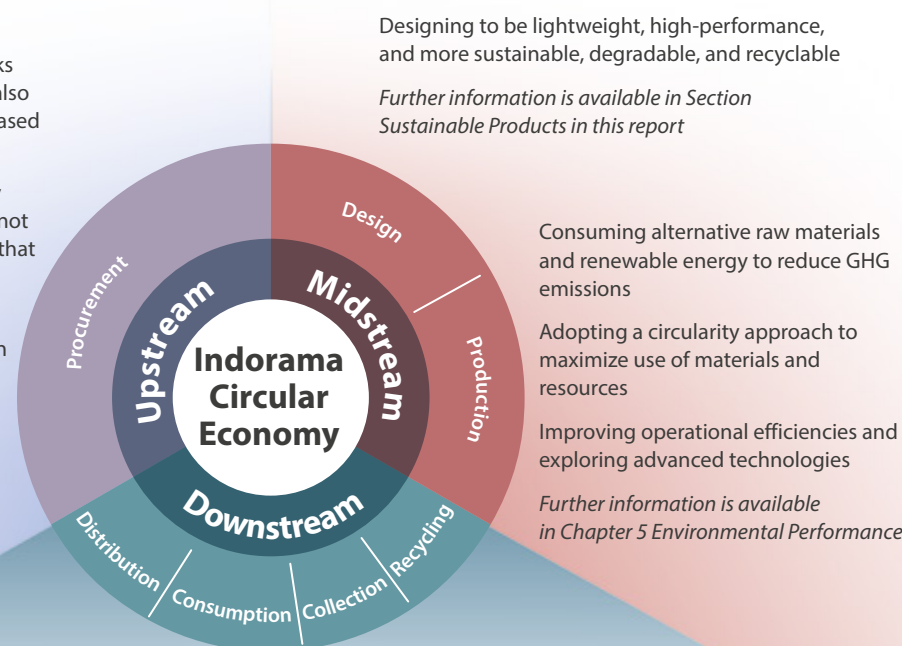
Beyond internal borders, we encourage open innovation by collaborating with both internal and external stakeholders to leverage various perspectives and expertise in line with our strategic "Innovation Management Focus." We actively engage in open innovation, forging close partnerships with both internal and external stakeholders to tap into a broad spectrum of viewpoints and specialized knowledge. This collaborative approach consistently generates unique concepts and perspectives, allowing us to refine diverse aspects of our products, procedures, and business frameworks. Crucially, this collaborative endeavor also brings together invaluable technologies, intellectual assets, and research and development capabilities, positioning Indorama Ventures at the forefront of the upcoming innovation frontier.

Increasing consumption of circular feedstocks (bio-based and recycled feedstocks), which also help reduce GHG Scope 3 emissions – purchased goods and services

Adhering to our Responsible Sourcing Policy helps to ensure bio-based raw materials are not sourced from deforestation or other actions that harm biodiversity

Sourcing from local suppliers to reduce GHG Scope 3 emissions – upstream transportation

Further information is available in Section Supply Chain Management



Transitioning from road to rail transportation

Opting for direct shipments over intermediary transshipments

Improving overall logistics management and helping reduce GHG Scope 3 emissions encompassing both upstream and downstream transportation

Advocating for changes in laws and regulations:

- The increased demand of recycled PET as a sustainable alternative to plastic in food and beverage packaging
- Plastic waste pollution
- Extended Producer Responsibility (EPR)
- Plastics Tax

Collaborating with stakeholders and partners to increase awareness about the value of recycling through Circular Economy Education

Expanding the impact of bottle collection projects

Advancing and expanding of PET recycling facilities

Having the Indorama Ventures Investments & Holdings (IVIH) as a start-up business incubator

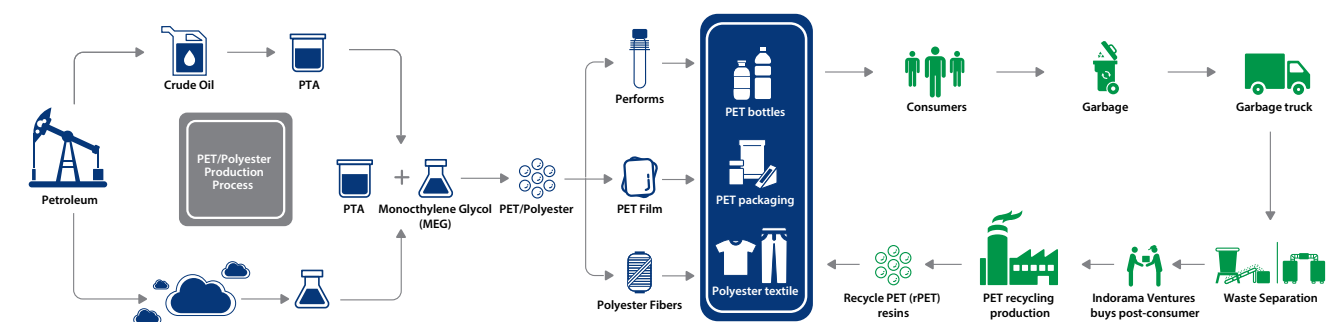
PET BOTTLE RECYCLING AND PLASTIC WASTE MANAGEMENT

[GRI 3-3, 303-1, 301-3]

We recognize the global push for sustainability amid challenges related to plastic and advocate for an environmentally sound future. Despite existing barriers, PET offers significant advantages: it is 100% circular, recyclable, and has a lower carbon footprint than glass and aluminum. With our customer base demanding more sustainable packaging solutions, we anticipate a 10% Compound Annual Growth Rate (CAGR) in rPET demand.

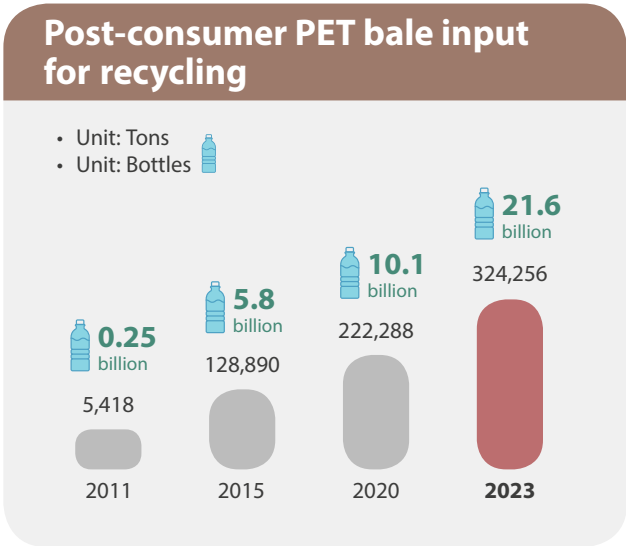
PET's recyclability serves as a bridge to achieving "Zero Plastic Waste to Nature." Currently, half of the world's PET is recycled, and this amount is projected to grow as global collection methods improve. Indorama Ventures has underscored its commitment to closing the loop by developing essential infrastructure. This has allowed us to become a leading global PET producer and recycler, further strengthening our goal of being a sustainable global chemical company.

Recyclable PET Life Cycle



FOR MORE
INFORMATION

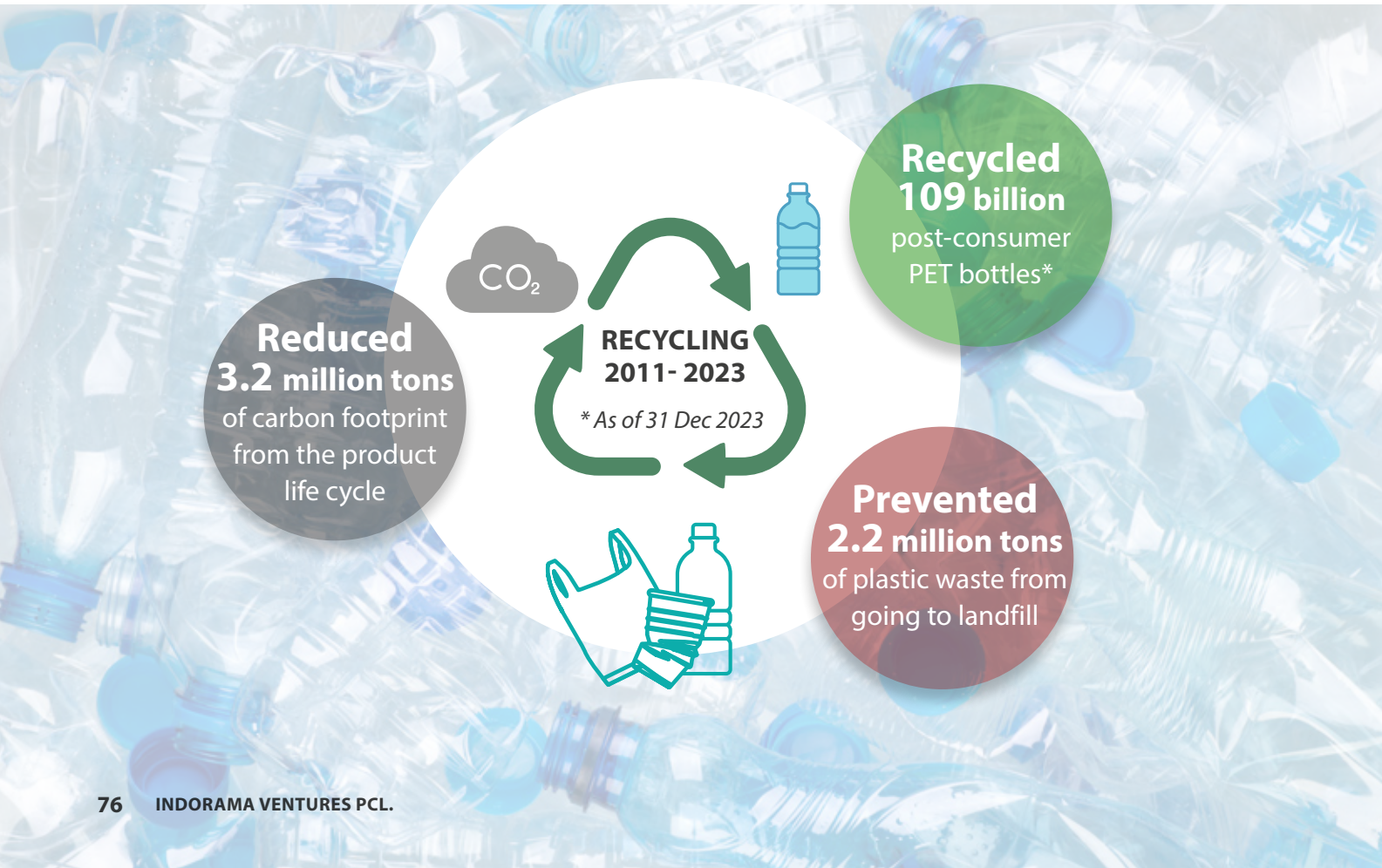
Over the last decade, we have invested \$ 1 billion in establishing recycling facilities to promote the PET circular economy. With 20 recycling sites already established across 12 countries, we look forward to further expanding our infrastructure to achieve both our mission and the recycling ambitions of our customers. By launching new facilities this year in Thailand, Indonesia, and India, we will be positioned to close the gap in meeting our commitment to the Ellen MacArthur Foundation of recycling 750,000 tons of PET bale input per year by 2025 and 1,500,000 tons of PET bale input per year by 2030.



The PET bottles figure uses an average weight and an overall height of on-the-go PET water and soda bottles, equivalent to the volume recycled at Indorama Ventures recycling sites between February 2011-December 2023. Weighting shall be referenced to The International Bottled Water Association.

2023 HIGHLIGHT

Between February 2011 and September 2023, Indorama Ventures reached the milestone of recycling 100 billion PET bottles. This achievement diverted 2.1 million tons of PET waste from the environment and reduced the carbon footprint by 2.9 million tons.



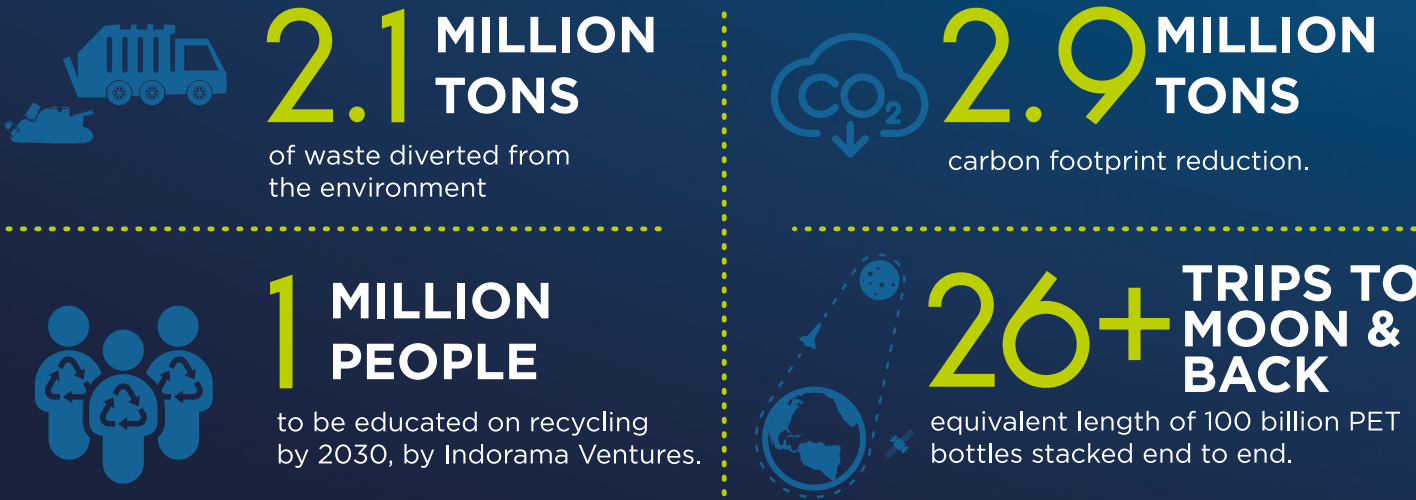
WHAT IS THE IMPACT OF

RECYCLING 100 BILLION

PET BOTTLES ?

Between February 2011 and September 2023, Indorama Ventures, a sustainable global chemical company, has now reached the milestone of recycling 100 billion PET bottles.

HERE ARE THE KEY NUMBERS IN THIS JOURNEY



HOW WE ARE MAKING THIS POSSIBLE



THANK YOU FOR RECYCLING!

PET, made to be remade.

www.indoramaventures.com



Visit our real-time recycling counter here



100 billion PET bottles figure uses average weight of on-the-go PET water and soda bottles*, equivalent to the volume recycled at Indorama Ventures recycling sites between February 2011 - September 2023.

Weighting reference: The International Bottled Water Association. Carbon footprint reduction: Indorama Ventures' Life Cycle Assessments (LCA). Moon distance source: NASA



ADVOCACY AT INDORAMA VENTURES

In 2022, Indorama Ventures joined the Thai government's Action Plan on Plastic Waste Management (2023-2027). The working group included both the public and private sectors to guide circular plastic management and offer recommendations for international negotiations. Indorama Ventures' collaboration ensured our alignment with Thai government policy.

We participated in events at COP28, hosted by the United Nations Framework Convention on Climate Change in Dubai, where our commitment to innovation, technology, and sustainable business practices was highlighted at the Thailand Pavilion, showcasing our contributions to the global net-zero target.

In the U.S., there was significant legislative activity at the state level to increase the collection of recyclable materials. Although no new bills were passed in 2023, twelve states introduced, and some held hearings on Extended Producer Responsibility (EPR) schemes, establishing important legislative groundwork for 2024 and 2025. At the federal level, the Environmental Protection Agency solicited constituent feedback on their National Strategy to Prevent Plastic Pollution, including improving post-use material management. This will be the instrument used by the Biden administration to implement policies to reduce, reuse, and collect plastic waste. In addition, the Federal Trade Commission solicited comments to update the "Green Guides," which establish regulations guiding labeling and general environmental benefit claims.

Differentiating fully recyclable PET packaging from other polymer types is key to demonstrating that recycling works when collection infrastructure is in place.

While many countries in Latin America have regulations in place requiring minimum recycled content in plastic packaging (such as Colombia, Costa Rica, Bolivia, Chile, and Argentina), as well as recycling refund systems, 2023 saw little progress with Circular Economy legislation in major markets like Brazil and Mexico. Both countries have communities that supplement their income by collecting beverage packaging but have yet to require minimum recycled content in packaging. The importance of Circular Economy legislation lies in ensuring that the minimum recycled content requirements are derived from locally sourced feedstock to prevent dumping and sustain local communities.

In 2023, the European Commission proposed a new Green Claims Directive to prevent companies from making misleading claims about environmental benefits of their products. The Commission also proposed revising its packaging waste legislation with mandatory Deposit Return Systems from 2029, higher plastics recycled content targets (65% by 2040 for beverages), and refill quotas, which are currently under negotiation. After a thorough investigation, the European Commission imposed provisional anti-dumping duties on imports of virgin and recycled PET from China, with a decision on definitive measures expected in May 2024.

In 2023, Indorama Ventures participated in two UNEP meetings on negotiations toward a global plastic pollution treaty, highlighting the circularity of PET and the need for EPR schemes, a global design for recycling guidelines, and aligned regulations to avoid regulatory divergence.

INDUSTRY COLLABORATIONS AND PARTNERSHIPS IN 2023

Partnership in disruptive enzymatic depolymerization technology

Indorama Ventures also partnered with biotech company, Carbios, to assess the commercial and technical feasibility of its groundbreaking enzymatic depolymerization technology, which along with the collaboration, is expected to lay the foundation for establishing the world's first industrial-scale enzymatic PET recycling plant in France, with a capacity to process 50,000 tons of post-consumer PET waste per year in the EU.

Joining together to support a closed-loop economy for PET trays

In 2023, we formed a partnership with sustainable food packaging producers, AMB Spa, and Evertis to use flakes from recycled PET trays to produce PET film for food packaging trays. This collaboration will support a closed-loop economy for PET trays while also giving consumers a more sustainable option that ensures a longer shelf life for food. The partnership is expected to help us progress towards our goal of recycling 1,500,000 tons of bale per year by 2030.

Collaboration to strengthen circularity in PET food tray packaging

Indorama Ventures, one of the world's leading sustainable chemical companies, and Evertis, a pioneer in sustainable PET barrier films, are collaborating to use flake from recycled PET trays to produce PET film suitable for food packaging trays. The partnership is an important step in diverting PET trays from landfill or incineration to support the EU's recycling targets and create a circular economy for PET trays. It also protects and preserves food, reducing about 154 million tons of food waste costing €143 billion per year across the EU.

Educating teachers about recycling at the Saturday School Foundation

Indorama Ventures joined forces with the Saturday School Foundation, an educational out-of-classroom organization in Thailand, to launch the "Kru Chuan Yaek" project to encourage teachers to promote recycling and the circular economy. The project invites teachers to participate in a workshop to learn about proper waste separation, types of waste, and recycling practices. They will then develop lesson plans to encourage an anticipated 1,500 students to support waste recycling and promote a circular economy nationwide by the end of 2023.

Sustainable fashion revolution with RECO Collective

RECO Collective is a collaborative platform that aims to create and promote sustainable fashion across the value chain. Initiated by Indorama Ventures in partnership with Thai-Taffeta, Dapper, and Ecotopia, this platform provides knowledge-sharing sessions on the value of recycled materials, fabrics made from 100% recycled PET, extensive networking opportunities, and marketing support.

Indorama Ventures has consistently led the way in driving recycling and upcycling education for over a decade through its flagship "RECO Young Designer Competition", which promotes the value of recycled materials and the circular economy through creativity and innovation for students and the general public in Thailand.

Empowering Southeast Asia's youth to compete in the Circular Innovation Challenge 2023

The Circular Innovation Challenge nurtures a new generation of inventors, change-makers, and emerging thought leaders in the circular economy by inviting young people aged 16 to 30 from 11 countries in Southeast Asia, which include Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste, and Vietnam. Participants receive mentoring from industry experts before pitching their projects to the judging panel. The projects are scored based on impact, feasibility, uniqueness, and relevance to real-world applications, with prizes totaling THB 105,000. The event is coordinated by the School of Global Studies at Thammasat University, with support from Indorama Ventures, TikTok, the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), SDG Lab, and G-Lab.



CUSTOMER-CENTRIC APPROACH TO SUSTAINABILITY

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

Over the past three decades, Indorama Ventures has strategically developed its market positioning by nurturing reciprocal customer relationships, which have provided invaluable insights into market trends and forecasts, leading to enhanced brand equity, long-term customer loyalty, and satisfaction.

Ensuring customer satisfaction remains fundamental to our success. This commitment drives us to continuously evaluate and strengthen our strategies for enhancing customer relationships and adapting to their evolving requirements. As part of our Sustainability Strategy, we conduct a biennial online survey encompassing customers from across our business units, with the last one conducted in 2022. This survey is designed to gauge customer needs, expectations, and satisfaction levels with both our products and services.

To maintain the quality of the social and relationship capital we have established with our customers, our marketing team plays a vital role in understanding their needs and preferences, enhancing customer satisfaction, and customizing our products and services to fulfill their requirements. Additionally, the team guarantees swift and professional responses to customer inquiries, promoting trust, loyalty, and a favorable reputation.

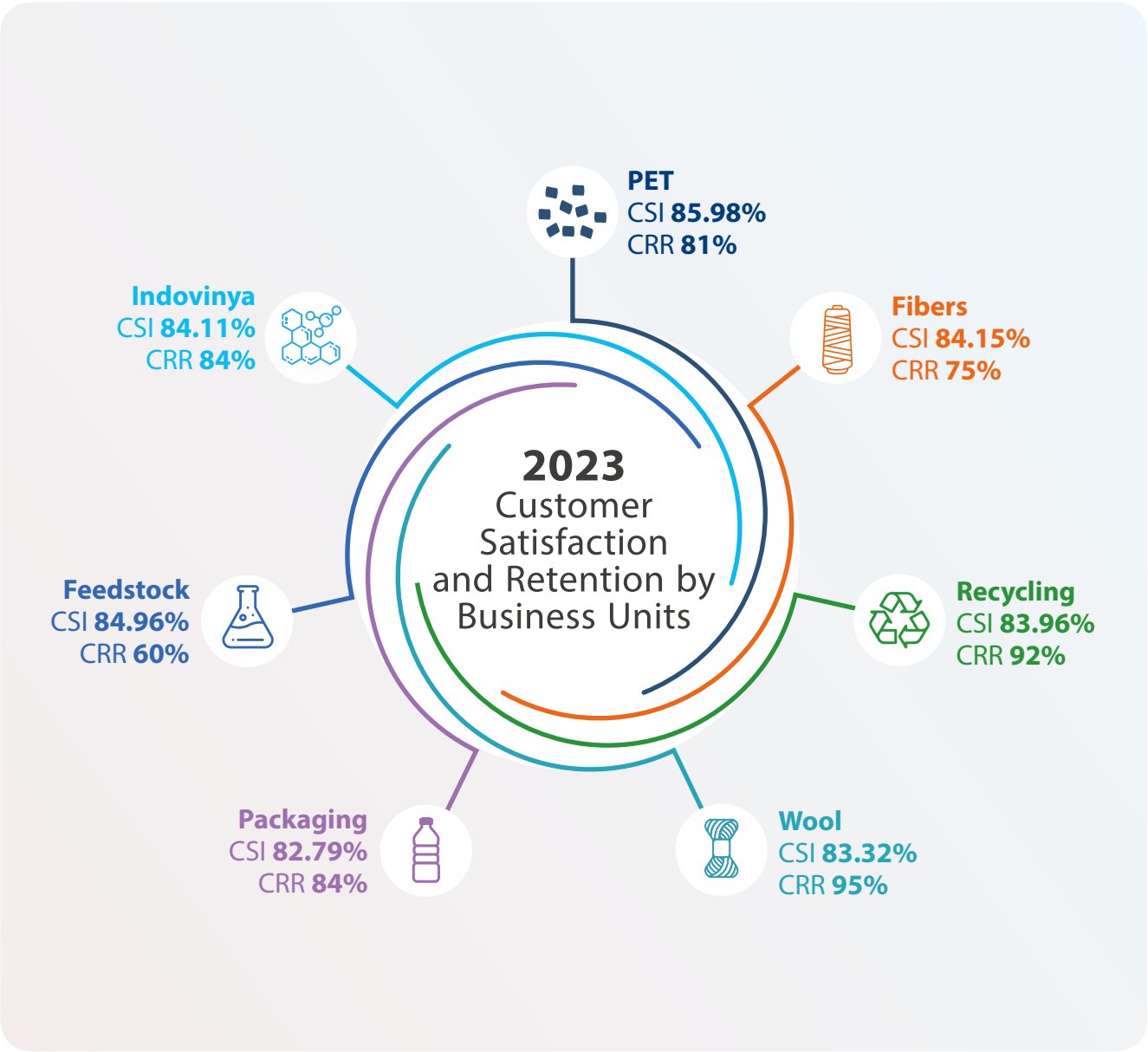


Measuring Customer Satisfaction, Retention, and Experience

Tools	Definition	2022-2023 Performance	Impacts
Customer Satisfaction Index (CSI)	Evaluates our customers' expectations, needs, and level of satisfaction with our products. Measures customer satisfaction relating to our products, services, etc.	84.82%	<ul style="list-style-type: none">Examine the root cause of any 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.Understand with changing consumer behaviors.Benchmark our business to your competitors.
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 and recommendations.Continuously monitor our business performance.
Customer Satisfaction Survey (CSS)	Engages to evaluate 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.

To further the development of sustainable and reliable products, we also gather customer insights and input through a range of customer engagement initiatives, mainly through the following communication channels:

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



Firmly rooted in our commitment to responsibility and customer satisfaction, we consistently abide by regulations governing customer relations. Our compliance strategy encompasses a range of measures, including comprehensive employee training and regular audits. Through these efforts, we continuously identify areas for improvement, ensuring that we consistently meet regulatory requirements.



Supplier Excellence Highlights 2023

2023 Pirelli Supplier Awards

The Fibers team at Indorama Ventures received the Pirelli Supplier Award for their exceptional service level. This recognition underscores our commitment to continuous support and collaboration on innovation and development projects in Single End Cord (SEC) production.

2023 Gold Business Partner Award

Indorama Ventures' Petform production facility in Thailand received the 2023 GOLD Business Partner award from Thai Beverage Public Company Limited. This recognition reflects Petform's dedication to product quality, on-time, and in-full delivery, as well as sustainability focus.

This award demonstrates our shared commitment with Thai Beverage to deliver value to consumers while elevating industry standards for improved sustainability.

Dulux Supplier of the Year Award

Indorama Ventures was awarded the Supplier of the Year Award by Dulux from among more than 2,000 key suppliers. This award is a testament to our problem-solving initiatives in securing alternative supply, speed of response, excellent communication, and outstanding supply service in the face of the unprecedented ethylene supply disruption faced in 2023.



Chapter 5

ENVIRONMENTAL PERFORMANCE

86 Driving Decarbonization for Sustainable Future

86 Decarbonization Strategies

89 Climate Strategy

90 Decarbonization in Own Operations

90 Energy Management

91 Renewable Energy and Electricity

94 GHG (Scope 1 & 2) Management

96 Decarbonization in the Supply Chain

96 GHG (Scope 3) Management

97 Sustainable Supply Chain Management Program

98 Ensuring Environmental Stewardship

98 Environmental Commitments and Governance

99 Environmental Management System (EMS)

100 Water Management

102 Waste Management

104 NO_x, SO_x, and VOCs Emissions

106 Biodiversity



DRIVING DECARBONIZATION FOR SUSTAINABLE FUTURE

[GRI 3-3, 305-5]

In alignment with our goal of achieving a 30% reduction in GHG emissions intensity (Scope 1 & 2) by 2030, Indorama Ventures has proactively worked towards integrating the best sustainability practices across all business functions. Our progress thus far, as well as our ongoing efforts, are focused on the integration of tactical initiatives and investments in sustainable practices.

DECARBONIZATION STRATEGIES



In developing our decarbonization strategies, it is essential to achieve our long-term climate ambitions by significantly reducing our carbon footprint across our operations and value chain.

We further practice climate risk management using the Task Force on Climate-related Financial Disclosures (TCFD) framework, systematically identifying risks across short-, medium-, and long-term timeframes, while guiding our efforts to proactively address climate-related challenges. Additionally, we continue to expand our eco-friendly and sustainable product portfolio, demonstrating our ongoing dedication to sustainability and environmental responsibility.



Projects / Initiatives in 2023

Short-Term (2025-2028)



Improving Operational Efficiencies

Investing in operational and energy efficiency projects to reduce emissions.

Invested \$13.1 million of CAPEX in operational, GHG and energy efficiency, and water conservation projects, contributing to a reduction of 31,503 tons of GHG emissions and savings of 216,966 GJ of energy.



Energy Transition

Decarbonizing our energy consumption via onsite and offsite renewable electricity and by phasing out coal.

Renewable Energy

- **Renewable electricity:** Solar electricity was generated and utilized across 16 sites in China, India, Indonesia, Thailand, Lithuania, the U.S., Italy, and Egypt, boosting our total capacity to 42 MW and generating 15,000 MWh of electricity. Notably, a solar farm project of 5.4 MW was completed at our Asia PET site in October 2023.
- **Moving towards low carbon energy such as biomass:** Producing energy from Biomass in three sites 223,100 tons of biomass consumed

Coal phase-out: Converted one Hot Oil Coal Heater to natural gas in India, resulting in an estimated annual GHG reduction of 35,000 tCO₂e further supporting our goal of 100% coal phase-out by 2030.



Recycling

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

The 3X capacity expansion of the Juiz de Fora facility has had a significant impact in securing a circular economy for PET in Brazil.

Totalling 20 recycling facilities resulted in a carbon footprint reduction of 0.3 million tCO₂e from 324,256 tons PET recycled in 2023.

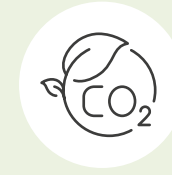
Mid-Term (2029-2035)



Circular Feedstocks

Increasing raw material consumption of bio-based and recycled feedstocks.

Through Indorama Ventures Investment Holdings (IVIH), we have identified 30 projects with the potential to deliver new technologies and innovations on renewable feedstocks, bio-based chemicals/polymers, biodegradable polymers, and advanced recycling.



Future Technologies

Exploring opportunities for Carbon Capture Utilization and Storage (CCUS) implementation and expansion to other sites.

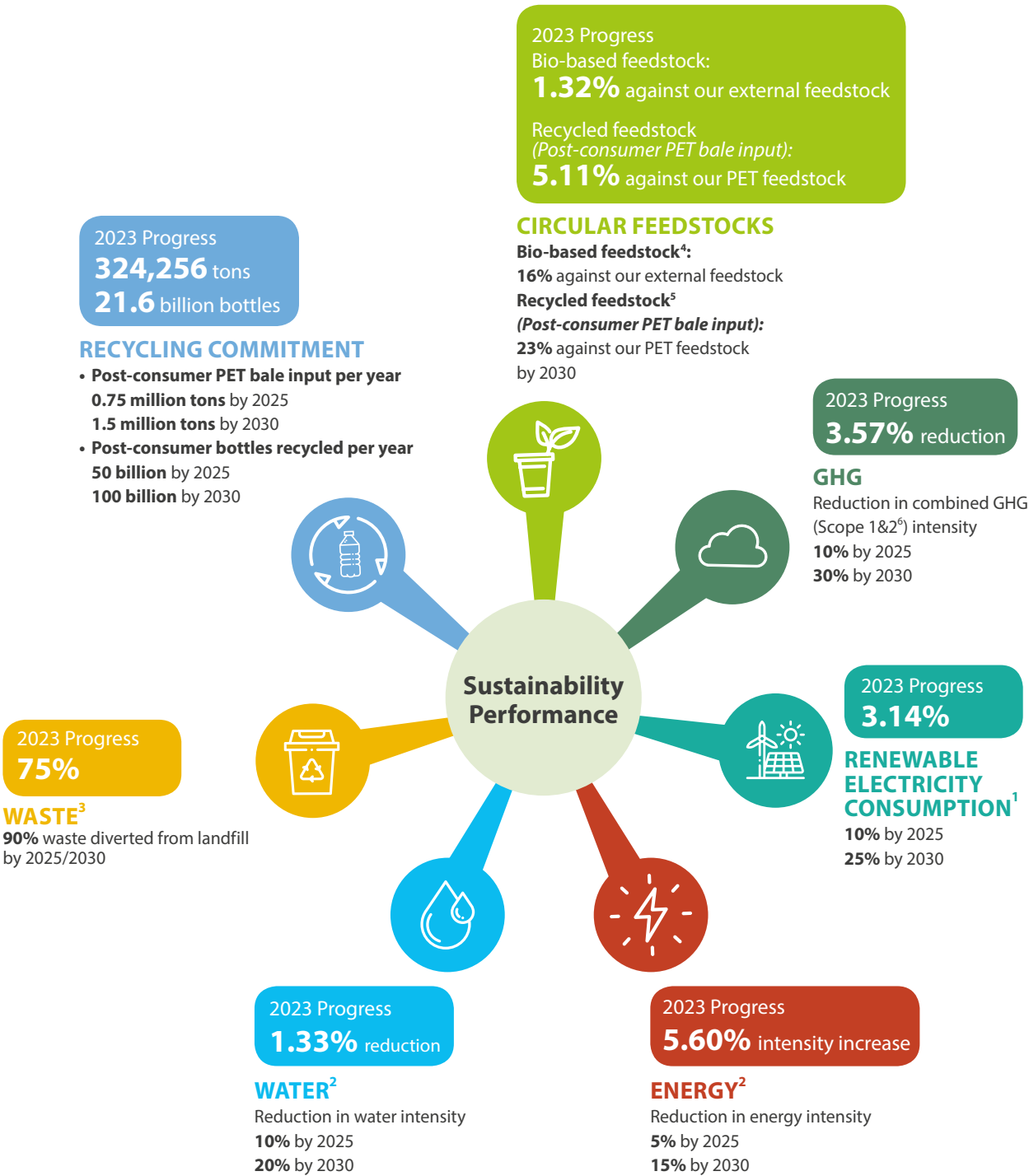
Actively engaging in innovative opportunities alongside our technical partners to invest in projects aimed at capturing and utilizing CO₂. Notably, at the Indorama Ventures Polymers Mexico site, we are working on initiatives to capture CO₂ from heaters, potentially mitigating emissions by 29,000 tCO₂e.

CLIMATE STRATEGY

[GRI 305-5]

The need for prompt action in combating global warming has become more urgent than ever before, as the impacts continue to escalate globally. Indorama Ventures has undertaken initiatives to address the challenges associated with climate change, guided by our commitment to drive progress towards a sustainable future. Adopting The Task Force on Climate-related Financial Disclosures (TCFD) framework increases transparency of our climate reporting, enhances risk management practices in our operations, and strengthens stakeholder engagement. We established an Internal Carbon Pricing framework for our business divisions, assigning a monetary value to carbon emissions. This strategic measure helps align business decisions and investment strategies with our overarching sustainability ambitions and serves as a proactive measure to mitigate transitional risks. We have continuously utilized material efficiency from the circularity of our products, which helps reduce GHG emission intensity across the entire value chain.

In alignment with the United Nations Sustainable Development Goals (SDGs), particularly Climate Action (SDG #13) and Responsible Production and Consumption (SDG#12), we are committed to collaborating with external stakeholders to expand our climate sustainability initiatives. Through these partnerships, we uphold environmental commitments by engaging with suppliers and providing ESG training programs on sustainable supply chains, climate change, and Scope 3 emissions, and seek to deliver solutions toward climate change mitigation and adaptation that effectively address the challenges posed by climate-related risks.



Remarks:

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 Indorama Ventures' external feedstocks

⁵ Percentage against Indorama Ventures' PET feedstocks

⁶ Scope 2 intensity (market-based)

2023 HIGHLIGHT

Indorama Ventures is resolute in its pursuit of a sustainable future. To align with best practices, we have compiled this Climate Report in accordance with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

This comprehensive report encompasses key aspects such as Governance, Strategy, Risk Management, as well as Metrics and Targets, reflecting our commitment to transparently and effectively address climate-related considerations in our operations and decision-making processes.





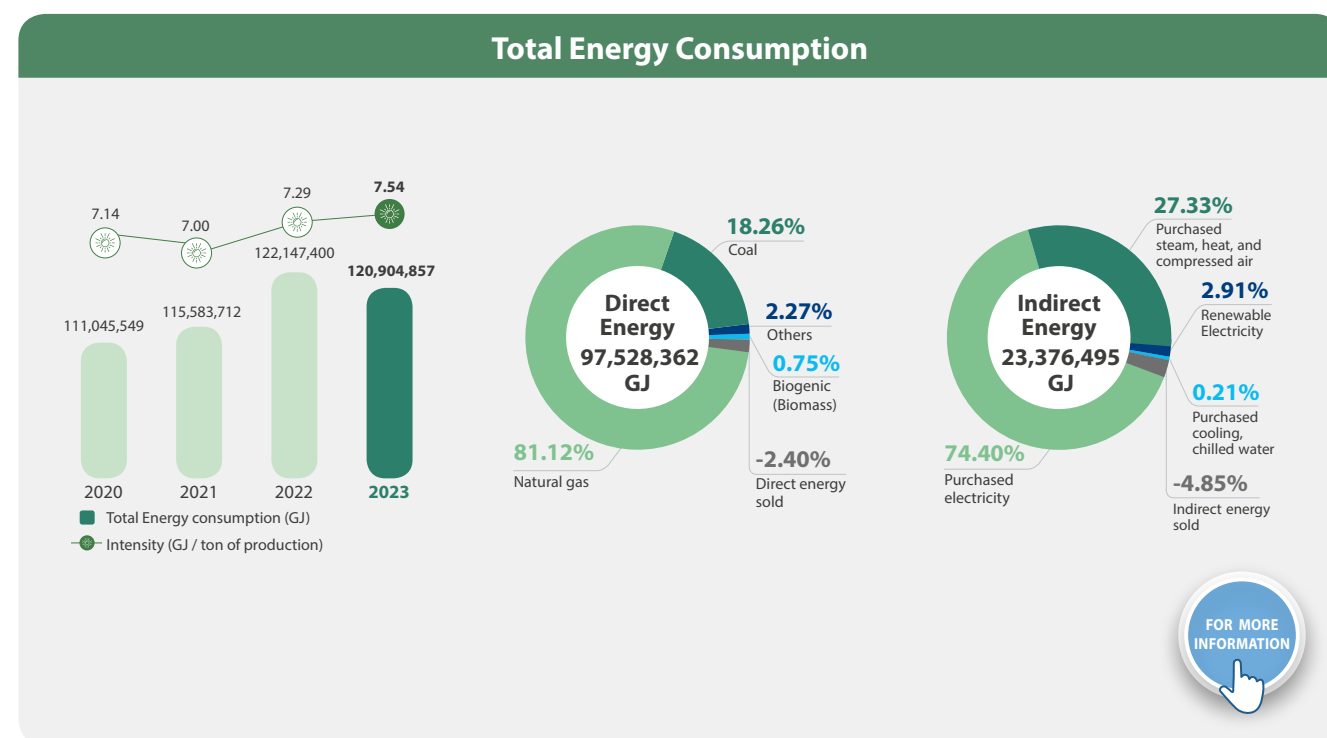
DECARBONIZATION IN OWN OPERATIONS

ENERGY MANAGEMENT

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

Reducing energy consumption is one of our key efforts in decarbonizing our portfolios as we strive towards a sustainable future. Our commitment involves pursuing efficient energy consumption and management across all operations within our business segments, aiming to significantly reduce our carbon footprint.

To ascertain our energy management system, we underwent the ISO 50001:2018 certification, and 58% of our operations (70 sites) received the certification in 2023. In addition, our energy transition initiatives (e.g. coal phase-out) align with our decarbonization strategies. We actively identify opportunities to improve energy efficiency and conservation, through internal experts and external auditors, and further develop our action plan with quantifiable targets to measure and evaluate the progress of our performance. More than 1,278 training hours on energy management were provided to our leadership and sites to ensure sufficient knowledge and skills to advance these actions and drive success. Over \$ 13.1 million was invested in energy consumption reduction projects through various process innovations, as well as plant modifications and new unit installations to procure cleaner and greener alternative fuels. Our energy data is verified and audited annually by an external third-party. In 2023, our energy intensity was recorded at 7.54 GJ / ton of production due to changes in our product mix combined with lower operating rates in our assets, particularly in the European region.



Ethylene Recovery and Energy Efficiency Enhancement (Hot Wheels)

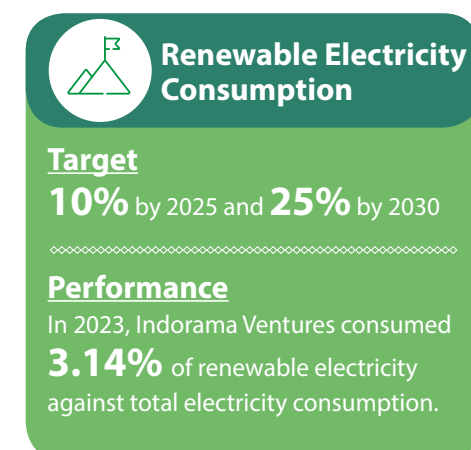
Indovinya aims to capture ethylene lost in the demethanizer tower that typically goes into fuel gas. The impact will be a reduction in the overhead temperature of the demethanizer by installing a two-stage turbo-expander and a new cold box to recover incremental ethylene. Energy is saved both from the recovery of ethylene from the residue gas stream and from unloading the refrigeration system. This results in significant energy savings: 158,227 MMBtu/year from recovered ethylene and 287,376 MMBTU/year from unloading propylene refrigeration. Cumulatively, the project reduces energy consumption by 445,603 MMBtu/year and lowers CO₂ emissions by 23,661 tons/year.



RENEWABLE ENERGY AND ELECTRICITY

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

To reduce GHG emissions, we are driving a shift towards renewable energy by strategically increasing its consumption at operations with reliable supply and grid compatibility. Our solar energy generation projects, coupled with exploring Virtual Power Purchase Agreements (VPPAs) in the U.S. and Europe, remain our focus in order to achieve our 2030 renewable electricity consumption target. With this in mind, our renewable electricity consumption in 2023 was 3.14% of our total electricity consumption.



HIGHLIGHTS From 2014 to 2023

16 Onsite / Offsite solar installations in China, India, Indonesia, Thailand, Lithuania, USA, Italy, and Egypt

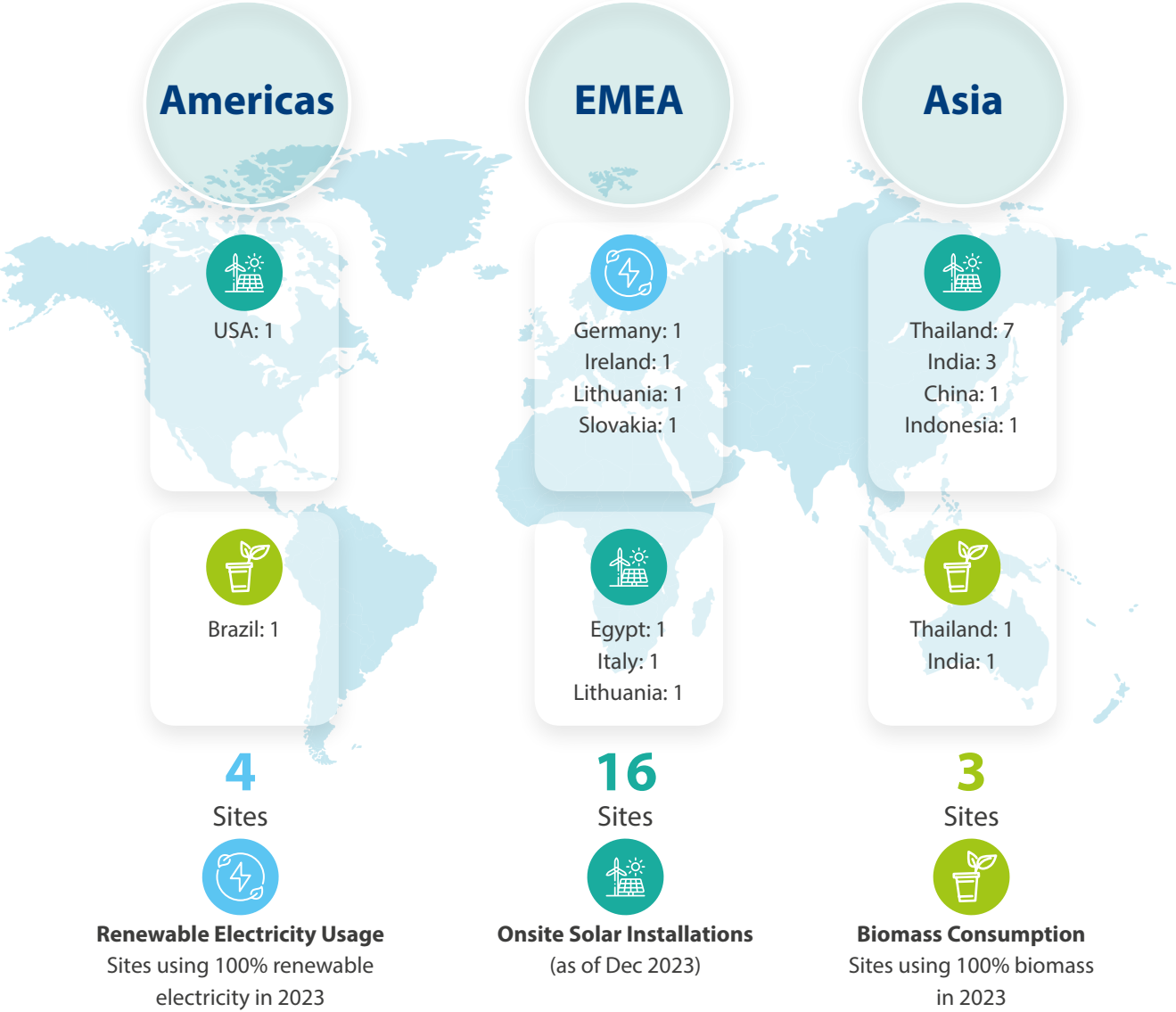
98,878 MWh of solar based renewable electricity generated and used in plants

49,162 tCO₂e of total cumulative GHG reduction from renewable electricity consumption



Various renewable energy transition projects are underway across our diverse markets, with the majority of our solar energy projects located in Asia. For more updated information on our generated solar-based renewable electricity used in our operations, please visit our website for the real-time counter.

Renewable Energy Across Our Operations

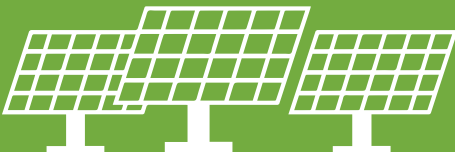


Location	Type of Renewable Energy	2023 Highlights
Onsite	Solar energy	<ul style="list-style-type: none"> To date, we have installed onsite solar units across 16 sites in the U.S., Germany, Ireland, Lithuania, Portugal, Slovakia, Egypt, Italy, Lithuania, Thailand, India, China, and Indonesia. 1 project was completed in 2023 in Asia Pet
Offsite	Renewable Electricity Certificates (RECs)	<ul style="list-style-type: none"> We purchased renewable electricity with certificates through PPAs in the U.S. and Europe, which provided a total of 176,137 MWh in 2023. We are further exploring increased procurement of renewable electricity through VPPAs, especially in the U.S. 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.

Solar Farm Project at Asia Pet in Lopburi

The new solar farm at the Asia Pet site in Lopburi boasts a generation capacity of 5.6 MW, leading to an approximate annual reduction of 3,940 tCO₂e in GHG emission. This project will supply power to Indorama Ventures. With this new installation, the total solar capacity at the Lopburi site will reach 12 MW, making it the largest among all Indorama Ventures’ sites, including existing solar farms and rooftop installations.

This increased solar capacity will provide approximately 15% of the site’s power needs, resulting in annual savings of approximately \$ 900,000 and significantly reducing energy costs across the site’s business units. Furthermore, the project will earn Renewable Energy Certificates (RECs), further underscoring our commitment to sustainability.



Biomass Heater Installation

To support our ambition to reduce fossil fuel usage and GHG emissions, Indorama Petrochem Limited (PET), Thailand, has been transitioning from natural gas to biomass for its heaters since 2017. The designed heaters can utilize various biomass materials, including wood chips, wood pellets, and palm kernel shells. In 2023, we expanded our biomass heating capacity with the installation of Biomass Heater C, which has a capacity of 14 MW. Biomass Heater C will be fully operational in 2024, enabling us to reduce GHG emissions by an estimated 9,733 tCO₂e/year and replace approximately 38,131 tons of natural gas with biomass annually.



GHG (SCOPE 1 & 2) MANAGEMENT

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



2023 HIGHLIGHTS

138,750 tCO₂e

GHG reduction from renewable energy consumption, including renewable electricity and biomass (Location-based)

GHG emissions for Scopes 1, 2, and 3

(9 categories) were verified by an external auditor

\$ 13.1 million

CAPEX investments for GHG reduction projects

100%

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

GHG emissions reduction projects

11 projects Completed in 2023

6 projects Ongoing as of year-end 2023



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

Target

10% by 2025 and

30% by 2030

* Scope 2 intensity (market-based)

Performance

In 2023, we recorded an intensity of

0.5911 tCO₂e/ton of production,

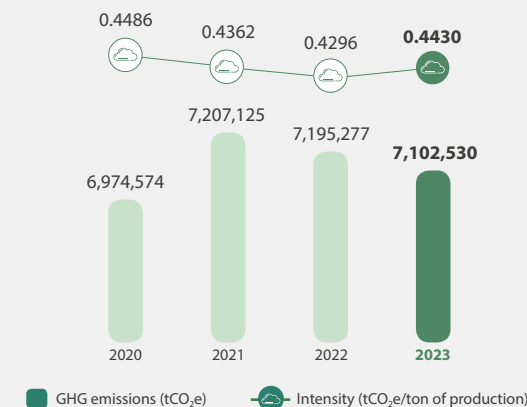
a **3.57%** reduction against 2025 target.

Our absolute GHG emissions (Scope 1 & 2) were recorded at 9.6 million tCO₂e, with 74% coming from processes (Scope 1) and 26% from electricity, heat, and steam procurement (Scope 2). In 2023, our focus regarding GHG management was to drive green projects to reduce overall GHG emissions through improving operational eco-efficiency and transitioning to low-carbon intensive fuels such as natural gas. However, due to the energy price crisis, we had to retain conventional fuels to maintain the cost of operations. Consequently, our GHG emissions intensity decreased by 3.57% compared to 2020, resulting in 0.5911 tCO₂e/ton of production (Market-based).

FOR MORE
INFORMATION

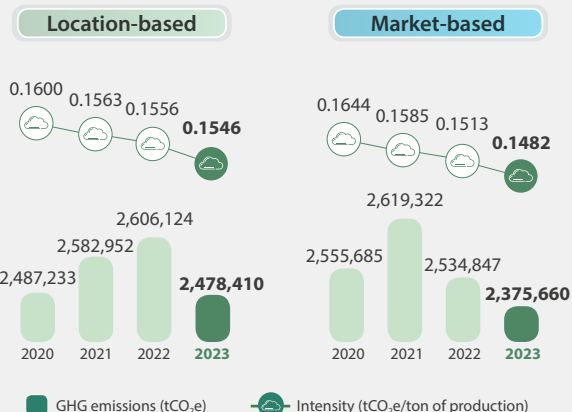
Scope 1

Direct GHG Emissions



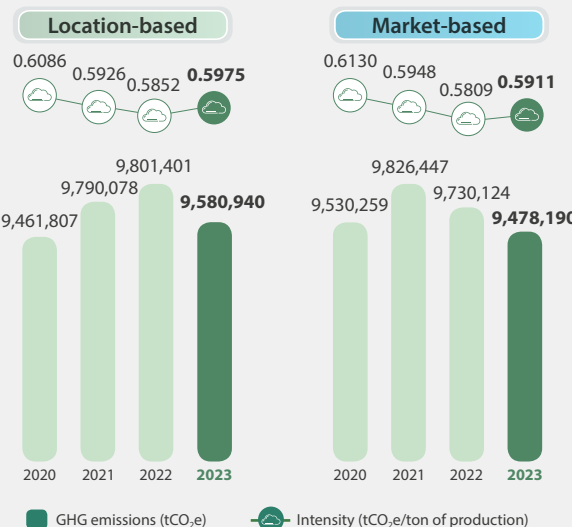
Scope 2

Indirect GHG Emissions



Scope 1 & 2

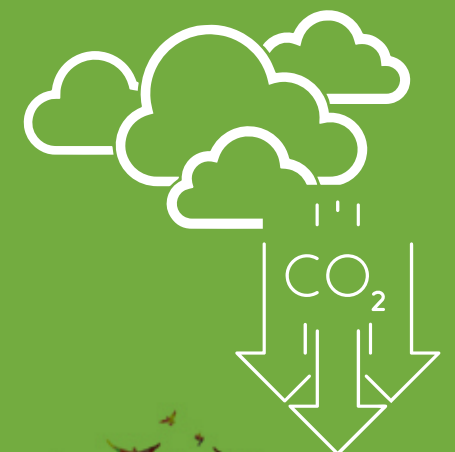
Total GHG Emissions



Hot Oil Coal Heater System Emission Reduction (GHG reduction)

In 2023, IVL Dhunseri Petrochem Industries Private Limited in India successfully converted a hot oil coal heater to natural gas, resulting in an estimated GHG savings of 35,000 tCO₂e annually, a significant step towards achieving 100% coal phase-out by 2030.

Coupled with the reduction of 264,000 tCO₂e from 2020 to 2023, equivalent to 3.8% of our Scope 1 baseline emissions, achieved through decreased coal usage, our journey to phase out coal from operations is underway. Initiatives like switching to biomass have rendered the heater area dust-free, making maintenance easier and safer, thereby reducing the need for casual deployment and enabling their utilization for other tasks. This transition has not only enhanced safety but also contributed to a cleaner environment.





DECARBONIZATION IN THE SUPPLY CHAIN

[GRI 3-3, 305-5]

GHG (SCOPE 3) MANAGEMENT

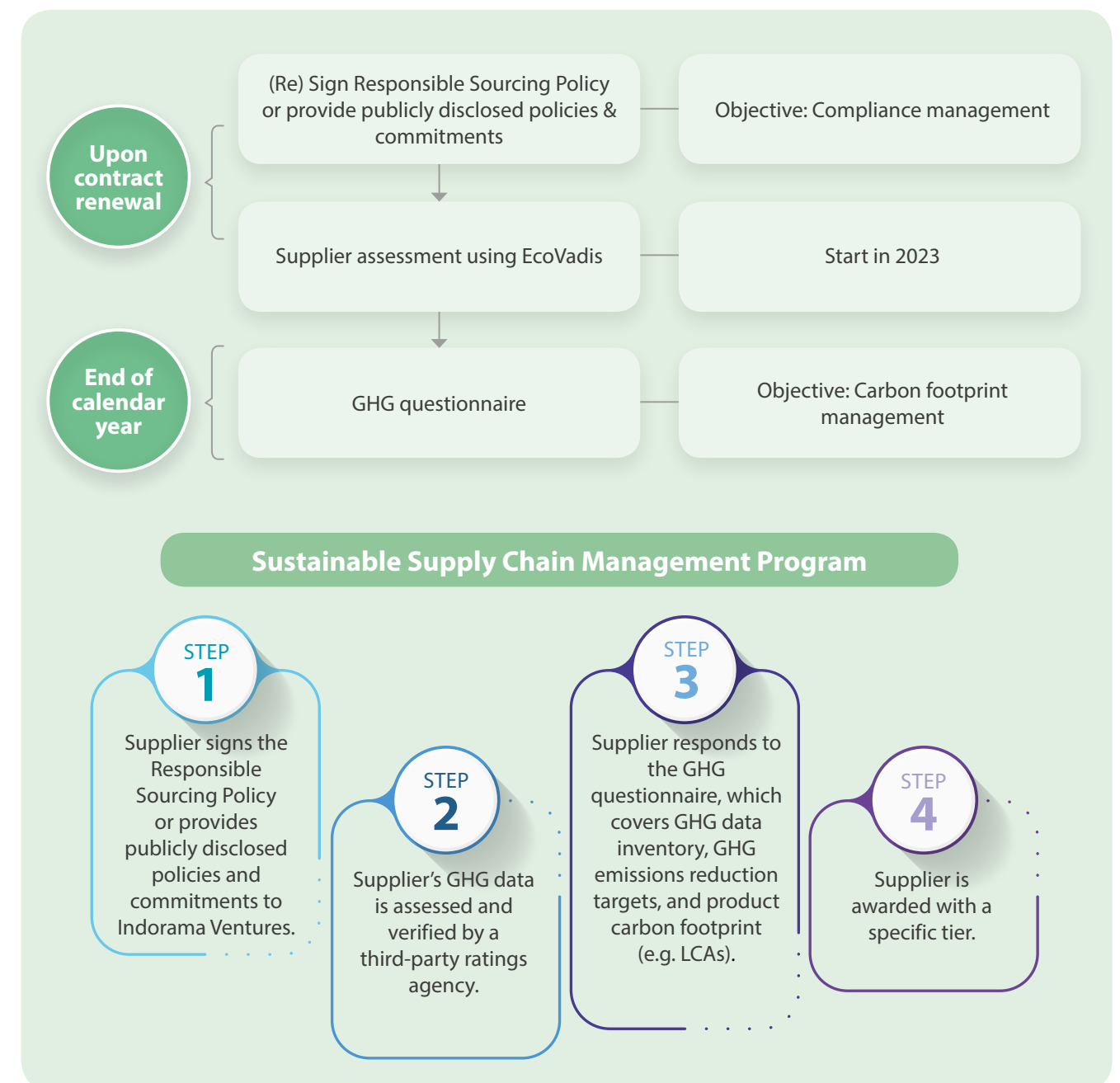
Addressing Scope 3 emissions can enhance Indorama Ventures' decarbonization and sustainability efforts. The majority of our GHG emissions and cost reduction opportunities are within the supply chain. With this in mind, we have broadened the reporting of our Scope 3 emissions to nine categories this year, reiterating our stance on ongoing improvements and assisting our value chain partners in achieving their sustainability objectives.

In addition, applying GHG Scope 3 accounting also helps us reduce the carbon footprint of our products in the supply chain. This is done by sourcing local feedstocks and utilizing the most efficient transportation modes and patterns for upstream and downstream activities as well as reducing waste generated in our own operations. Therefore, we engage with our suppliers for value chain decarbonization including collection of necessary GHG data at the product level as part of our Sustainable Supply Chain Management Program.

Scope 3 Category	tCO ₂ e in 2023
Purchased goods and services (including Nitrogen)	22,881,050
Capital goods	533,387
Emissions from electricity (T&D, WTT)	843,938
Emissions from fuels (WTT)	841,191
Upstream transportation	665,855
Waste generated in operations	214,770
Business travel	24,488
Employee commuting	42,965
Downstream transportation	1,670,940
Use of sold products	1,807,773

SUSTAINABLE SUPPLY CHAIN MANAGEMENT PROGRAM

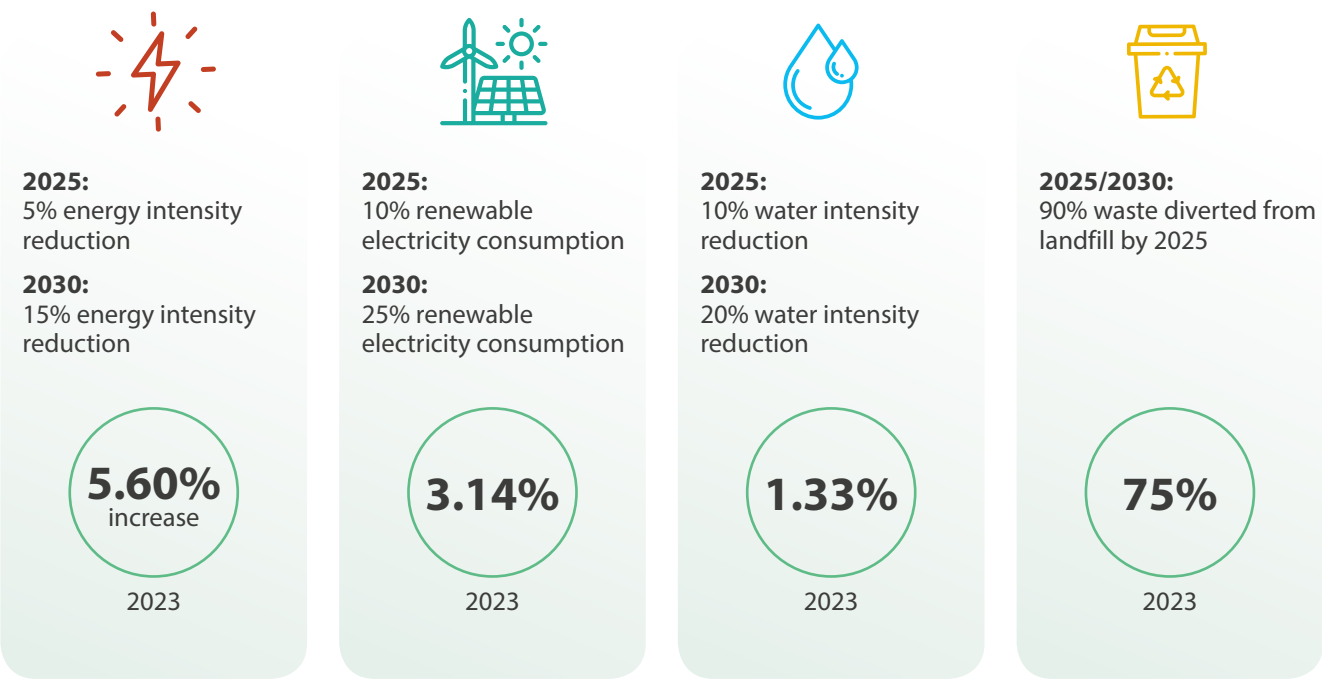
Directed at enhancing the visibility of our Scope 3 emissions impact in pursuit of a decarbonized supply chain, this program was launched in early 2022. Aligned with our commitment to advancing sustainability across our supply chain, 2023 saw the implementation of comprehensive supplier training programs at Indorama Ventures. These initiatives, including the Sustainability, Climate Change, and Scope 3 webinars, Sustainable Supply Chain webinars, and EcoVadis and Together for Sustainability webinars for Vertical Chief Procurement Officers (CPOs), underscore our dedication to empowering our buyers and internal stakeholders. Through these efforts, we ensure alignment with our GHG Questionnaire, Responsible Sourcing Policy, and overall sustainability supply chain roadmap, equipping our team to actively contribute to our ESG objectives.



For more information on our supply chain management and considerations, including our supplier ESG assessment and compliance as well as the Sustainable Supply Chain Management Program, please refer to section Supply Chain Management.

ENSURING ENVIRONMENTAL STEWARDSHIP

Tailored to our global scale and business nature, our strategic investments in robust governance systems and processes underline our environmental responsibility and sustainability efforts. Ongoing actions and measures will support us in achieving our sustainability targets for 2030 and affirm our sustainability practices in the supply chain, minimizing risks and impacts.



ENVIRONMENTAL COMMITMENTS AND GOVERNANCE

Our Environmental, Health and Safety (EHS) Policy applies to all levels of our organization, including the Board of Directors, management, employees, trainees, and persons who are not employees but authorized to act on behalf of or represent the Company.

Our EHS Policy covers multiple facets of our operations, corporate processes, and supply chain. This includes production operations and business facilities, products and services, distribution and logistics, waste management, suppliers, service providers, contractors, other key business partners, as well as due diligence processes for mergers and acquisitions.

The Sustainability and Risk Management Committee (SRMC) at the Board level reviews the outcomes of this analysis, advancing strategic measures, options, and actions to reduce water consumption, increase the recycling and reuse of wastewater, and collect rainwater to achieve our goal of zero liquid discharge at as many sites as possible while establishing targets at the entity and group level.

ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

[GRI 2-27]

At Indorama Ventures, our commitment to environmental stewardship is supported by a comprehensive Environmental Management System (EMS) aligned with ISO 14001 standards. In addition to the above, Indorama Ventures' Corporate Environmental, Health and Safety (EHS) group has a comprehensive compliance assurance auditing program. It is supported by third-party consultants who are knowledgeable in the regulatory requirements of the jurisdictions that we operate. The scope of these audits is EHS regulatory compliance and compliance to Corporate EHS standards. There is an audit schedule which is maintained and reviewed annually. Each year, between 25 - 30 sites are audited by third-party. The auditing program started in 2022 and to date 40 sites have been audited.

In 2023, our Environmental Management System (EMS) is certified, audited, and verified at 80% of all operations through international standards ISO 14001. Additional 10% of all operations that have not yet been certified ISO 14001 were audited by third-party. Total coverage for the verification and audit of the EMS was 90%.

The EMS serves as a structured framework for tracking and monitoring all environment-related activities across our operations. It systematically records calculated data pertaining to various aspects such energy and water consumption, greenhouse gas emissions, and air pollutants. An essential aspect of the EMS is its role in informing and empowering employees about environmental issues, enabling them to implement measures for environmental protection.

Our operations strictly comply with key environmental sustainability laws, regulations, and standards within the jurisdictions we operate, guided by the governance of our EMS. Besides remaining transparent by disseminating the outcomes of these actions to all relevant stakeholders, we rapidly implement corrective measures and take disciplinary actions in instances of environmental non-compliance if required.

In 2023, we recorded five significant incidents* of environmental regulatory non-compliance.

**The fine/penalty individually costs \$ 10,000 or more (or equivalent when converted from local currency)*

Significant fines and non-monetary sanctions for non-compliance with environmental laws and / or regulations in 2023	
Description of non-compliance	Amount of fines / penalties related to non-compliance
Exceeding the pH limits of the State Indirect Discharge (SID) water permit	\$ 40,000
Various violations, including non-compliance with effluent limitations and failure to collect and analyze samples for specified parameters during multiple monitoring periods	\$ 330,500
Failure to notify and unauthorized flaring	\$ 21,400
The p-Xylene storage tanks were found to exceed the safety provisions of PGS 29:2016, posing a flood risk	\$ 10,000
The acetic acid storage tanks exceeded the safety provisions of PGS 29:2016, posing a flood risk	\$ 10,000



WATER MANAGEMENT

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

In accordance with our Water Management Policy, we are committed to advancing water stewardship throughout our entire value chain, reducing our water consumption and its intensity across our operations, and minimizing water-related risks globally, as well as conserving water resources to maintain good relationships and avoid conflicts with communities. Our dedication extends to improving sustainable water efficiency management practices, encompassing both water withdrawal and discharge. The 3Rs (Reduce, Reuse, Recycle) principle and circular economy concept are integrated into our operations to increase the overall efficiency of water management and to achieve water reduction targets. We guarantee that 100% of our water discharge is treated to improve its quality to below regulatory limits before release.

The risk management committees of plants and business segments regularly monitor potential regulatory changes and evaluate water risks and opportunities by conducting scenario analyses with those changes. We communicate on an ongoing basis and work with local authorities to check groundwater levels and reservoir levels to ensure water supplies and avoid potential conflicts with nearby stakeholders. There was no water related incidents affecting our operations or plant closures as well as to stakeholders in 2023.

Since 2020, we have conducted water risk assessments using the AQUEDUCT Water Risk tool to identify water-related risks and to attain extensive insights into the water stress landscape at all our sites, continuing to perform this analysis every year. Estimated operational and financial impacts are also quantified. Further details are available in our 2023 Water Risk Assessment Report.

This commitment has been materialized through 496 training hours on water management provided to sites and environmental personnel. Two water consumption reduction projects were initiated in 2023, supported by a capital investment of \$ 63,000. In 2023, we recorded 5.21 m³/ton of production in water intensity and 6.96% of water recycled and reused.

FOR MORE
INFORMATION



2023 HIGHLIGHTS

27 projects That delivered water consumption savings

\$ 63,000 CAPEX investments for water projects

5 sites achieved Zero Liquid Discharge

- Avgol Nonwovens India Private Limited
- Indorama Petrochem Limited (PET)
- PT. Indorama Ventures Indonesia (PET)
- PT. Indorama Ventures Indonesia (Fibers)
- Schoeller Kresice s.r.o

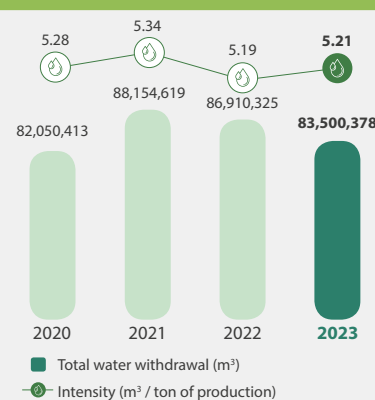


The Indorama Ventures Fibers team in Kaiping celebrated the successful commissioning of a new wastewater treatment system, the Ultrafiltration Membrane System.

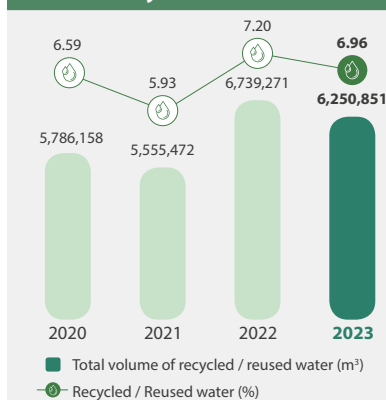
This system reduces water consumption at the Green Hill site by approximately 100 tons per day (30% of total usage). The achievement of zero liquid discharge for both the Changsha and Green Hill sites signifies a major milestone in our sustainability and cost improvement journey.



Total Water Withdrawal



Total Recycled / Reused Water



Water Intensity Reduction (2020 baseline)

Target

10% by 2025 and
20% by 2030

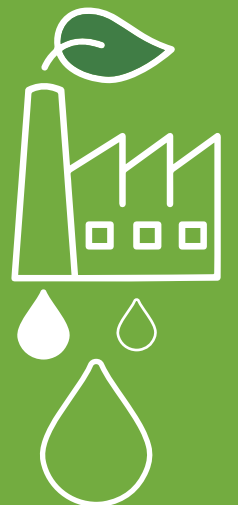
Performance

In 2023, we recorded a water intensity of **5.21** m³/ton of production, a **1.33%** reduction against 2025 target.



Improving Water Efficiency and Promoting Green and High-quality Development

Guangdong IVL PET Polymer Co., Ltd. successfully addressed capacity bottlenecks and waste issues within its Reverse Osmosis (RO) system, resulting in significant improvements. By increasing the RO capacity, the factory directly reduced the production of high-concentration water, which previously posed quality issues and generated substantial waste. Consequently, the factory's water consumption decreased and it increased water reuse by 120,000 m³ per year. This achievement not only conserves valuable water resources but also contributes to overall environmental sustainability. By optimizing water usage, enhancing production water quality, and minimizing waste, We have made significant strides towards sustainable manufacturing practices. Additionally, this system not only decreased water consumption but also enabled water reuse.



Closed-Loop System Dramatically Cuts Water Waste

At Indorama Ventures Hygiene Covington, USA we have transitioned from using city water to plant chilled water in a closed-loop system to cool the crimper rolls. Previously, an open-loop system was in place, resulting in significant water waste of approximately 7.5 million gallons per year. With the implementation of the closed-loop system by investment \$ 79,977, we anticipate an annual water reduction of 15,336 m³, resulting in savings of \$ 85,000 per year.

This initiative not only brings substantial financial savings but also delivers significant environmental benefits by drastically reducing overall site wastewater discharge volumes, reflecting our commitment to sustainable practices and demonstrating proactive efforts to minimize water consumption and site wastewater discharge volumes. Additionally, the site has achieved a water intensity reduction of 13%.





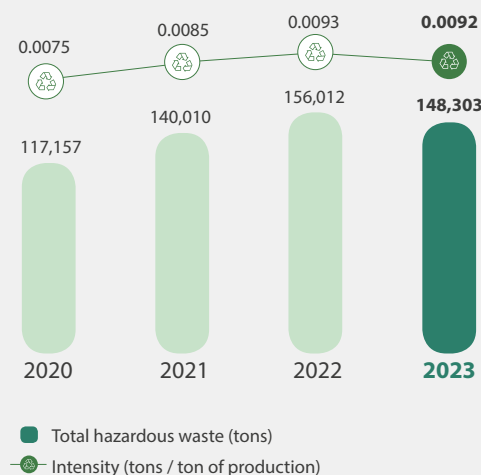
WASTE MANAGEMENT

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

Waste is one of our key environmental concerns. We follow the regulations and global standards for waste management as we care about our environmental impact. Our waste management program helps us run our operations efficiently and reduce the amount of waste we produce, following the circular economy concept. Effective waste management begins with meticulous planning, ensuring that our waste management plan prioritizes efficient and cost-effective techniques. This plan encompasses a range of activities, including waste collection, segregation, transportation, reprocessing, recycling, and the disposal of different types of waste while meeting the requirements for health, safety, and infection control.

We are currently focused on the proactive reduction of hazardous waste, integrating waste recycled and reused programs, and prioritizing its proper disposal through approved vendors. Our multifaceted approach, which involves the detailed maintenance of a comprehensive waste inventory as per legal requirements. More than 47,800 training hours highlight our ongoing dedication to responsible waste management practices and sustainable environmental stewardship.

Total Hazardous Waste



2023 HIGHLIGHTS

Total waste intensity

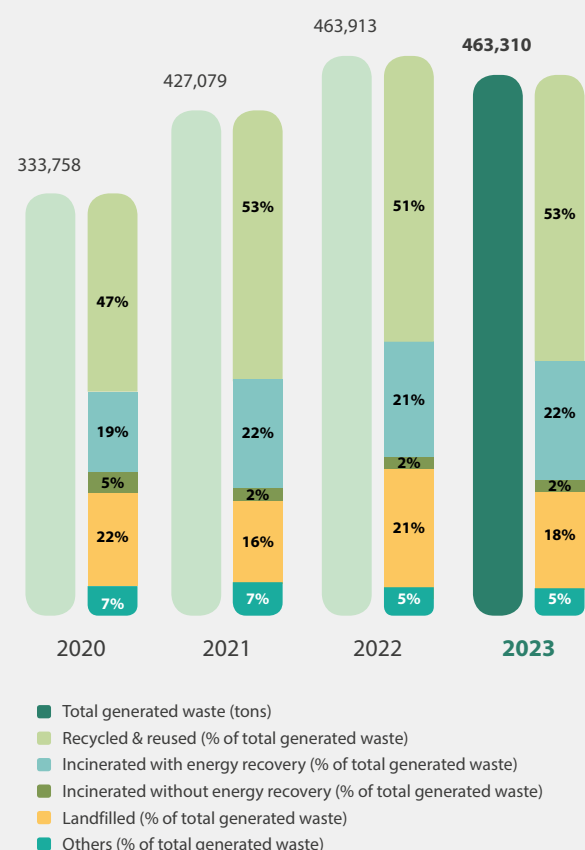
0.0289 tons / ton of production

53% of total waste was recycled and reused

22% of total waste went to incineration with energy recovery

Total Waste

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



2023 HIGHLIGHTS

Zero Waste to Landfill

- Petform Lopburi
- Petform Korat
- Petform Nakhon Pathom
- Petform Pathum Thani
- Petform Rayong
- Indorama Polyester Industries (Nakhon Pathom)
- Indorama Polyester Industries (Rayong)
- Asia Pet (Thailand) Limited



Turning Production Waste into Raw Material for Fiber Production

Indorama Polyester Industries (Rayong) has been continuously implementing a zero waste to landfill program since 2021. One of the methods we use to manage waste is by sending production waste, including off-grade products from the fiber production process such as polymer waste, POY waste, and fiber waste, to legally certified companies. These companies will use the waste as raw materials for further fiber production. In 2023, we sent 2,247,738 kgs of production waste to these companies, accounting for 68.8% of all non-hazardous waste generated. This initiative significantly reduces waste to landfill and helps the site achieve its goal of a 99.20% diversion rate per year.



Waste Diverted from Landfill*

Target

90% Waste diverted from landfill by 2025 (This target applies to both types: hazardous waste and non-hazardous waste)

Performance

In 2023, **93%** of our hazardous waste was diverted from landfill, and **67%** of our non-hazardous waste was diverted from landfill.

** Including waste incinerated with energy recovery.*

Waste Management Audit Program

Initiated in 2021, the objective of this audit program is to verify the amount and certify the diversion rate. This audit helps us to better understand waste management practices and utilize more waste in line with a circular economy approach.

In total, **35 sites** were audited by an external auditor:

17 sites received **Platinum** certification (diversion rate of more than 95%)

12 sites received **Gold** certification (diversion rate of more than 90%)

1 site received **Silver** certification (diversion rate of more than 85%)



Improving SDW Quality at Indorama Ventures Mobility Scottsboro

In 2023, Indorama Ventures Mobility Scottsboro launched a project to improve the quality of Nylon 66 yarn products, specifically focusing on SDW (Spinning, Drawing, Winding) A Grade. This initiative involved optimizing process profile settings (including extruder temperature and draw field settings), reducing downtime caused by breakouts, and addressing equipment issues. Consequently, productivity will increase from 81.7% to 88.6%, resulting in cost savings of approximately \$755,000 per year. This initiative will not only enhance overall operational efficiency but also significantly reduce production waste, such as C-grade products, leading to a more efficient use of resources.

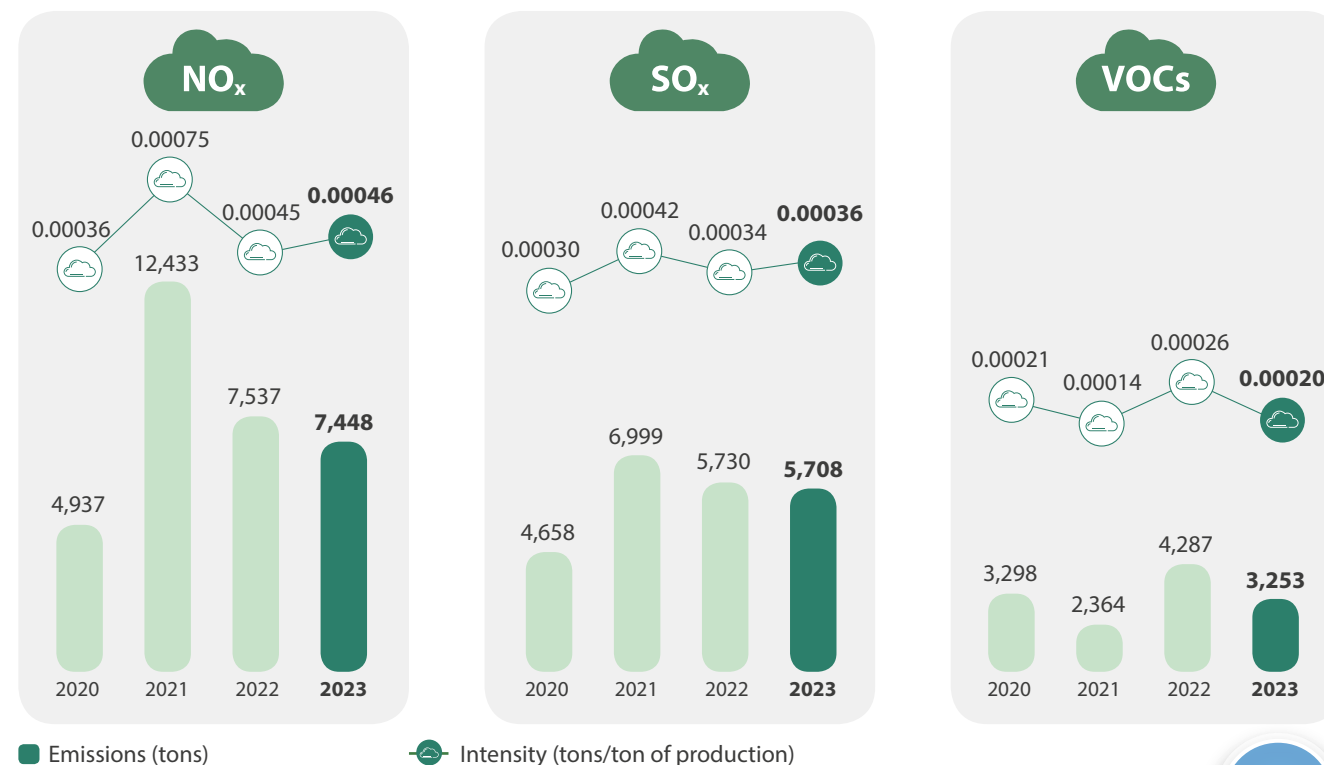
Reducing Oil and Rag Waste from Maintenance Activities

In 2024, Petform (Thailand) Limited - Lopburi implemented a project to reduce hazardous waste generated during machinery maintenance. The project involved revising maintenance plans and procedures to prevent hydraulic oil leaks and reduce the use of rags, which become contaminated materials that require disposal. Additionally, training sessions were conducted to educate employees on operational methods and waste management, raising awareness about waste reduction and improving operational practices. As a result of these activities, it is expected that contaminated rag waste will be reduced by 22%, and the amount of oil sent for disposal will decrease by 34%, compared to the waste generated during machinery maintenance in 2023.

NO_x, SO_x, AND VOCs EMISSIONS

[GRI 3-3, 305-7]

In our efforts to reduce the generation of air pollutants from our operations, we exceed basic activity monitoring. We actively ensure compliance with local and international laws and regulations in the countries where we operate, underscoring our commitment to environmental responsibility and legal compliance.



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

FOR MORE
INFORMATION

Non-GHG Air Emissions Programs

Beyond Compliance: Guangdong IVL PET Polymer Kaiping Limited, our wholly-owned subsidiary in China, has undertaken environmentally-friendly initiatives installing a nitrogen oxide (NO_x) reduction system valued at over \$ 230,000 to reduce NO_x values beyond limits permitted by the government. This initiative has resulted in environmental, social, and economic benefits which include:

- Less NO_x emissions in the air, much lower than permitted levels.
- No solid or liquid contaminant is being generated or secondary pollution during operations.
- Low running costs due to the use of less expensive catalysts.
- Easy to handle, transport, and store as the new reducing agent is non-flammable and non-explosive.

Indorama Petrochem Limited (PET)'s plant in Rayong, Thailand, continues to demonstrate strong stakeholder engagement and significant process optimizations. The plant installed a stripping column to reduce the COD/BOD in wastewater prior to its delivery to a wastewater treatment plant. In addition, a catalytic incinerator was installed to remove any off-gas from the process. Electrostatic precipitators (ESPs) were used to replace the cyclonic separation process for particulate collection. This initiative reduced total suspended particulates by 91% and reduced the NO_x emissions rate by 29%, demonstrating our solutions that meet or exceed stakeholder expectations.

Best Environmental Corporate Awards from the Netherlands Chamber of Commerce (NTCC) Business Excellence Awards 2023

Indorama Ventures was named the winner of Best Environmental Corporate Approach Awards from the Netherlands Chamber of Commerce (NTCC) Business Excellence Awards 2023.

This award recognizes Indorama Ventures as a company that makes a positive impact with remarkable efforts in various ESG aspects and outstanding performance in emission and carbon footprint reduction, as well as investing in environmentally sustainable initiatives and circularity, among 300 companies that are members of the NTCC in Thailand. We also received the Appreciation Awards - Thai Investors in the Netherlands, because of its long-term business investment relationship with the Netherlands, which has helped drive economic growth.





BIODIVERSITY

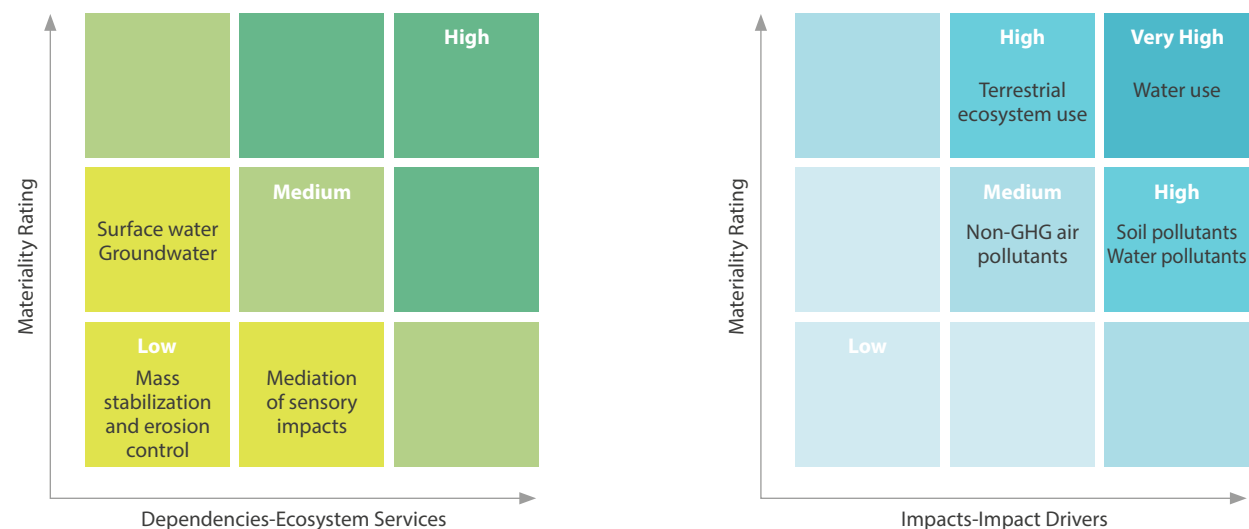
[GRI 3-3, 304-1, 304-2]

Our commitment to biodiversity protection is further strengthened by our deepening understanding of the potential risks and impacts of our activities on biodiversity, and we are actively considering actions to avoid and mitigate any adverse impacts. Our commitment to biodiversity has received an official endorsement from the Sustainability and Risk Management Committee (SRMC), with board members actively participating in the SRMC. This commitment was solidified by a signature from the Chairman of the ESG Council, who is also an executive director, thereby reinforcing our dedication to sustainable practices.

FOR MORE
INFORMATION

Through the Encore tool, Integrated Biodiversity Assessment Tool (IBAT), and WWF biodiversity risk filter, we concluded our first biodiversity risk assessment, which led us to not only identify our company's dependencies and impacts but also to collect data for all our operating sites, including information on the number of species on the IUCN Red List, Protected Areas (PA), Key Biodiversity Areas (KBAs), as well as physical and reputational risks.

Dependencies, Impacts and Materiality Rating on our Business based on the ENCORE analysis



Results from all analyses from these tools have been taken into account to develop the first phase of our Biodiversity Action Plan (BAP). We also align our plan with the United Nations' Sustainable Development Goals (SDGs), including Life Below Water (SDG 14) and Life On Land (SDG 15). 10 priority sites across eight countries (Italy, Austria, France, the Philippines, Indonesia, Spain, Germany, and the Netherlands) were identified and prioritized. Further details on the Biodiversity Risk Management and Mitigation Process and the analysis results, and five biodiversity loss indicators with progress made in 2023 are available in our TNFD Report 2023.

FOR MORE
INFORMATION

To promote the correct mindset and enhance the capacity and actions of our employees regarding biodiversity, we initiated an internal Sustainability Academy that offers five basic courses, including one specifically on Biodiversity. Additionally, employees are encouraged to participate in events aimed at conserving, restoring, and enhancing biodiversity on land and underwater.



Indorama Ventures joins a reforestation and community forest project in Rayong, Thailand

In 2023, as part of our commitment to environmental stewardship and community engagement, 200 dedicated employees from Indorama Ventures participated in a reforestation and community forest project in Rayong, Thailand.

The program's objective is to restore biodiversity by planting various perennial trees, including *Hopea odorata*, *Pterocarpus macrocarpus*, and *Dipterocarpus* species, while also enhancing the ecosystem with the release of more than 12,000 freshwater fish, including *Oreochromis niloticus*, *Cyprinidae*, and *Catfish*, into a water reservoir in the community.

Over the next six months, our local community team will diligently monitor the growth and survival rates of the planted trees to ensure the project's long-term success. This initiative exemplifies our dedication to sustainable practices and community empowerment, with full support from the local government, enabling the community to manage and utilize forest areas sustainably, thereby maximizing the benefits to their livelihoods.



2023 HIGHLIGHTS

Renova Mamona

A project led by Indovina, taking place around the Camaçari site in Brazil, aims to enhance the biodiversity of the local Quilombola community through the implementation of Agroforestry Systems combined with castor bean cultivation. In 2023, the project achieved the following milestones:

- Plantation of 2,000 square meters with diverse species
- A 60% increase in plant species variability
- Introduction of 32 new species
- Establishment of four seed banks
- Production of a total of 300 liters of natural biofertilizers and 100 liters of natural pesticides through reservoirs

It is worth noting that castor bean, the main input of the project and a raw material for Indovina, is utilized as the primary species for green manure in the Agroforestry System (SAF). Additionally, its production does not involve the use of any type of manure, pesticides, herbicides, electricity, or fuels.



Chapter 6

SOCIAL IMPACT

110 Empowering Our People

- 110 Human Resources Management
- 118 Human Capital Development
- 126 Performance Management and Recognitions

129 Health and Safety

- 130 Occupational Health and Safety Performance
- 132 EHS Management and Compliance System
- 134 Employee Participation in Health and Safety

135 Human Rights

- 135 Human Rights Commitment
- 137 Our Processes for Monitoring
Human Rights Performance
- 138 Human Rights in the Supply Chain

139 Supply Chain Management

- 139 Responsibility in Our Supply Chain
- 141 Supplier ESG Assessment and
Compliance Management
- 144 Continued Commitment to
Responsible Supply Chains

146 Community Engagement

- 146 Giving Back to Our Communities
- 151 Circular Economy Education
- 154 Empowering Young People Through Thailand
Recycling Education
- 155 Social Return on Investment (SROI)





EMPOWERING OUR PEOPLE

The trajectory of our growth and success relies on the talents, experiences, creativity, and diligence of our human capital. Therefore, we consistently promote a healthy and productive work environment while also embracing diversity and respecting individual and cultural distinctions. This allows our employees to not only perform at their best but have access to unlimited opportunities for personal and professional development.

HUMAN RESOURCES MANAGEMENT

[GRI 3-3, 401-1]

Human Resources Management is a key approach to encouraging and supporting employees while ensuring ethical workplace practices. Acknowledging the pivotal role our workforce plays in our ESG efforts, this section explores our approach to attracting, developing, and retaining talent. From inclusive recruitment practices to ongoing professional development initiatives, each stage of the employee lifecycle furthers our social responsibility. At Indorama Ventures, we prioritize the health and well-being of our staff, ensuring a safe and supportive work environment.

Attracting and Retaining Talent

As a global company with operations in 35 countries and over 29,000 employees, we face the challenge of attracting and retaining talent across different regions, cultures, and markets, especially after the COVID-19 era. To address this challenge, we welcome applicants from different backgrounds, perspectives, and experiences, and ensure a fair and transparent recruitment process. Our Strategic Workforce Planning approach enables us to align talent with roles, and involves assessing our workforce, forecasting future workforce needs, pinpointing gaps between the present and future, and implementing solutions to bridge these gaps. We tailor our recruitment strategies and practices to the specific needs and expectations of each function, while ensuring alignment with our global standards and values. We use a variety of tools and methods to assess candidates' skills, competencies, and potential, such as online tests, interviews, and assessments.

Through our Employee Referral Program, we encourage our existing employees to refer qualified candidates from their networks and reward them for successful referrals. This program helps us to source talent from diverse and trusted sources, and to encourage a sense of engagement among our staff.

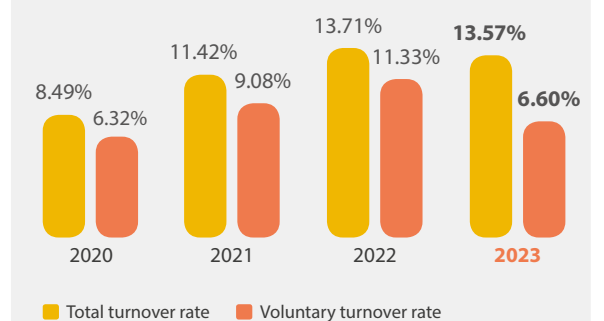


Initiated in 2021, our International Internship Program offers interns in different countries the chance to work, gaining international experience and exposure to various business practices. In 2023, this program has successfully attracted 33 interns from nine countries and three of them have become our employees after completing the program.

Indorama Ventures actively tackles attrition through a range of targeted retention intervention programs. A standout success has been the implementation of a company-wide recognition initiative, which rewards employees for exceeding job expectations, significantly boosting morale, engagement, and retention. Additionally, we conduct regular industry assessments to maintain competitive salaries and benefits. This strategic approach has resulted in a workforce that is not only more motivated and productive but also deeply committed to achieving our organizational objectives.



Employee Turnover Rate



Engaging Our Employees

We prioritize employee engagement in advancing a sustainable and thriving workplace ecosystem. Recognizing that engaged employees contribute significantly to increased productivity, creativity, and innovation, Indorama Ventures employs a multifaceted approach, including the Global Employee Engagement (GEE) survey, which is key to understanding the extent and depth of our employees' engagement. The Global Employee Engagement (GEE) survey is conducted every two years.

The core focus of the GEE survey is on key aspects of employee well-being, aligning with general well-being metrics:

1

Job Satisfaction
(Question example:
I am satisfied
working here).

2

Purpose
(Question example:
I know what is expected
of me in my job).

3

Happiness
(Question example:
Our company acts
in a way to ensure my
well-being and health).

4

Stress
(Question example:
It is possible for me to
balance my personal
and work life).

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.

- It is possible for me to balance my personal and work life.
- Our company acts in a way to ensure my well-being and health.

The findings and feedback from the surveys provide actionable insights and suggestions on how we can further collaborate with our employees to build a work environment that inspires and empowers them to give their best. Moreover, these inputs support the HR team in designing tailored initiatives that resonate with our workforce, ultimately allowing every employee to be actively engaged as a valued contributor. A series of initiatives launched in 2023 focused on enhancing the quality of life and well-being of our employees. These initiatives aim to encourage professional growth, improve work-life balance, and strengthen our company culture.

Additionally, we host regular interactions, including organizational announcements, annual updates on HR plans, and HR Quarterly Connect meetings, ensuring a dynamic channel for communication and connection. This integrated approach underscores our commitment to building and sustaining a workplace where employee engagement and well-being are integral to our organizational values.

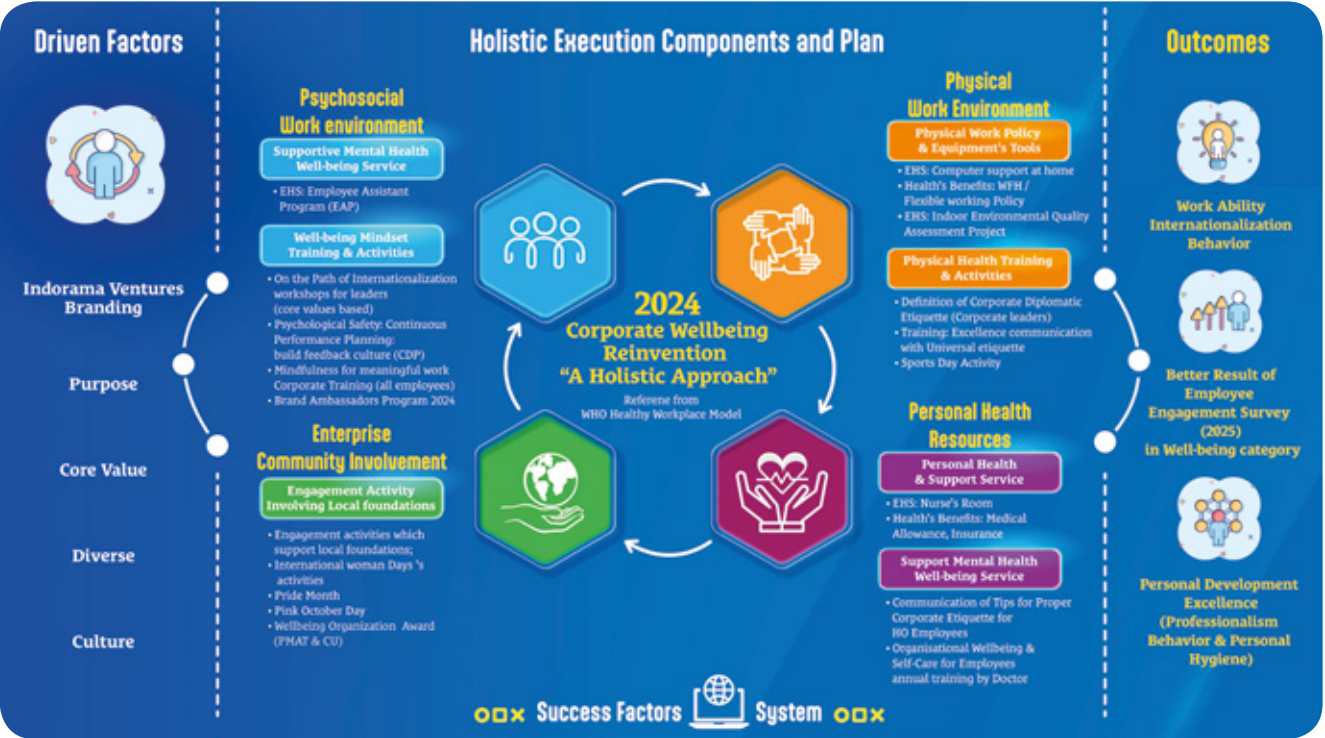


Enhancing Well-Being and Work-Life Balance

[GRI 3-3, 403-6]

Employee well-being is not only an issue of individual satisfaction, happiness, and health, but also a key factor for organizational performance and sustainability that considers the multiple dimensions of human experience: physical, mental, emotional, and social. This means providing employees with the necessary resources, support, and opportunities to enhance their health, well-being, and fulfillment at work.

Our holistic “Corporate Well-being Reinvention” approach guides us in enhancing employee well-being by integrating it into our core strategy. This plan emphasizes the importance of addressing physical, mental, emotional, and social health in the workplace. It offers practical strategies and case studies to help leaders create a supportive environment that boosts productivity and overall success.



Employee Benefits

[GRI 403-3]

At Indorama Ventures, we prioritize employee well-being and engagement through a comprehensive benefits program.

Paid Parental Leave

We offer paternity leave benefits to employees across all locations, including operating sites and corporate offices.

Paid Parental Leave for the Primary Caregiver

We offer paternity leave benefits to employees across all locations, including operating sites and corporate offices. In Thailand, for example, this leave is typically 45 days (or approximately seven weeks).

Childcare Contributions

We provide childcare contributions in the form of scholarships for the children of employees enrolled in public or private schools or universities. This benefit supports the educational expenses of employees' children. Additionally, we offer childbirth allowance for employees' lawful wives.

Sports & Health Initiatives

We organize sports day activities at each local site, promoting physical health and team spirit among our staff. These events provide an opportunity for employees to engage in various sports, enhancing overall well-being and employee engagement.

Other Indorama Ventures initiatives that support the well-being and work-life balance of employees include:



Hybrid Working Policy
To align with evolving working norms, Indorama Ventures integrates sustainability into our work conditions, ensuring employee well-being in both stable and uncertain times.

Recognizing that location flexibility can improve employee well-being and environmental impacts by cutting down on commutes, we offer such programs in our Thailand office.



Internal Health and Mental Well-being Activities
We offer webinars focused on organizational well-being and self-care, encouraging employees to maintain good health, boost productivity, and find happiness in their work.



Group Employee Assistance Program (EAP)
This program provides confidential counseling and support services to employees and their families, promoting mental, relieving stress, and emotional well-being.



Breastfeeding / Lactation and Childcare Facilities
We provide breastfeeding/lactation and childcare facilities to support nursing mothers. These facilities offer a private and comfortable space for lactating employees.

At Indorama Ventures, employee well-being is a top priority. We prevent workplace stress by offering flexible work arrangements through our Hybrid Working Policy and providing counseling through Employee Assistance Programs. Our positive work culture encourages open communication and regular feedback.

To improve ergonomics, we conduct regular workstation assessments and provide ergonomic equipment such as adjustable chairs and sit-stand desks. We also offer training in ergonomic best practices and support ergonomic home office setups for remote workers. Additionally, employees and contractors are empowered to stop unsafe work to ensure their safety.

In addressing global health issues like HIV/AIDS, we maintain strict confidentiality and non-discrimination policies. We conduct health education sessions and offer comprehensive healthcare benefits, including access to testing and treatment.

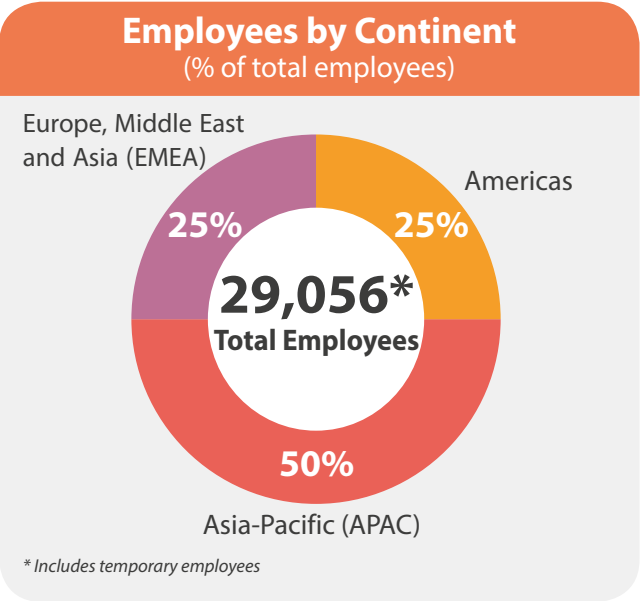
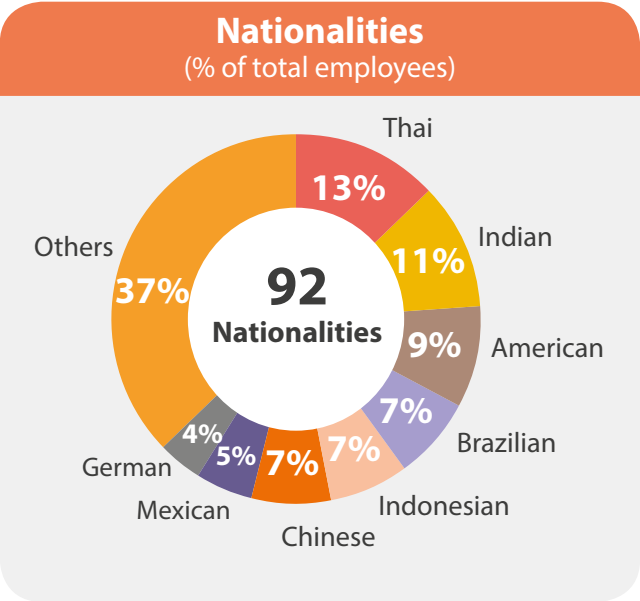
GCEO Remuneration to Average Employee Remuneration Ratio

	Remuneration 2023
GCEO	\$ 3,414,924
Average Employee Remuneration	\$ 49,273
Ratio	69.30



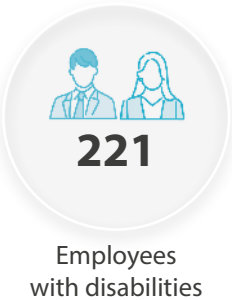
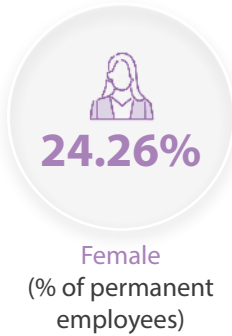
Diversity, Equity, and Inclusion [GRI 3-3]

We see Diversity, Equity, and Inclusion (DEI) as a competitive edge. They are not only ethical values, but also strategic imperatives for our organization. This enables us to leverage the diverse perspectives and experiences of our global workforce including career management, continuous learning, development programs, and the equitable distribution of promotions and rewards for all employees. We ensure that everyone has equal opportunities to contribute towards Indorama Ventures’ long-term success. By promoting a culture of belonging, where every employee is valued for their unique contributions, we enhance our creativity, innovation, and performance.



To demonstrate our commitment to DEI and ensure our alignment with international standards and best practices, Indorama Ventures is a signatory and supporter of the Women’s Empowerment Principles (WEPs), a set of principles guiding businesses on how to promote gender equality and women’s empowerment in the workplace, marketplace, and community, established by the UN Global Compact and UN Women.

We support the Standards of Conduct for Business addressing Discrimination against Lesbian, Gay, Bisexual, Trans, and Intersex People, as established by the United Nations Human Rights Office (OHCHR). Ensuring a workplace that is devoid of inequality and discrimination is one of our core values. Our Diversity Policy clearly states that we promote a diverse and inclusive workplace where all employees must treat one other with respect and dignity. We report and disclose our diversity, equity and inclusion data and achievements in our DEI Report.



In support of

WOMEN’S EMPOWERMENT PRINCIPLES

Established by UN Women and the UN Global Compact Office



Indovinya's Diversity and Inclusion Journey

(Indovinya is one of our business segments which was formerly named as IOD.)

The journey began in Brazil in 2020, and over time, it led to the creation of our DEI program, named Together, which aims to lead and manage diversity initiatives in our Indovinya segment. This program is now being expanded to Mexico and the U.S. in 2023 and to all global regions of Indovinya starting in 2024.

To support this effort, we have now developed four Employee Resource Groups (ERGs) in Brazil that meet our needs and the reality of the country: gender, race, people with disabilities (PwD), and LGBTQIAP+. In other regions (Mexico and the U.S.) we are forming committees that address these subjects.



Women in
top and senior
management
by 2030

Target
50%

2030 Target
Progress

29%

Indorama Ventures in Thailand Celebrated International Women's Day

on March 8, 2024, marking the third consecutive year of dedicated observance.



Every member of our global family, representing 96 nationalities and diverse backgrounds, contributes to the vibrant landscape of knowledge and experiences. As we celebrate #InspireInclusion for International Women's Day, let us continue to foster a workplace where every voice is heard, and everyone is valued.



Mrs. Suchitra Lohia
Deputy Group CEO

The event showcased the Company's commitment to gender equality and women's empowerment, with employees from various levels participating. Senior management, including Mrs. Suchitra Lohia and Mrs. Aradhana Lohia Sharma, emphasized the importance of gender diversity and inclusivity. Mr. Klaus Holz and Mr. Christopher Kennelly also reiterated the Company's commitment to celebrating women's achievements and advocating for gender equality.

As Indorama Ventures consistently champions diversity and inclusion, occasions such as International Women's Day serve as pivotal milestones in the ongoing journey toward a more equitable future.

The event included a tribute to Dr. Panadda Wongphudee, highlighted the impact of women in leadership roles. Through interactive activities and discussions, participants explored ways to promote an inclusive organizational culture.

The event's success was attributed to collaborative efforts across departments and engaged over 400 participants via the MSTEams platform, demonstrating Indorama Ventures' comprehensive approach to promoting gender equality and empowerment.



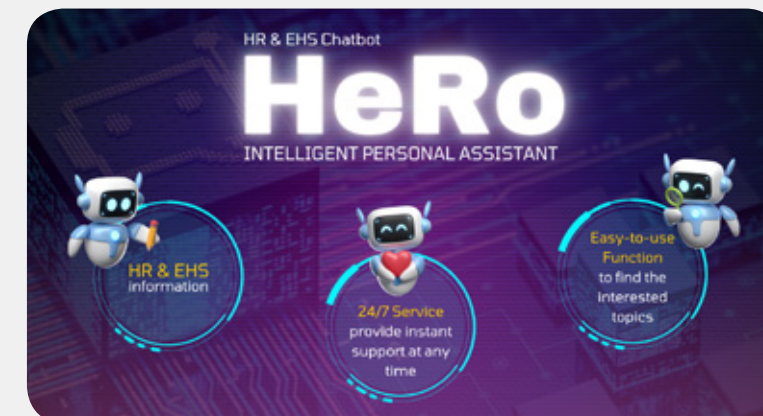
As we celebrate International Women's Day, gender equality, for us, goes beyond equal representation. It is about ensuring fairness and justice in opportunities and outcomes. Our dedication is reflected in our support for the Women's Empowerment Principles (WEPs). Diversity is our strength, contributing to our business performance and growth. As a purposeful company, our goal is clear-to empower every employee to reach their full potential.



Mrs. Aradhana Lohia Sharma
Vice President

Promoting Awareness of Core Company Values

To reinforce our values and build a cohesive workplace culture, we have implemented the Precise Communication with HeRo Chatbot. The HeRo Chatbot is designed to support employees within the organization by offering assistance and information on topics related to Human Resources (HR) and Environmental, Health, and Safety (EHS). Integrated into the Company's internal communication system, HeRo provides easy access to relevant information through a user-friendly interface, aiming to streamline internal communications and improve employee access to essential HR and EHS resources.



The Thailand Best Employer Brand Awards 2024

Indorama Ventures Global Services secured a consecutive win at the Thailand Best Employer Brand Awards 2024, organized by the World HRD Congress, a leading employer branding and human resources institute. Following our initial win last year, we maintained excellent performance to win in the Best Employer Award Category. This award recognizes the Corporate Head Office's Sustainable Career Development for High Employee Engagement, consisting of five pillars: Career Leadership, Career Goals, Career Strengthening, Career Experience, and Career Growth Development.

This remarkable accomplishment reaffirms Indorama Ventures' status as one of Thailand's best employers and is a testament to the Company's continued dedication and passion to provide a first-rate employee experience. Through innovative human resources initiatives and by promoting a vibrant company culture, we are focused on investing in our people, enhancing their well-being and career prospects, and building a workplace where talent thrives and feels valued.



Mr. Klaus Holz, Chief Human Resources Officer, received the award on behalf of the entire team for their achievements across both local initiatives and worldwide HR strategies, contributing to the overall success of the Company.



HR Asia Best Companies to Work for in Asia 2023



In 2023, Indorama Ventures Global Services received the prestigious HR Asia Best Companies to Work for in Asia (Thailand Edition) award.

HR Asia Best Companies to Work for in Asia is the only award that is judged solely by the nominees' employees, making it the most transparent award of its kind. With 15 markets and over 400,000 surveys conducted each year, the awards recognize companies that have shown world-class employee engagement and workplace excellence, while displaying empathy and care for their employees.

HUMAN CAPITAL DEVELOPMENT

[GRI 3-3]

Our commitment to developing our workforce remains steadfast as we continue to prioritize the advancement of our employees by facilitating growth opportunities and fostering an environment of inspiration. Demonstrating our dedication, we allocated approximately \$ 3,074,554 towards the development of our staff in 2023. Notably, our investment translated into an increase of 31.88 hours in average training hours per employee, totaling 831,855 training hours overall. On average, we spent \$ 114.28 per Full-Time Equivalent (FTE) on training and development. These initiatives underscore our unwavering focus on empowering our employees, providing them with the necessary support, and ensuring they are equipped to tackle future challenges with confidence.

Developing Talent

Aiming for workplace excellence, Indorama Ventures elevates our team's capabilities through strategic investments in cutting-edge leadership development programs, curated professional training initiatives, and bespoke employee upskilling efforts. Through these actions, we are nurturing a group of future leaders and innovators, as we build a progressive and dynamic generation within our organization. Aside from empowering our workforce, these initiatives ascertain a sustained culture of growth, innovation, and leadership that guarantees a favorable future.

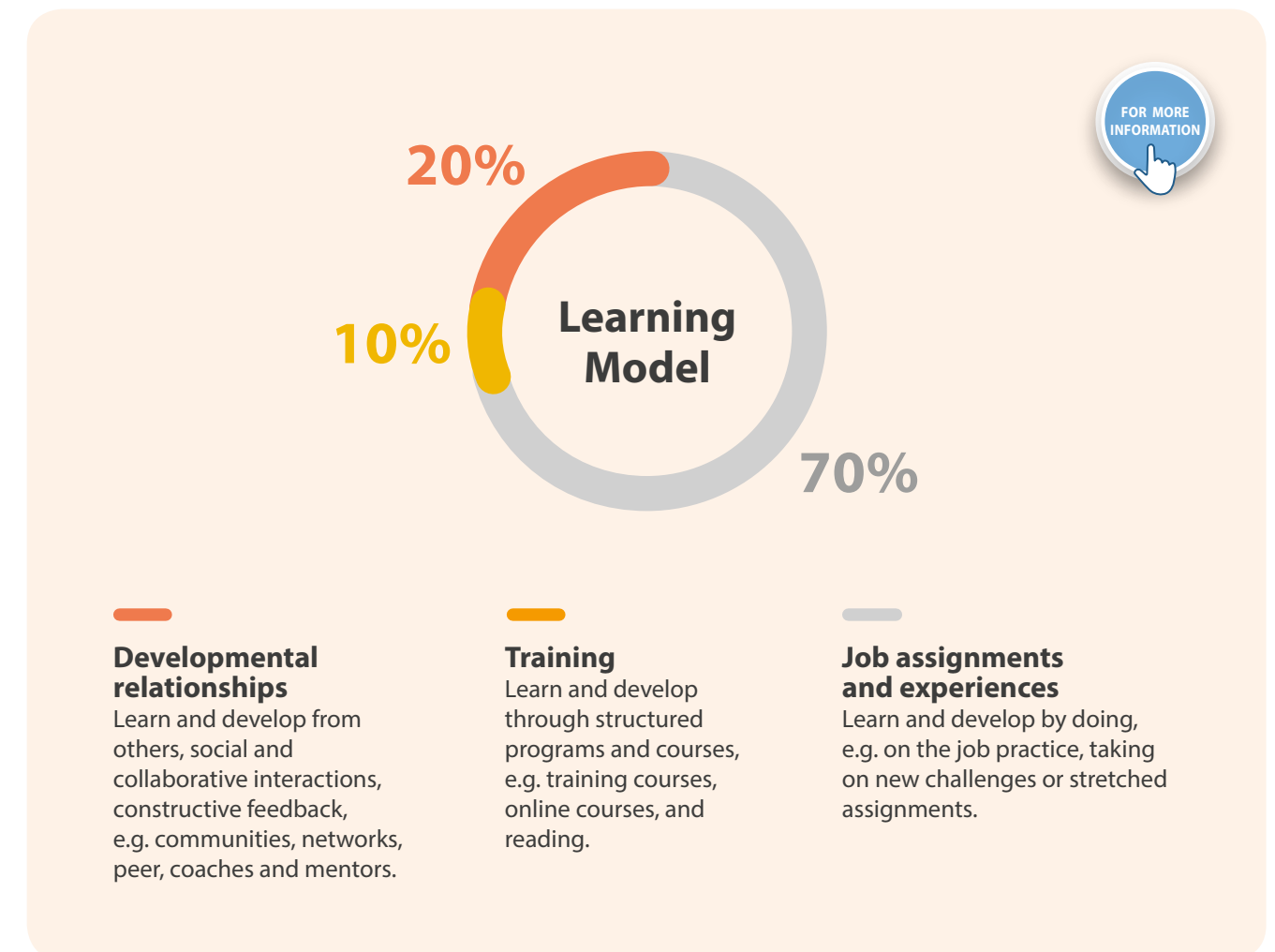
Talent Management

Global Leadership
Development

Inaugural Future
Leaders Program

Deployed Succession
Planning for all
targeted leadership
and site /
plant management
positions

We provide diverse avenues for learning and personal growth for our employees, tailored to address individual development needs and learning preferences. Our integrated strategy, based on the 70-20-10 ratio outlined below, ensures a well-rounded and productive learning environment that caters to diverse learning styles, thereby strengthening the development experience of our employees.



Leadership Development as A Strategic Enabler

Leadership Development is a cornerstone of our business strategy. To build strong leaders, we established a comprehensive Leadership Development Curriculum that serves over 3,000 leaders across various levels. The curriculum integrates training, coaching, mentoring, and experiential learning, with a focus on digital intelligence. This approach empowers employees to take charge of their personal growth while promoting an innovative and dynamic learning environment. We intend to expand this Leadership Development and mentoring program in the near future.

Additionally, our robust Succession Planning process ensures we have a strong talent pipeline. This process encompasses 1,154 leadership positions and has identified 1,828 validated successors representing 7% of the Company's total workforce. As a result of this strategic approach, we have two successors ready for key leadership roles within the next two years. This planning also ensures continuity in senior management roles, furthering our commitment to leadership development and business success.



PERFORMANCE

- Well-purposed leadership curriculum deployed to develop strong leadership involving more than **3,000 leaders**.
- Succession Planning executed for all targeted positions covering **1,154 leadership positions** with **1,828 validated successors**.
- **2,211 leaders** who completed leadership e-Learning



Indorama Ventures Future Leaders Program (FLP)

Our new “Indorama Ventures Future Leaders Program (FLP)” is a pioneering initiative within the Global Indorama Ventures Leadership Curriculum, aimed at building a sustained pipeline of 200 future leaders by 2025. The program spans a 12-month journey encompassing a versatile learning approach, incorporating contextualized assessments, self-paced modules, coaching, mentoring, and hands-on assignments. The inaugural cohort of 49 young individuals from global sites experienced a virtual kickoff session followed by an immersive learning event in Bangkok. The program stresses leadership self-discovery, leading oneself, and leading the business. Participants engaged in a range of activities, including insightful sessions with top executives, resulting in a detailed understanding of the Company’s vision and values. The FLP is geared towards nurturing leadership potential and contributing to the overall development of skills critical for future leadership roles within Indorama Ventures.



Indorama Ventures Excellence (IVEX) Program

[GRI 404-1, 404-2]

In today’s dynamic business landscape, companies increasingly prioritize optimizing operations, enhancing product quality, and efficiently meeting customer needs. The Indorama Ventures Excellence (IVEX) team serves as an internal entity dedicated to integrating cutting-edge methodologies and practices within the Company to achieve enterprise-wide excellence. Embracing methodologies like Lean and Six Sigma, IVEX provides a robust framework for process optimization and organizational performance enhancement, focusing on waste reduction, defect elimination, and increased productivity.

The IVEX program supports a forward-thinking culture by encouraging collaboration across various functions within the organization, emphasizing the Company’s success through the prosperity of its people. Central to program implementation is the initiation of new improvement projects leveraging data-driven analysis tools to drive decision-making and identify solutions.

Committed to building a solid foundation, the IVEX team offers a range of training programs covering diverse areas, from traditional Lean Six Sigma Belts to tailored programs for non-manufacturing disciplines such as Commercial Excellence, Supply Chain Excellence, Finance Excellence, and Innovation. This comprehensive training initiative has prompted the initiation of numerous improvement projects, predominantly following the DMAIC methodology, led by trained employees across the Company. IVEX team members, serving as internal consultants, provide expertise in specific project areas. These projects achieve a range of benefits, including increased output, enhanced sustainability in energy, air, and water usage, efficient waste management, improved quality, and cost control, among others.

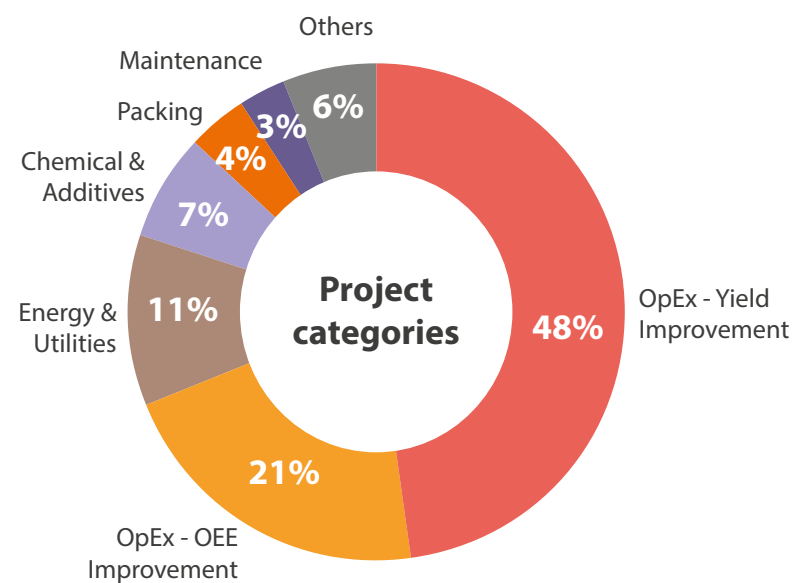
To ensure the program’s success across all organizational levels, customized courses have been developed for department heads and functional leaders, emphasizing an understanding of Continuous Improvement concepts and their roles as program sponsors. In 2023, the IVEX team conducted in-person Champion Training and Workshops for senior leaders at Indorama Ventures’ head office in Bangkok, while offering online Executive Belt Training as an alternative option.

Furthermore, efforts are underway to nurture and expand the internal IVEX community, promoting a culture of continuous improvement. Regular cross-functional best practice sharing sessions have been organized to leverage the diverse expertise within the organization.

In alignment with our commitment to employee development, we remain steadfast in our goal to achieve 100% employee training by 2024. As of 2023, significant progress has been made, with 21,212 employees, constituting 79% of the Company’s workforce, receiving lean introductory and White Belt training. A total of 14,102 hours of White Belt training have been completed. Moreover, 1,928 employees were trained in IVEX Lean Six Sigma upper belts in 2023, representing 7% of the Company’s total workforce, cumulative through 2023.



Sustainability Benefits



GHG Reduction
57,843 tCO₂e

Energy Reduction
514,251 GJ

Water Reduction
287,645 m³

2024 Goal

100%
of employees trained

2023 Progress

79%
of employees trained

Other 2023 IVEX Performance Achievements

\$ 84.9 million
in cost-saving
benefits from 712
projects

143 million kwh
reduction in energy
consumption from
71 projects

**20 best practice
sharing sessions**
have been organized

50,000 hours
invested in employee
training and
development

748 projects
in total

**88 sustainability
projects** across
Indorama Ventures,
including utilities

**297 New Belt
practitioners**

IVEX Project Competition 2023

The IVEX Project Competition is held annually with a focus on Continuous Improvement projects completed in each business. In 2023, the competition was divided into two divisions based on tool usage: the DMAIC Division and the PDCA Division. Approximately 60 newly initiated projects passed the regional round, with the top projects progressing to the global round, where they were recognized and awarded.

IVEX HIGHLIGHTS

MANUFACTURING EXCELLENCE

Key Improvement Focus

- **Customer-Centric Quality:** Learning about Capability Analysis methods to improve customer focus and quality standards.
- **Streamlined Operations:** Single-minute Exchange of Die (SMED) techniques improve changeovers and processes, speeding up turnaround times.
- **Increasing Productivity and Cost Efficiency:** Reducing downtime while improving yield and quality through Overall Equipment Effectiveness (OEE) improvements, while also optimizing variable costs and increasing utilization efficiency.
- **Environmentally Responsible Practices:** Contributing to our sustainability goals by supporting efforts to reduce GHG emissions in operations.

2023 Highlights

- **Grinder Blade Change in Recycle:** Production, an SMED project aimed at optimizing changeover time, resulted in a reduction from 144 to 90 minutes. This improvement has been successfully replicated at three other sites and will continue.
- **Paper Sleeve Recycling Used in Fibers:** Production has increased by 6.4%, or 78.6% of the total amount, saving approximately 4,500 trees. Customers benefit from faster production times, color sleeves, and carbon neutrality.
- **Capability analysis (Cpk) for Indovinya:** Sites of the loading process and factors of steam consumption stability resulted in annual savings and improved customer satisfaction. These methods are now being used at other Indovinya sites.



SALES & MARKETING EXCELLENCE AND NEW PRODUCT DEVELOPMENT (NPD)

Key Improvement Focus

- **Sale Growth:** Applying market attractiveness, market gap analysis, and market segmentation to find avenues for growth opportunities leading to actions that close market gaps, leveraging our strengths to improve our market share.
- **Value Creation:** Identifying our strengths to address unmet customer needs better than the competition through the Value Proposition Canvas (VPC) tool. Developing compelling value propositions and value-based selling approaches, resulting in COMA growth.
- **Customer Engagement Process:** Establishing standardized sales processes, key account management, opportunity pipelines, sales funnels, and management and CRM tool usage, leading to better realization rates and enhanced customer satisfaction.
- **Accelerated New Product Development:** Exploring portfolio and pipeline management strategies to accelerate NPD processes.

2023 Highlights

- **Compelling Value Proposition and Value-based Pricing for Indovinya:** Crop solutions developed compelling value propositions and value-based pricing using the VPC tool, providing exceptional value to our customers while helping improve our absolute COMA by 20%.
- **Market Gap and Attractiveness analysis in Specialty Chemicals:** EBM PET Market Growth Strategy in the EU applied market attractiveness, market gap analysis, competition analysis, and value proposition canvas tools to develop a compelling value proposition and growth plan for EBM PET resin.
- **Product development project in Fibers:** to control pH at 5.5 ensuring nonwoven aging stability, enhancing kiss roll application flexibility, and achieving a pH range for durable baby diapers.

SUPPLY CHAIN EXCELLENCE

Key Improvement Focus

- **Logistics Cost Reduction:** Optimizing Sales and Operations Planning (S&OP) reduces logistics overhead and boosts efficiency.
- **Inventory and Warehouse Optimization:** Examine advanced management methods to optimize inventory and warehousing.

2023 Highlights

- **Logistics optimization at Indovinya Mauá:** Reduced third-party vendors and cut down the workload for 13 employees, saving 27% annually compared to the previous year.
- **Inventory process improvement at IVP Poland:** Implemented an application-based scanner that reduced gas cylinder usage by 24%. Staff, time, errors, and double-checking were minimized, resulting in cost savings and improved safety.

FINANCE EXCELLENCE

Key Improvement Focus

- **Month-end Close Process Optimization:** Enhancing efficiency in book closing time to improve productivity across all finance processes, such as Procure-to-Pay (P2P) and Order-to-Cash (O2C).

2023 Highlights

- **MIS Report Automation:** Resulted in a 50% reduction in manual effort for the GBS function.
- **Month-End Close Accuracy and Productivity Improvement:** Increased from 94% to 98%, while staff utilization increased from 71% to 85% in Turkey.

IVEX Global Winners 2023

The IVEX Project Competition is an annual event that encourages Indorama Ventures team members worldwide to identify and pursue improvement opportunities in their respective areas. Participants present their top projects in the regional rounds, with three winners from each region advancing to the global competition. Using Lean Six Sigma (LSS) methodology and other improvement tools, the competition aims to empower new belt practitioners to drive innovation and efficiency throughout the Company.

DMAIC DIVISION



GLOBAL WINNER



Mr. Weijian Xu

Site: Indorama Ventures Mobility Scottsboro, USA
Project: IVM Improve SDW Quality A Grade



1st Runner-up



Mr. Sivakumar Sellamuthu

Site: Indorama Petrochem Limited, Thailand
Project: Energy Efficiency Improvement



2nd Runner-up



Mr. Gianluca Parisi

Site: Indorama Ventures Mobility Cremona, Italy
Project: Reduction of set-up times for single end cord lines

PDCA DIVISION



GLOBAL WINNER



Mr. Igor Caniato

Site: Indovinya Mauá, Brazil
Project: Internal Logistics Process Optimization



1st Runner-up



Mr. Wu Huanming

Site: Guangdong Indorama Ventures PET Polymer, China
Project: Power Consumption of Compressed Gas Optimization



2nd Runner-up



Ms. Monika Bentley

Site: Indorama Ventures, Poland
Project: Inventory Process Improvement



PERFORMANCE MANAGEMENT AND RECOGNITIONS

Performance management is a crucial process that helps us to match our strategies, goals, and resources with the performance and development of our employees. It also helps to track and assess their performance and outcomes. Data and insights are used to find and resolve issues and obstacles that may affect employees' performance and productivity. To acknowledge and appreciate the outstanding performance and contributions of our employees, we established a range of recognition programs that celebrate their achievements and impacts.

Employee Appraisal

To ensure a high-performance culture, we provide consistent feedback to our employees and encourage constructive dialogues between them and their supervisors. These exchanges help us identify their strengths, areas for development, and challenges they may encounter. Furthermore, their individual performance and career development trajectories are yearly reviewed.

In 2023, 67.81% of total permanent employees had their performance evaluated through various models, including Key Performance Indicators (KPIs) based on goal-setting management by objectives. At our production sites, performance appraisals are conducted yearly, both formally and informally, ensuring that employees are kept informed about their performance (individual and team-based) and expectations. This approach allows them to receive timely feedback and stay updated on their status within the organization.

We utilize individual performance appraisals to guide the potential and skill development of our employees in alignment with the organization's growth. Diverse measures are employed to evaluate the performance of individual employees across all business groups. Following the performance appraisals, we review the results to identify areas for improvement, incorporating tailored plans to enhance the skills and capabilities of respective employees. Regarding the compensation tied to individual employee performance, we implement strategies that align remuneration with assessed performance levels, ensuring a comprehensive approach to employee development and recognition.

Career Opportunities Enhancement

Indorama Ventures is committed to creating a culture of continuous learning and career advancement. Our career enhancement initiatives include:

- **Performance Management and Goal Management (PMGM) in SuccessFactors**

This platform allows employees to set personalized career goals, monitor their progress, and receive feedback from supervisors or performance appraisals, encouraging a transparent and structured approach to career development.

- **Individual Development Plan (IDP)**

This plan empowers employees to identify their career aspirations and outline the steps needed to achieve them. It includes mentorship, skill-building, and specific training programs tailored to individual needs.

Awards, Recognitions, and Culture Programs

We believe in creating a positive and productive work environment that supports our strategic goals and vision by recognizing and rewarding our employees for their excellence. The following recognition programs were designed to motivate and engage our employees, reinforce our organizational values and culture, and promote a sense of belonging and pride among our workforce.

Indorama Ventures Performance Excellence Awards

The Indorama Ventures Performance Excellence Award 2024 is pivotal in maintaining and enhancing employee engagement while inspiring our workforce to attain remarkable outcomes. The award acknowledges outstanding performance based on three key criteria: Financial Performance, Operational Performance, and Sustainability Performance. We identify top-performing business units by benchmarking their achievements against these criteria. Furthermore, employees from these distinguished units receive cash incentives as a token of appreciation for their exceptional teamwork and contributions.

Fibers Winner



Avgol Industries 1953 Ltd. (Dimona), Israel

Indovinya Winner



Oxiteno S.A. Indústria e Comércio (Tremembé), Brazil

PET Winner



IVL Dhunseri Polyester Company S.A.E., Egypt

Packaging Winner



Indorama Ventures Packaging (Myanmar) Limited, Myanmar

Recycling Winner



Indorama Polyester Industries Public Company Limited (Nakhon Pathom), Thailand

Aromatics Winner



Indorama Petrochem Limited (PTA) – Rayong, Thailand



Indorama Ventures Culture Awards 2023

In 2021, we introduced the “Indorama Ventures Culture Awards,” which continue this year. The purpose of these awards is to recognize and celebrate those who have championed behaviors associated with our core values. Based on these five core values, we designed five categories of awards: Change Enabler, Leadership, Responsible, Customer Centric, and Driving Diversity. In 2023, we recognized employees who exemplified behaviors related to all five categories.

Change Enabler



Stuart Harris and Lara O'Brien*

* Lara O'Brien,
represented the team of this group winner

Leadership



Fabio Monteiro Ferreira

Customer Centric



Ekaterina Larina

Responsible



Tammy Gaull-Gatza

Driving Diversity



Mariana Barreto

HEALTH AND SAFETY

[GRI 3-3, 403-2]

Given the nature of our operations, which involve hazardous manufacturing processes and the handling of chemicals, prioritizing Health and Safety is not just a regulatory obligation but a fundamental responsibility.

Our Environment, Health, and Safety (EHS) Policy outlines our commitment to ensure adequate Environment, Health, and Safety standards for all employees, trainees, and persons who are not employees but authorized to act on behalf of or represent the Company. Our guiding principles focus on risk, compliance, employee engagement, transparency and improvement. We actively share safety insights across all business verticals, engage employees through training opportunities, and adopt best practices to prevent workplace injuries.

Our commitment to occupational health and safety is aligned with ISO 45001 standards. In addition, our Corporate EHS group has a comprehensive compliance assurance EHS Audit program, supported by third-party consultants.

In 2023, 69% of all operations were certified, audited, and verified through international standards ISO 45001. Additional 16% of all operations that have not yet been certified ISO 45001 were audited by third-party through EHS audit program. Total coverage for the verification and audit was 85% of all operations.

Our comprehensive risk assessment process spans across all phases of business, from the due diligence process to existing operations and projects, through to the decommissioning of assets. This ensures the safeguarding of our employees, environment, and communities. The Exposure Assessment and Control standard aims to identify potential health hazards in the workplace and operations, estimate the potential exposure via qualitative and quantitative methods to measure the actual health risk, and implement controls for any unacceptable exposures.

We are committed to transportation safety which 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. Throughout 2023, we experienced a total of 23 transportation incidents at eight locations. The incidents resulted in minimal or no product loss, there were no injuries, and no litigation or fines. Furthermore, our shipping employees receive training in the safe transportation of hazardous materials as per regulatory training requirements. We continually review and update our procedures to ensure they are effective in identifying and managing hazards and minimizing risks.

Key Benefits of Good EHS Management

FOR MORE
INFORMATION

Innovation and Creativity

Enhanced Innovation
Resource Efficiency

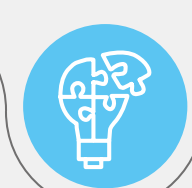
Operational Efficiency and Compliance

Operational Resilience
Legal Compliance



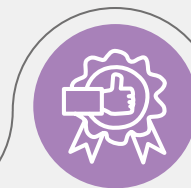
Employee Well-being and Retention

Reduced Employee Turnover
Improved Health and Well-being



Positive Corporate Reputation

Community Trust
Industry Recognition
Stakeholder Confidence



Environmental Sustainability

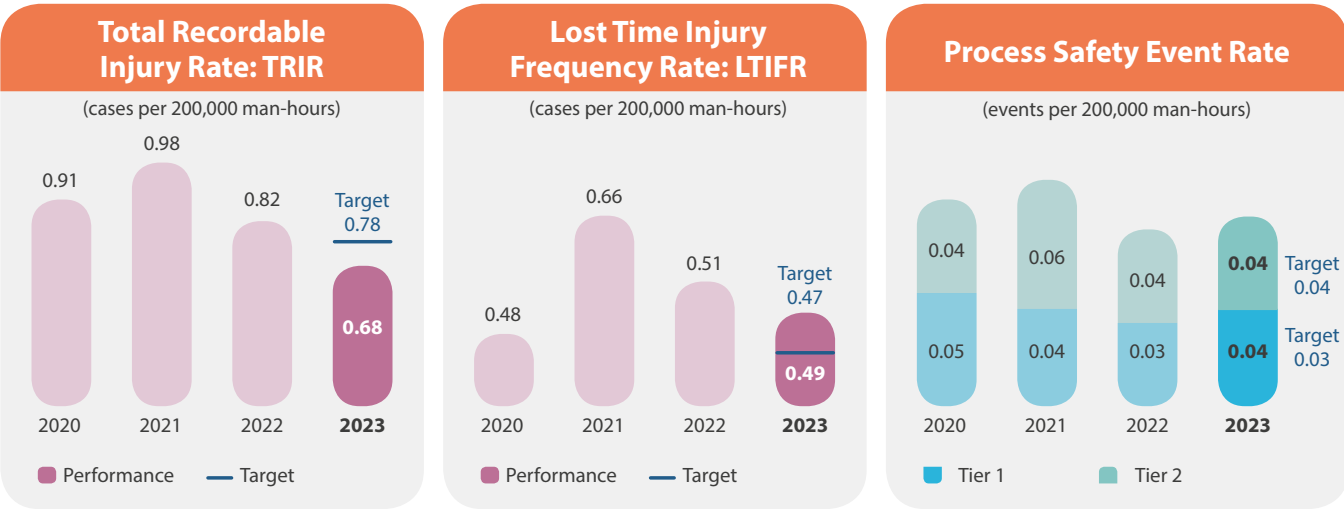
Environmental Impact
Resource Efficiency

OCCUPATIONAL HEALTH AND SAFETY PERFORMANCE

[GRI 3-3, 403-2, 403-7, 403-8]

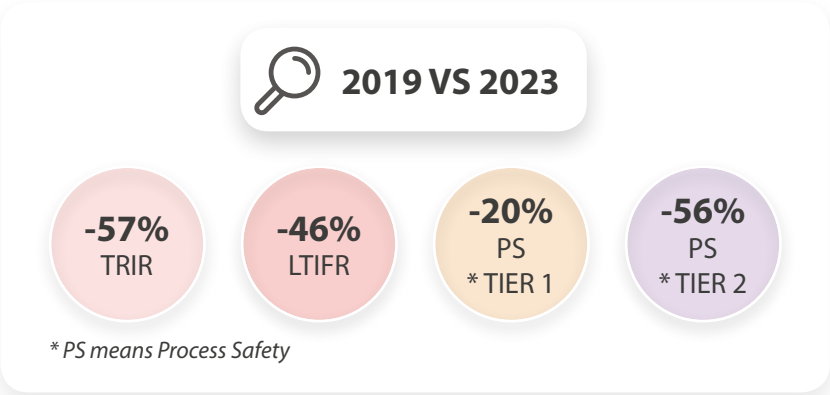
In 2023, our Total Recordable Injury Rate (TRIR) reached 0.68 cases per 200,000 man-hours, with a Lost Time Injury Frequency Rate (LTIFR) of 0.49 cases per 200,000 man-hours. We achieved a remarkable improvement in TRIR performance since 2019, culminating in a notable 15% improvement from 2022 to 2023. The implementation of the Injury and Illness Prevention Program (I2P2) and Golden Safety Rules in 2022 yielded positive results, with a 62% improvement in TRIRs and a 59% improvement in LTIFRs for sites that participated in the program.

A total of 1,411 near-miss incidents underscored the importance of proactive hazard identification. While 77 out of 153 sites achieved zero recordable injuries, our focus remains on reducing incident frequencies and severity. Regrettably, we experienced 15 LIFE Incidents, including three contractor fatalities and 12 permanent partial disabilities among contractors. These fatalities were thoroughly investigated, with corrective and preventive measures put in place, and lessons learned were shared globally. These incidents drive our continuous improvement efforts, as we strive to reduce risks and enhance safety protocols.



KPI Review

Since 2019, Indorama Ventures has achieved notable improvements in EHS performance, shown by the positive change in various key performance indicators as follows:



Targets

LTIFR

(cases per 200,000 man-hours)

< 0.5* by 2025

* 2025 target has been revised to 0.46, as the 2023 performance has already surpassed it.

Performance

0.49 cases

per 200,000 man-hours



2023 HIGHLIGHTS

Achieved a consistent year-over-year improvement in the **Total Recordable Injury Rate (TRIR)** over the past five years, demonstrating a noteworthy **17% decrease compared to 2022** and an impressive **57% decrease compared to 2019**.

Comparing performance to that of our peer member companies in the American Chemistry Council, Indovinya, (formerly IOD segment) finished 2023 in the **first quartile for injury / illness rate (TRIR), and in the second quartile for process safety** performance.

Demonstrated sustained progress in **Process Safety events** over the past five years, with a **significant 14% decrease compared to 2022** and a remarkable **43% decrease compared to 2019**.

Over **69%** of all operations have been certified **ISO 45001:2018** certification.

130 top leaders participated in safety leadership training.

Looking Ahead: 2024 Priorities for Workplace Health and Safety



Building Culture

As we look forward to 2024, our primary objective is to reinforce a cultural shift within our organization. We aim to transition from simply managing outcomes to proactively addressing potential exposures, thereby promoting a sustainable safety mindset throughout our workforce.



Enhancing Expertise

We are committed to nurturing expertise through ongoing development initiatives at the EHS Academy within our online training platform. Our focus is on providing comprehensive training programs in Process Safety Management and Industrial Hygiene, empowering our employees with the specialized knowledge and skills essential for safety excellence. We aim to develop 10 new learning modules related to EHS in 2024 which will be accessible to all employees.



Ensuring Compliance

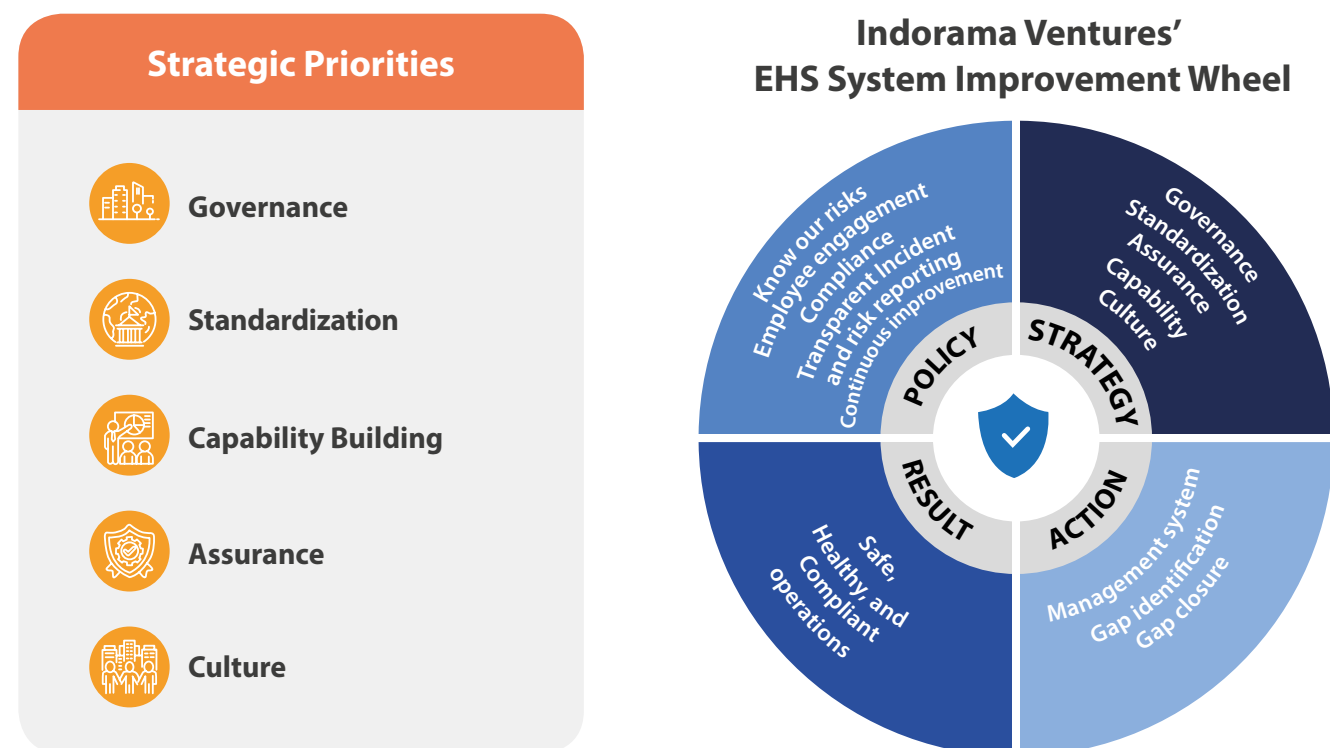
Our assurance efforts will remain focused as we continue key initiatives such as the Corporate EHS Audit program, rigorous investigations of major incidents, and comprehensive assessments of Process Safety Management (PSM) gaps. Additionally, we are in the process of developing a roadmap for PSM audits to further enhance our safety protocols and practices in anticipation of the challenges ahead in 2024.



EHS MANAGEMENT AND COMPLIANCE SYSTEM

[GRI 3-3, 403-1, 403-7]

We have established our EHS Management and Compliance System and are committed to its continuous improvement, striving to exceed compliance requirements. Guided by four major accountabilities – Governance and Standardization, Assurance, Capability Building, and Innovation, with a strong culture as our foundation – we ensure a comprehensive approach to environmental, health, and safety practices.



Corporate-Level Oversight and Standards

Our Environmental, Health, and Safety Group, supported by the Board, ensures effective management and continuous improvement of each site's practices. In alignment with our commitment, all Indorama Ventures sites must meet or exceed our EHS standards, some of which surpass legal requirements. In 2023, we introduced 18 new standards across various EHS subject areas, enhancing accountabilities, site-specific standards, and training requirements.

The implementation of new EHS standards sets common requirements and expectations on work-related injuries, health, diseases and incidents for all sites, ensuring the Company's goal of "One Indorama Ventures" and achieving EHS Excellence across the organization. Since its inception in 2020, the EHS team at the corporate level has been instrumental in supporting Indorama Ventures' commitment to a healthier and safer workplace for everyone.

The initial focus of corporate EHS, through the functions of the Center of Excellence and Regional Assurances, was on crafting Indorama Ventures' EHS Standards, deploying common tools and methodologies, streamlining audit processes across all sites, and implementing cutting-edge software and regulatory compliance solutions. These foundational steps were crucial in ensuring consistency and accountability across the organization.

Looking ahead, our focus will shift towards ingraining EHS principles into the DNA of Indorama Ventures. As we recalibrate our strategic priorities for 2024, our goal is to not only strengthen our existing framework, but also encourage a culture of continuous improvement and innovation. This includes:



1. Capability Building:

In 2024, we plan to institute a Leadership Boot Camp with three events scheduled in February, June, and September in Mexico, Germany, and Thailand, aimed at permeating EHS principles across Indorama Ventures operations. Complemented by specialized courses offered through the EHS Academy, this initiative will empower our workforce with the requisite skills and knowledge, ensuring a culture of safety and sustainability throughout our organization's hierarchy.



2. New Technologies:

We recognize the importance of staying ahead of emerging trends and technologies in the field of EHS. In response, new innovation solutions are being explored to optimize our processes, identify potential risks, and increase safety throughout Indorama Ventures.

By continuously evolving our approach to EHS management and embracing a culture of innovation, we are confident in our ability to not only meet but exceed our sustainability goals in the years to come.

EHS Audit Program

Indorama Ventures' Corporate EHS Audit program, initiated in late 2022, has become a valuable tool in helping the Company achieve its goal of excellence in environmental, health, and safety performance. The program comprehensively and systematically evaluates Indorama Ventures' EHS practices across all sites on a five-year audit cycle, covering regulatory compliance, culture and leadership, risk management, EHS performance, and adherence to Indorama Ventures' internal EHS standards. Best practices and areas for improvement are shared among relevant business units to improve and reduce risks for the whole group. As of 2023, 27% of all operations have been audited by third-party.

The program encourages a culture of continuous improvement by setting benchmarks that Indorama Ventures can measure while tracking progress over time. By implementing audit findings, which are managed through our Action Tracking system, we not only improve our overall safety and compliance performance, but also save costs in the long-term, enhance our reputation and sustainable business practices, and make Indorama Ventures a better and safer place to work. These audits are closely monitored by the corporate team, with findings/risks tracked for completion with quantified targets by the individual sites.

For 2024, a formal audit schedule has been established, and internal compliance and management system audits will be carried out within each business unit. The focus will remain on enforcing the company's Golden Safety Rules and also deploying trained internal auditors for on-the-job training and knowledge sharing at their respective sites.

Digital Advancements – EHS Software System

In 2023, our progress in standardization was marked by advancements in the digitalization of EHS processes through the deployment of new software solutions, enhancing EHS accountability and management, leading to improved performance. EHS data management systems allow us to have one system in place that brings efficiency and comprehensiveness, serving as the central repository for all our EHS data from all operations worldwide. This implementation has dramatically improved our understanding of risks and our focus on risk reduction activities by learning from incidents. It assists in key decision-making at the top level through effective and timely data reporting, dashboards, and more.

Corporate EHS plans to expand the capabilities of the current software by creating additional reports and dashboards to provide further insights into the data and by introducing new EHS modules. The modules planned for 2024 include Industrial Hygiene and Management of Change (MOC).



EMPLOYEE PARTICIPATION IN HEALTH AND SAFETY

[GRI 3-3, 403-4, 403-5, 403-7, 403-8]

Indorama Ventures 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. 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 all locations worldwide are invited to draft and review these standards with the goal of ensuring that they are practical for sites to implement, exchange knowledge, and develop site EHS professionals.

EHS Capability Development and Culture play a crucial role in achieving EHS Excellence, and we prioritize the development of our workforce's critical skills in this regard. In 2023, we held 26 training sessions and two regional networking meetings attended by 103 employees. Moreover, we utilize a range of internal communication channels to effectively communicate information on EHS and develop a culture of awareness throughout the organization.

Our commitment to EHS excellence is further evidenced by achieving 100% site adherence during 2023 Global Safety Week and the establishment of the EHS Transformation Subcommittee. This subcommittee, housed within the Manufacturing Excellence Council, will conduct EHS Leadership boot camps in 2024, underscoring our dedication to continual improvement and safety innovation.



Award celebration for EHS Excellence Award Site Winner – Lake Charles

Ensuring workplace safety requires a proactive approach. The Environment, Health, and Safety (EHS) Excellence Award is presented annually to individuals or teams, both EHS and non-EHS, who significantly reduce risk, drive safety or environmental improvements, inspire others, or champion a strong compliance culture.

Additionally, EHS Excellence Awards recognize sites that excel in meeting their EHS KPIs and other specific criteria. The performance of all sites is carefully evaluated to ensure fair and accurate scoring. These awards highlight and promote outstanding commitment to safety and environmental excellence within the organization.

HUMAN RIGHTS

[GRI 3-3]

HUMAN RIGHTS COMMITMENT

We maintain a strong stance against discrimination, bullying, and harassment, as clearly outlined in our Human Rights Policy, and closely monitor incidents to ensuring a safe and inclusive workplace. In addition, we are committed to ensuring that our operations do not violate the rights of stakeholders throughout our entire value chain, enabling them to collaborate closely to promote human rights, promote a culture of respect, and champion diversity and inclusion as essential elements of our corporate strength and competitiveness.

In 2023, we updated our Human Rights Policy to include Modern Slavery and Human Trafficking and to broaden the prohibition on Child Labor. Moreover, our respective units have taken the initiative in obtaining SA8000 certification, or its equivalent, to confirm that there are no human rights violations across the organization.



MODERN SLAVERY

Modern slavery represents both a criminal offense and a violation of fundamental human rights, manifesting in various forms like slavery, servitude, forced labor, and human trafficking. These forms share the commonality of one person depriving another of liberty for personal or commercial exploitation. We are fully committed to transparency within our business and to combating modern slavery within our own operations and across our supply chains. We hold ourselves, our contractors, and our suppliers to high standards, expecting adherence to these principles, which extend to the suppliers of our suppliers.

We acknowledge and endorse the global leadership demonstrated by the Australian Government in combating modern slavery through the Modern Slavery Act 2018.





1. Advancing Human Rights as a Global Chemical Leader

We honor all human rights as embodied in the Universal Declaration of Human Rights and its two covenants, the International Covenant on Civil and Political Rights and the International Covenant on Economic, Social, and Cultural Rights.

2. In line with our framework to **"Protect, Respect, and Remedy"**, we identify and prevent the potential infringement of human rights as well as complicity in human rights abuses by others and comply with the respective laws.

3. Human Rights Commitment

- Member of the UN Global Compact
- Signatory and supporter of the Women's Empowerment Principles (WEPs)
- Support the Standards of Conduct for Business addressing Discrimination against Lesbian, Gay, Bisexual, Trans, and Intersex People, as established by the United Nations Human Rights Office (OHCHR).

4. Human Rights Policy

- Embraces the United Nations Convention on the Rights of the Child (1989).
- Addresses key ILO conventions (e.g. working hours, living wage, and free expression).
- Additional definitions and sections detailing Modern Slavery and Human Trafficking can be found in the policy.
- Alongside with this policy, our Whistleblower Policy also addresses employee grievances under the 'non-retaliation' section.
- Promotes employment for people with disabilities and ensures a work environment conducive to their active participation.

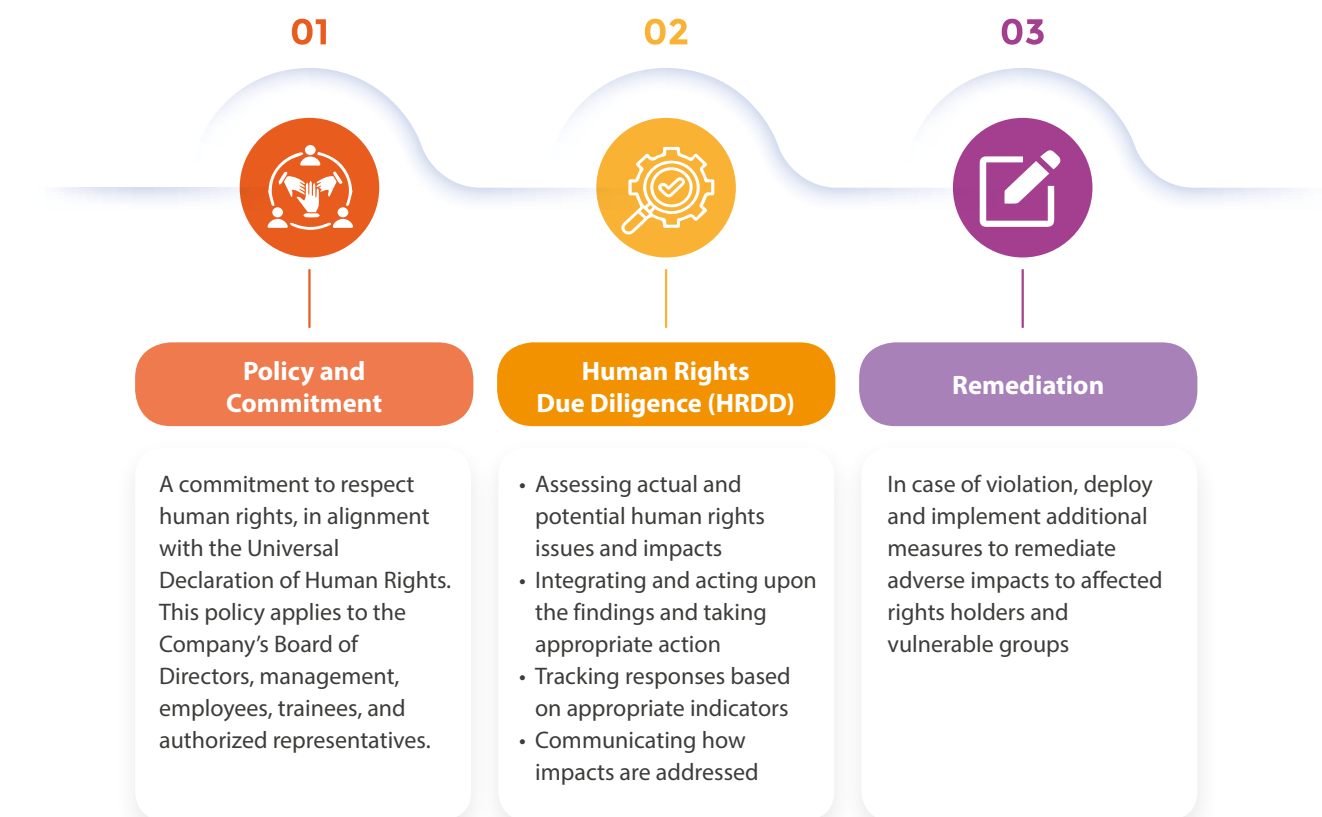
5. Human Rights Declaration:

- Signed by 100% of Business Heads and Site Heads in 2023.
- No significant cases in 2023.



OUR PROCESSES FOR MONITORING HUMAN RIGHTS PERFORMANCE

Human Rights Due Diligence Process



Indorama Ventures' Human Rights Due Diligence (HRDD) process applies to all our operations, businesses, and associated activities across our value chain. This includes employees, contractors, suppliers, and communities who are working at our operational sites, as well as vulnerable groups who may be impacted by our business activities.

Our HRDD process is developed in line with international standards and guidance, including the United Nations Guiding Principles on Business and Human Rights (UNGPs), the United Nations Universal Declaration of Human Rights (UNDHR), the United Nations Global Compact (UNGC), and the International Labour Organization (ILO).

We are committed to conducting human rights due diligence every year and evaluating both actual and potential impacts. This structure approach involves meticulous analysis, risk assessments, mitigation, and remediation, allowing us to maintain elevated standards in our performance.

2023 HIGHLIGHTS

Human Rights Risk Assessment 2024

Human Rights Issues

- Harassment
- Unfair Treatment

Additional measures / mitigations

- Appropriate additional trainings
- Issue warning letter
- Improve dialog with employees

Further details are available in Human Rights Due Diligence Report



At Indorama Ventures, we take a firm stance against discrimination, bullying, and harassment, a commitment explicitly detailed in our Human Rights Policy. We actively monitor incidents of harassment, unfair treatment, and discrimination to underscore our dedication to promoting a safe and inclusive workplace. Moreover, our steadfast commitment extends to safeguarding the rights of indigenous people, ensuring that our operations respect and uphold their rights.

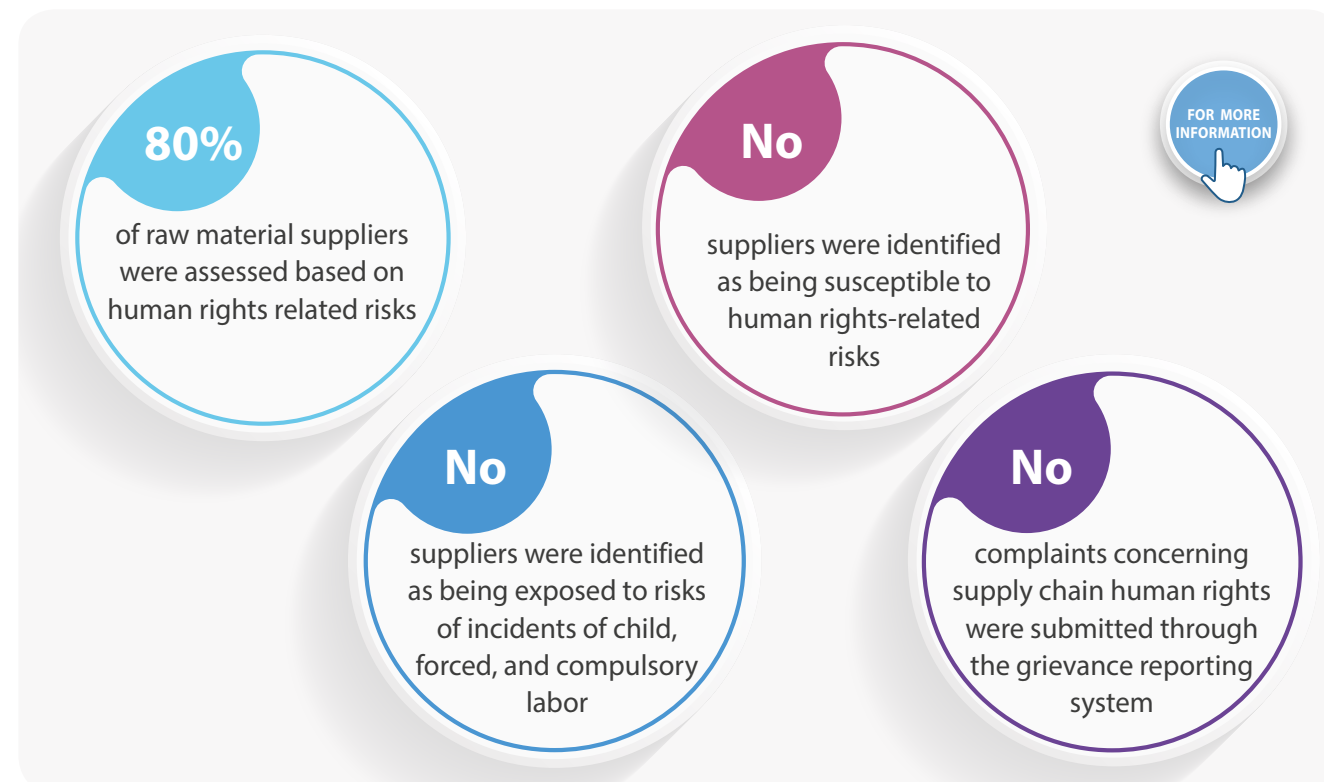
Incorporating human rights into the fabric of our business operations, we seamlessly integrate policies into actual practices at the site level, and we conduct comprehensive Human Rights training sessions annually for our employees. In 2023, 11,185 employees participated, with an impressive 15,676 hours of training, showcasing our dedication to continuous education. Achieving 100% coverage in our human rights assessments since 2018 attests to our unwavering commitment.

Our approach to employee data privacy aligns with the provisions of the Personal Data Protection Act 2019 (PDPA), ensuring that personal information is handled in compliance with relevant laws and regulations. Rigorous measures are in place to prevent unauthorized access or disclosure, prioritizing the security of employee data.

HUMAN RIGHTS IN THE SUPPLY CHAIN

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

We collaborate with suppliers, customers, and business partners to integrate human rights safeguards into our supply chain. This is evident in our Sustainability Commitment and is managed through tools such as the Supplier Code of Conduct, Supplier Self-Assessment, Human Rights Policy, and compliance with national laws. We actively assess and address potential human rights issues through dialogue and collaboration with relevant suppliers, including contractors. In 2023, we evaluated 80% of raw material suppliers for ESG-related risks, with no identified concerns. Furthermore, there were no instances of child, forced, or compulsory labor risks among our operations or suppliers.



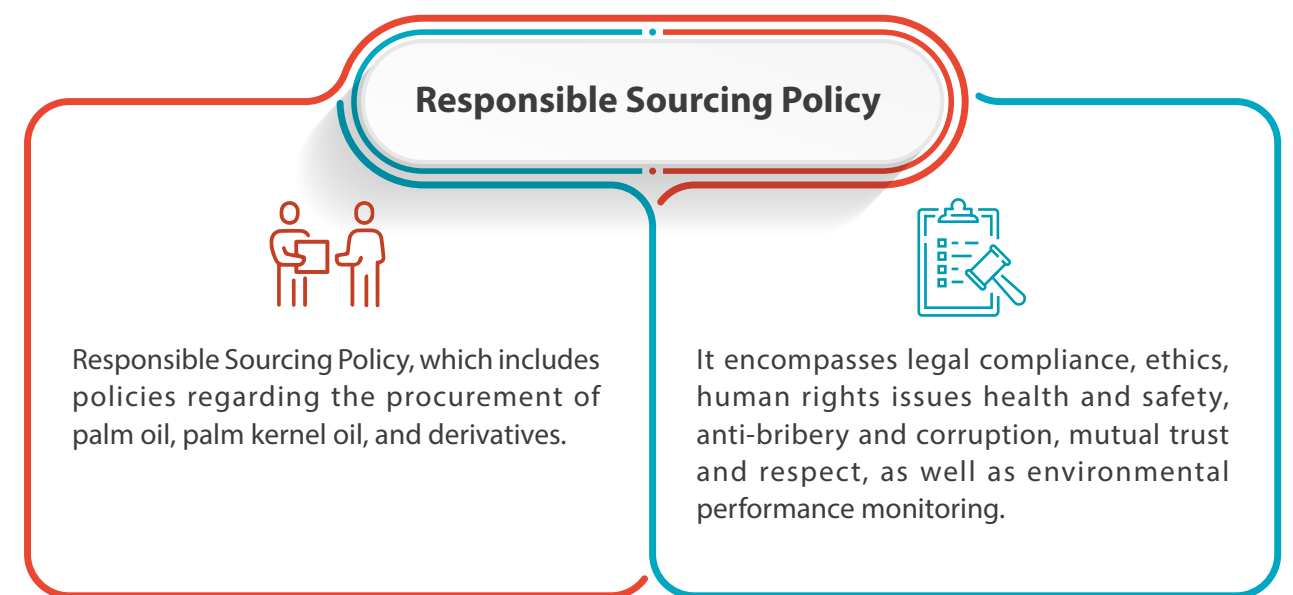
SUPPLY CHAIN MANAGEMENT

[GRI 408-1, 409-1]

The landscape of responsible supply chain management has recently evolved, encompassing a broader spectrum of considerations such as compliance with more stringent environmental standards, biodiversity, GHG Scope 3 management, life cycle assessments, carbon footprint data, safeguarding human rights, and preventing bribery and corruption. With this in mind, Indorama Ventures has introduced initiatives aimed at the efficient oversight, evaluation, and empowerment of our suppliers across the supply chain.

RESPONSIBILITY IN OUR SUPPLY CHAIN

Indorama Ventures emphasizes Environmental, Social and Governance (ESG) responsibility within its supply chain, recognizing its profound impact on individuals, society, and the planet. We are deeply committed to upholding ethical labor practices, promoting diversity, and maintaining a safe working environment, while also adhering to strict environmental standards. Aligning with our vision as a world-class sustainable chemical company, we aim to ensure the well-being of our workforce, contribute positively to the communities we serve, and minimize our ecological footprint by integrating social and environmental responsibility into our supply chain.



Green Procurement

We consider the impact on the environment, human health, and the entire product life cycle when procuring goods for internal use, and raw materials for producing finished products and services. These goods and raw materials should have a low environmental impact and be more sustainable in terms of the materials they are made from and the sourcing and manufacturing practices used. In 2023, we sourced and consumed more than 200,000 tons of bio-based raw materials. The top three highest volumes of sourcing were 150,302 tons of palm kernel oil and PKO fatty alcohols, 9,175 tons of Bio-MEG, and 6,289 tons of cellulose, respectively.

Sustainable Logistics

Several measures have been implemented to reduce emissions throughout our value chain, resulting in significant outcomes which, in turn, contribute to our decarbonization target.



Transition Shipment from Tank trucks to Rail Cars in Texas

Huntsman Propylene Oxide (PO) transitioned from transporting propylene oxide shipments via tank trucks to utilizing rail cars for shipping from Port Neches to Conroe, both in Texas. The anticipated volume is estimated to be 50 million pounds per year. This change reduces the number of tank truck shipments from 980 trips, covering 104 road miles, to 300 rail car shipments, spanning 112 rail miles.

Zero-emission Fleets – Improving Efficiencies and Reducing Emissions from Bulk Shipments

Indovinya works with Odfjell, a leading bulk shipment company with shared aspirations. By 2030, both companies aim to cut emissions by 50% compared to 2008, with a vision for a zero-emission fleet by 2050. They are investing in energy-saving technologies, having spent over \$ 30 million since 2014. In 2022, they completed 18 new installations and planned more projects in 2023 to improve efficiencies and reduce emissions. Odfjell also supports industry-wide initiatives for decarbonization and advocates for international regulations to drive zero-emission efforts.

Local Sourcing and Procurement

Regarding the consideration of GHG Scope 3 emissions, we prioritize local sourcing and procurement from local suppliers to support our business operations. This not only encourages local economic opportunities and growth, but also directly contributes to reducing emissions and costs, helping us meet our sustainability goals. We aim to set targets for Scope 3 emissions in activities related to supply chain management in the categories of “Purchased Goods and Services” and “Upstream Transportation and Distribution.”

In-Depth ESG Technical Support

Indovinya has worked with some of our leading suppliers to create knowledge of our emissions-related goals. In the case of Stolt, a Norwegian isotanks operator, we have access to their system to know exactly what each of our exports they make will generate in emission. We got the first results of this partnership in the final year of 2024.

Other Commitments

Roundtable on Sustainable Palm Oil (RSPO)

- Indovinya (our subsidiary and formerly the IOD segment) 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 responsibly produce, process, and market Mass Balance certified products.

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

- Indovinya requires that suppliers adhere to No-Deforestation, No-Peat, and No-Exploitation (NDPE) practices to prevent incidents such as labor exploitation, child labor, deforestation, and development in peatland areas.
- Failure to comply with these practices may impact a supplier's future ability to do business with us, as outlined in our Responsible Sourcing Policy for Palm Chain.

SUPPLIER ESG ASSESSMENT AND COMPLIANCE MANAGEMENT

[GRI 3-3, 308-1]

Indorama Ventures deployed a sustainable supply chain management and strategy in 2022 that integrates ESG programs for effective oversight, carbon footprint reduction, and compliance management. The Sustainability and Risk Management Committee (SRMC), and the ESG Council guide and monitor the strategy and the supplier ESG programs. In 2023, we engaged with over 300 direct raw material suppliers, who represent the top 90% of our raw material spend to ensure that they adhere to our Responsible Sourcing Policy and ESG requirements. This engagement includes compliance with our Responsible Sourcing Policy, Carbon Footprint and Compliance Management. We evaluate, verify, and train our suppliers to comply with our Responsible Sourcing Policy and related policies, such as our Human Rights Policy and Anti-Corruption Policy. Indorama Ventures has a standard for our payment process and specifies credit term payment conditions in the purchasing document. The average trade payment term for 2023 stands at 60 days.

Supplier Screening and Selection

[GRI 3-3, 308-1, 308-2]

We undertake due diligence on our suppliers to ensure they meet our ESG criteria and identify any potential risks or areas for improvement. Our supplier screening (evaluation and selection) process for new vendors is comprehensive and involves ensuring ESG compliance in accordance with the Responsible Sourcing Policy. Suppliers must comply with all the business and ESG requirements which specify our standards for human rights, labor practices, health and safety, environmental protection, corporate ethics, and anti-corruption.

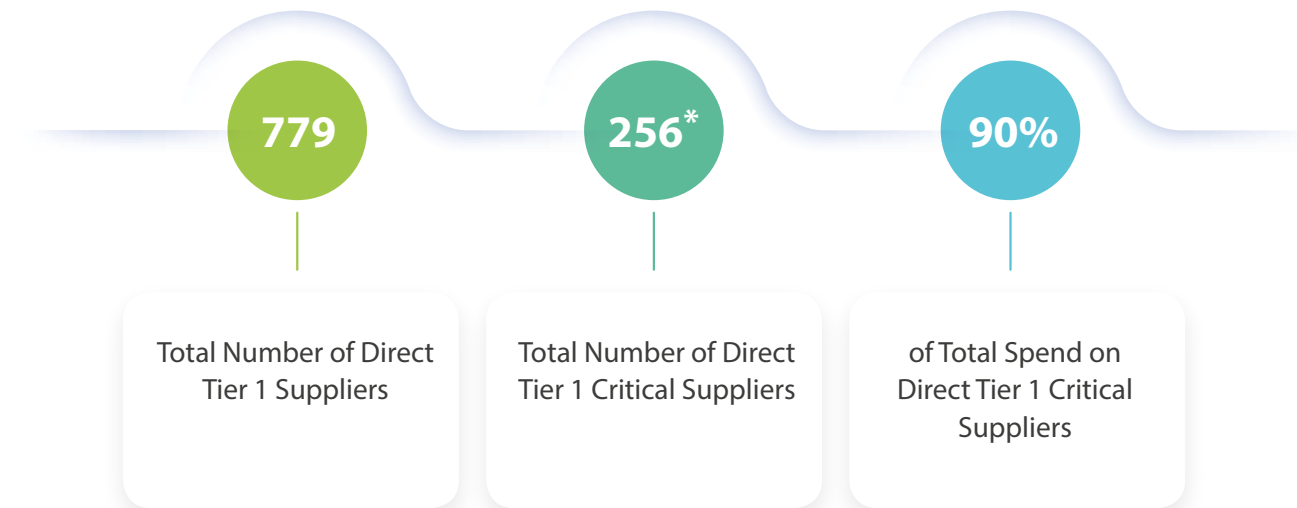
In 2023, over 80% of our raw materials suppliers have undergone Responsible Sourcing Policy acknowledgement. Selection of suppliers is based on their ESG performance and business relevance, which is periodically reviewed by Indorama Ventures.

We use third-party platforms and tools, such as EcoVadis, Tfs (Together for Sustainability), to assess our suppliers' ESG performance and benchmark them against industry best practices. Suppliers can also access ESG benchmark against suppliers through the EcoVadis Assessment. We also request our suppliers to disclose their ESG data and policies through these platforms or through our sustainable supply chain engagement.

A goal of supply chain engagement is to incorporate ESG factors that affect contract selection or rejection into the plan that is part of the Sustainable Supply Chain Program.

FOR MORE
INFORMATION

2023 Supplier Screening



* This number is based on an initial screening in 2023 and may not represent the actual direct tier 1 critical suppliers for that year. It is anticipated that this figure will rise in the future as our program gains strength and expands its scope.

Supplier Risk Assessment

We classify our suppliers into high, medium, and low ESG risk categories based on their geographic location, product category, and ESG performance. The assessment on country-specific risk, sector-specific risk, and commodity-specific risk are considered for Critical suppliers and Tier 1 suppliers. It evaluates criteria such as the type of raw material, country of origin, regulatory requirements, specific certifications, ethics and reputation, spending, and business continuity in the event of a supply disruption.

This process, applicable to raw material and critical non-raw material suppliers, for existing suppliers and potential new suppliers (due diligence), involves a systematic and harmonized approach, requesting that suppliers respond to a self-assessment questionnaire that assists in assessing opportunities and ESG risks relating to the environment, human rights, child and forced labor, regulatory compliance, and improving a sustainable supply chain. We prioritize our high-risk suppliers for further monitoring and engagement including audit, as well as update their risk status regularly based on their ESG performance improvement or deterioration.

Supplier Audit

We check our suppliers' ESG conformity and performance through audits. We rely on internal and external auditors to carry out the audits, depending on the audit's scale and complexity.

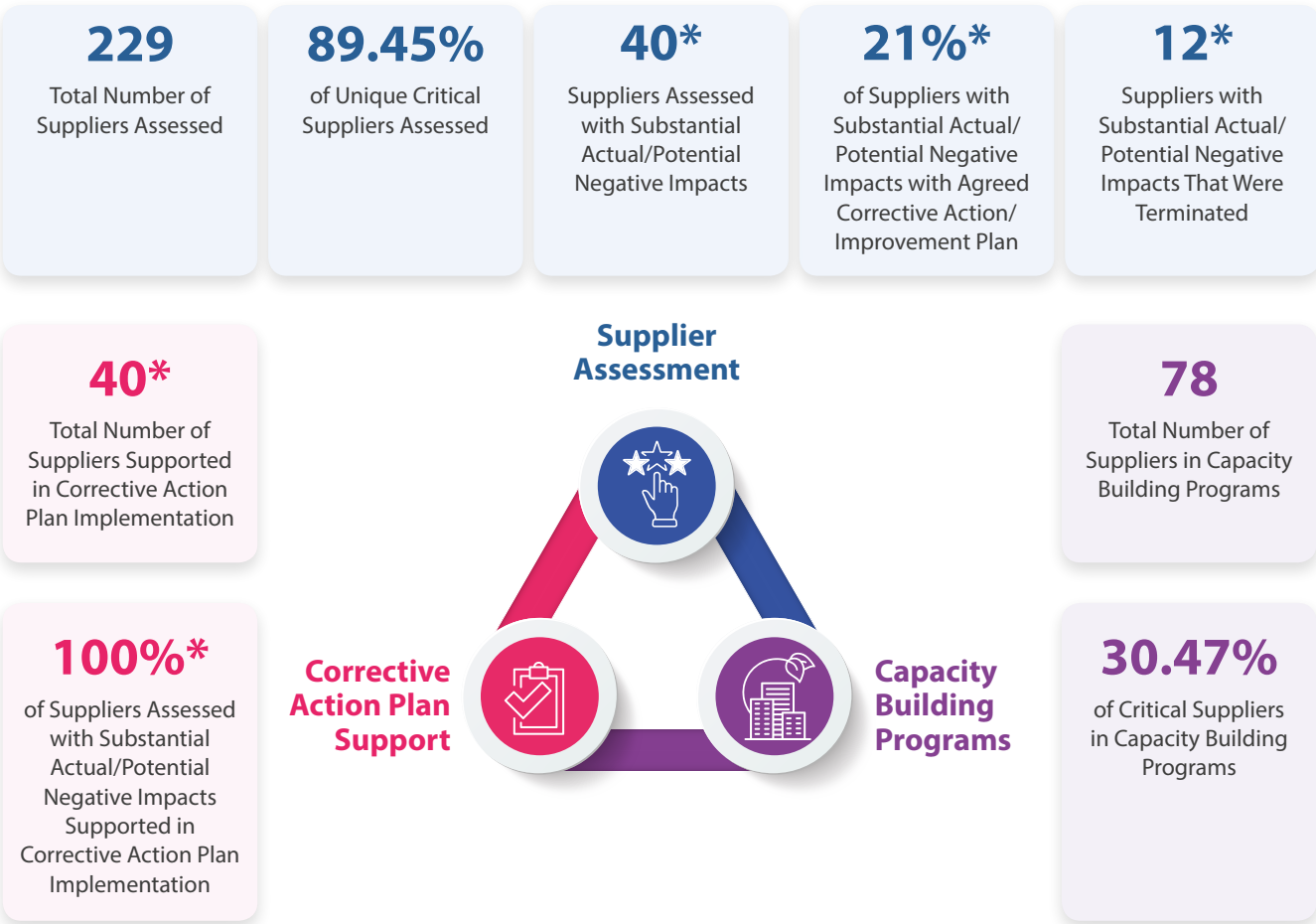
Various methods have been applied to evaluate suppliers assessments/audits in accordance with recognized universal standards, including the UN's Global Compact, the International Labor Organization (ILO), Safety & Quality Assessment System (SQAS of the European Chemical Industry Council (CEFIC)), Responsible Care Global Charter of the ICCA, Conventions on Labor Standards, ISO 26000: Guidance on Social Responsibility, ISO 9001: Standard for Quality Management Systems, ISO 14001: Standard for Environmental Management Systems, ISO 19011: Guidelines for Quality and/or Environmental Management System Auditing, OHSAS 18001: Occupational Health and Safety Assessment Series, Social Accountability International, SA8000 Standard, United Nations, Universal Declaration of Human Rights, United Nations, UN Convention against Corruption, and Organization for Economic Co-operation and Development, OECD Guidelines for Multinational Enterprises.

- Desk assessment with verification of the evidence
- Onsite assessment by our procurement team (second-party)
- Onsite assessment by an external third-party.

These assessments ensure that our suppliers' practices are in line with our Responsible Sourcing Policy and explore potential risks, additional areas for improvement, as well as correction plans.

In 2023, 31 suppliers* underwent physical inspections and onsite audits. Findings and results are considered for corrective action/improvement plans. Indovinya, one of the segments of the Company, has risk mitigation plans in place for 100% of critical suppliers.

* This number represents efforts from Oxiteno legacy that was continued in 2023 but did not cover the entire Indovinya segment. Beginning in 2024, our on-site audits will be conducted through TFS audit program.



* These numbers given above represent Indovinya segment.

Continuous Improvement

As part of our Sustainable Supply Chain Program, we train our procurement executives and suppliers on ESG issues and requirements. Our procurement executives learn about our ESG tools and roadmap, such as our GHG questionnaire, Responsible Sourcing Policy, and sustainable supply chain goals. We help our suppliers improve their ESG performance. We provide required training, advice, and best practices on ESG criteria, like energy efficiency, water stewardship, waste management, carbon footprint reduction, human rights, and anti-corruption. This way, every function can better support our ESG objectives.

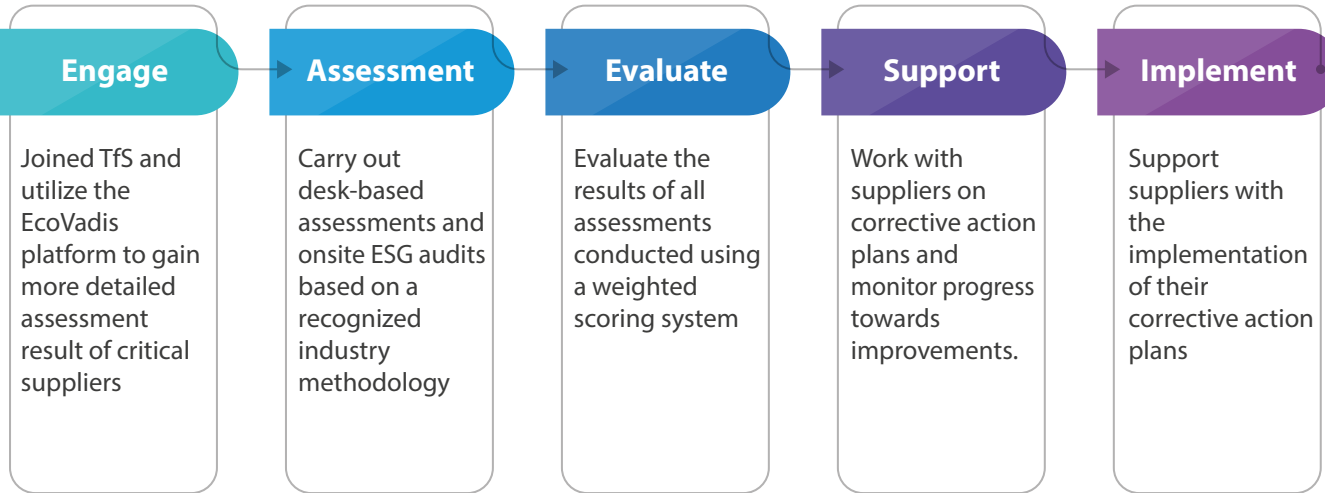
Supplier Incentive

We communicate our ESG expectations and consequences clearly and transparently to our suppliers and maintain a fair and consistent approach in dealing with them. Through our ESG supply chain management program, we aim to create a positive impact on our suppliers, customers, communities, and the environment, and enhance our ESG leadership and reputation in the industry. In 2023, we targeted providing ESG capacity building through the program to 40% of the total spending of our raw materials suppliers. Additionally, we reward our suppliers who demonstrate outstanding ESG performance and improvement with recognition, preferential treatment, and long-term partnerships. We also penalize our suppliers who fail to meet our ESG expectations or breach our policies and relevant standards with warnings, suspension, or termination of contracts.

CONTINUED COMMITMENT TO RESPONSIBLE SUPPLY CHAINS

[GRI 3-3, 308-1]

In 2023, Indorama Ventures joined the chemical industry initiative called Together for Sustainability (TfS). This network of 51 leading chemical companies aims to drive sustainable solutions and improve sourcing and data-sharing best practices within chemical supply chains. By joining TfS, the Company is encouraging suppliers to meet high sustainability standards, reduce the risk of supply chain disruptions, and improve overall climate maturity. Through this initiative, Indorama Ventures will also partner with EcoVadis to assess our suppliers to identify risks and opportunities along the value chain, improve sustainability practices, and encourage collaboration among members.



“Together for Sustainability” Initiative

As a member of TfS, Indorama Ventures has set 2024 KPIs for EcoVadis assessments and onsite audits. By the end of 2023, we identified the number of valid supplier scorecards (less than three years old from January 1, 2022) we will maintain on EcoVadis and the onsite audits planned for 2024. This year, Indorama Ventures is contributing to the collective ambition of TfS by establishing our first set of TfS KPIs, enhancing our supplier onboarding and auditing practices.

Through the TfS Academy and interactions with other chemical companies, we have gained insights to boost our responsible sourcing program and identify suitable tools. Additionally, we have aligned with the TfS carbon footprint standard and begun using SiGreen to securely trade product carbon footprint data, moving closer to an industry standard for chemical companies.

2023 HIGHLIGHTS

Awarded a Platinum Medal and placed in the Top 1% of the best performing companies in sustainability assessments

Joined Together for Sustainability (TfS) to drive sustainable solutions within our supply chain

2024 KPIs for Supplier Assessment and Audit

- 366 suppliers to be assessed through EcoVadis
- 7 suppliers to have onsite 3rd parties audit

2023 HIGHLIGHTS

Indorama Ventures is proud to announce that its Hygiene team has received the prestigious Nitto 2023 Supply Reliability Winner award in the Raw Materials category. The award was presented at the Nitto ATP Finals in Turin, Italy, recognizing the Company’s excellence in providing high-quality raw materials for Nitto’s hygiene products.

Indorama Ventures was selected from over 200 nominees, with 17 strategically important suppliers receiving awards across four categories. Junichi Matsumoto, Vice President & Chief Procurement Officer of Nitto, presented the award, praising Indorama Ventures’ longstanding support, especially during challenging market conditions. As Nitto’s key fiber supplier, Indorama Ventures has established a robust distribution network with a comprehensive contingency plan, ensuring a reliable supply chain.

COMMUNITY ENGAGEMENT

GIVING BACK TO OUR COMMUNITIES

GRI 3-3, 413-1

The Business Case for Corporate Social Responsibility

Our CSR priorities, approach, and practices are aligned with the expectations of internal and external stakeholders. We respond to social needs and issues by utilizing our corporate expertise to create a positive environmental and social impact by focusing on the shared values and purpose with various partners and organizations to make a collective impact.

We continue to enable and enhance the Company’s sustainability while contributing to achieving the Sustainable Development Goals (SDGs), which are linked to an urgent call-to-action on social and environmental issues, integrating global and international standards that frame our CSR efforts. Notably, most CSR programs across Indorama Ventures businesses help create a Social License to Operate. They are perceived as operating responsibly and for good corporate citizenship by acting quickly to resolve issues affecting local communities.



Case Study: PET Recycling Project – Brazil

Since 2019, Indorama Ventures Polimeros Suape, Brazil, has spearheaded the “PET Recycling Project”, aimed at benefiting children and young people in the Gaibu community. This initiative has been instrumental in delivering a comprehensive learning program to the community, focusing on waste reduction techniques and waste separation methods through engaging activities.

The project encompasses a range of activities, including surf lessons, ecological trails for waste collection, and educational recycling workshops. Central to our efforts is the provision of environmental education utilizing Indorama’s specially crafted booklets, such as “The Adventures of the Plastic World” and “Amazing PET”, supplemented by a range of educational and instructional materials. These resources educate community members on the different types of plastics, proper waste separation practices, and the significance of PET recycling.

By incentivizing the collection of PET bottles, the program not only promotes environmental stewardship but also brings tangible benefits to the local community, promoting a cleaner and healthier environment while improving overall living standards. In collaboration with the Residents Association of Praia de Gaibu, the project creates employment opportunities for community members facing vulnerability due to high unemployment rates.

The project actively involves 120 families, elderly individuals, fishermen, artisans, and housewives, while supporting 130 children through the Beach Surf Lessons Project, which offers environmental education classes.

From January to May 2023 alone, the project successfully collected approximately 48,660 tons of PET bottles, which were sold to ValGroup, a local recycling facility. This significant achievement underscores our commitment to sustainable environmental management and ecosystem protection.

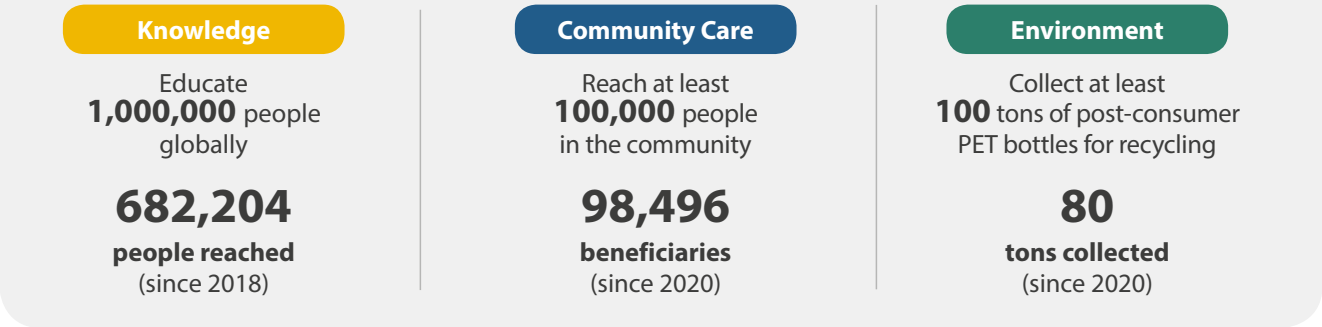
Aligned with Indorama Ventures’ mission of knowledge sharing and PET bottle recycling advocacy, this project exemplifies our dedication to enhancing community well-being and quality of life while promoting sustainable practices.



OVERALL GLOBAL CSR PERFORMANCE IN 2023



2030 Targets & Performance



Results and Outcomes





2023 Performance and Results

27 programs
to address health issues

22,375 people
supported
(vulnerable groups including
the disabled, children,
and the elderly)

437,465 people
reached through the
circular economy education
(students, teachers,
the general public)

860
schools and universities
involved

2,925 trees
planted

1,162,575 bottles
collected for recycling

9 locations / 7 countries
(China, India, Indonesia, Mexico, Thailand, the Czech Republic, and the U.S.)
where reforestation was initiated, including green areas

Six Global Themes and Initiatives

1

Awareness Program

We leverage our expertise in developing free learning resources for teachers and educational materials to increase awareness and promote a better understanding of plastic, waste management, and recycling. This includes knowledge sharing sessions, events, and exhibitions.

65 initiatives promote recycling awareness and education:

- In the EU, 11 initiatives from three countries (the Czech Republic, Italy, and Poland).
- In the Americas, 35 initiatives from three countries (Brazil, Mexico, and the U.S.).
- In Asia, 19 initiatives from two countries (Egypt and Thailand).

2

STEM Education and Innovation Program

We design and support innovative projects with several partners to create a collective impact through a collaboration program that contributes to societal and environmental progress for sustainable solutions.

9 initiatives supported the STEM education and innovation program:

- In the Americas, 9 initiatives from two countries (Brazil and the U.S.).

3

Internships and Development Programs for Young People

We strive to provide meaningful opportunities for youth to gain firsthand experience, encouraging innovation, growth, and valuable insights through mentorship and skills development in specific fields. By contributing to education and professional development, we are not only investing in career growth but also increasing the potential for job placement in the workplace.

24 initiatives supported internship and scholarship programs:

- In the EU, 4 initiatives from four countries (Austria, Italy, Lithuania, and the UK).
- In the Americas, 13 initiatives from three countries (Canada, Mexico, and the U.S.).
- In Asia, 7 initiatives from three countries (India, Indonesia, and Thailand).

4

Supporting Local Communities

We lead with social responsibility by focusing on contributing to community development, particularly in enhancing the well-being of the local communities around us. We are dedicated to their empowerment, promoting inclusivity, and creating positive social impacts. Our goal is to help solve social issues while our work focuses on maintaining and building a robust social license that furthers positive relationships with local communities.

165 initiatives that supported infrastructure, sports, health, and well-being enhancements:

- In the EU, 42 initiatives from eight countries (Austria, the Czech Republic, Denmark, Germany, Italy, Ireland, Lithuania, and Poland).
- In the Americas, 72 initiatives from four countries (Brazil, Canada, Mexico, and the U.S.).
- In Asia, 51 initiatives from five countries (China, Egypt, India, Indonesia, and Thailand).

85 initiatives that supported vulnerable groups, natural disasters, and emergency cases:

- In the EU, 16 initiatives from eight countries (Austria, the Czech Republic, Germany, Italy, Lithuania, Russia, Turkey, and the UK).
- In the Americas, 44 initiatives from five countries (Brazil, Canada, Mexico, Uruguay, and the U.S.).
- In Asia, 25 initiatives from three countries (India, Indonesia, and Thailand).

37 initiatives that empowered local enterprise and skills development:

- In the EU, 13 initiatives from four countries (Austria, the Czech Republic, Poland, and Turkey).
- In the Americas, 9 initiatives from three countries (Brazil, Mexico, and the U.S.).
- In Asia, 15 initiatives from two countries (Indonesia and Thailand).

110 initiatives that supported local activities and events:

- In the EU, 7 initiatives from two countries (the Czech Republic and Lithuania).
- In the Americas, 25 initiatives from two countries (Brazil and the U.S.).
- In Asia, 78 initiatives from six countries (China, Egypt, India, Indonesia, the Philippines, and Thailand).



5

Environmental Stewardship:

We conserve natural resources, which is essential for maintaining the health of our planet and ensuring that future generations have access to the resources they need. We focus on preserving biodiversity, while providing greener, livable communities where we operate.

6 initiatives created a better and cleaner environment:

- In the Americas, three initiatives from two countries (Brazil and Mexico).
- In Asia, three initiatives from two countries (China and Thailand).

13 initiatives supported reforestation and tree planting programs, including creating greener areas:

- In the EU, two initiatives from two countries (the Czech Republic and Germany).
- In the Americas, three initiatives from two countries (the U.S. and Mexico).
- In Asia, eight initiatives from four countries (China, India, Indonesia, and Thailand).

6

Waste Management and PET Recycling

We promote the PET Collect Back campaign, a collaboration with several partners. Our objective is to bring post-consumer PET bottles into the recycling process to prevent recyclable waste from ending up in landfills, thereby creating a truly circular economy in addition to carbon reduction.

15 initiatives supported the waste management system:

- In the EU, two initiatives from two countries (Italy and Poland).
- In the Americas, 10 initiatives from four countries (Brazil, Mexico, Uruguay, and the U.S.).
- In Asia, three initiatives from one country (Thailand).

CIRCULAR ECONOMY EDUCATION

Across the world, people are worried about the mismanagement of waste and its impact on our environment. As a leading material producer of unique plastics, we produce polyethylene terephthalate (PET), which is used for soft drinks and water bottles that are designed to be remade and recycled. We recognize our global responsibility.

We are committed to educating one million people worldwide by 2030. This commitment is exemplified in our initiatives, such as Waste Hero, a global education program, and Recycling Education Thailand, which empowers the next generation with the knowledge to reduce, separate, and dispose of waste, while also inspiring individuals to take meaningful action towards a circular economy for a sustainable future.



Waste Hero Education Story

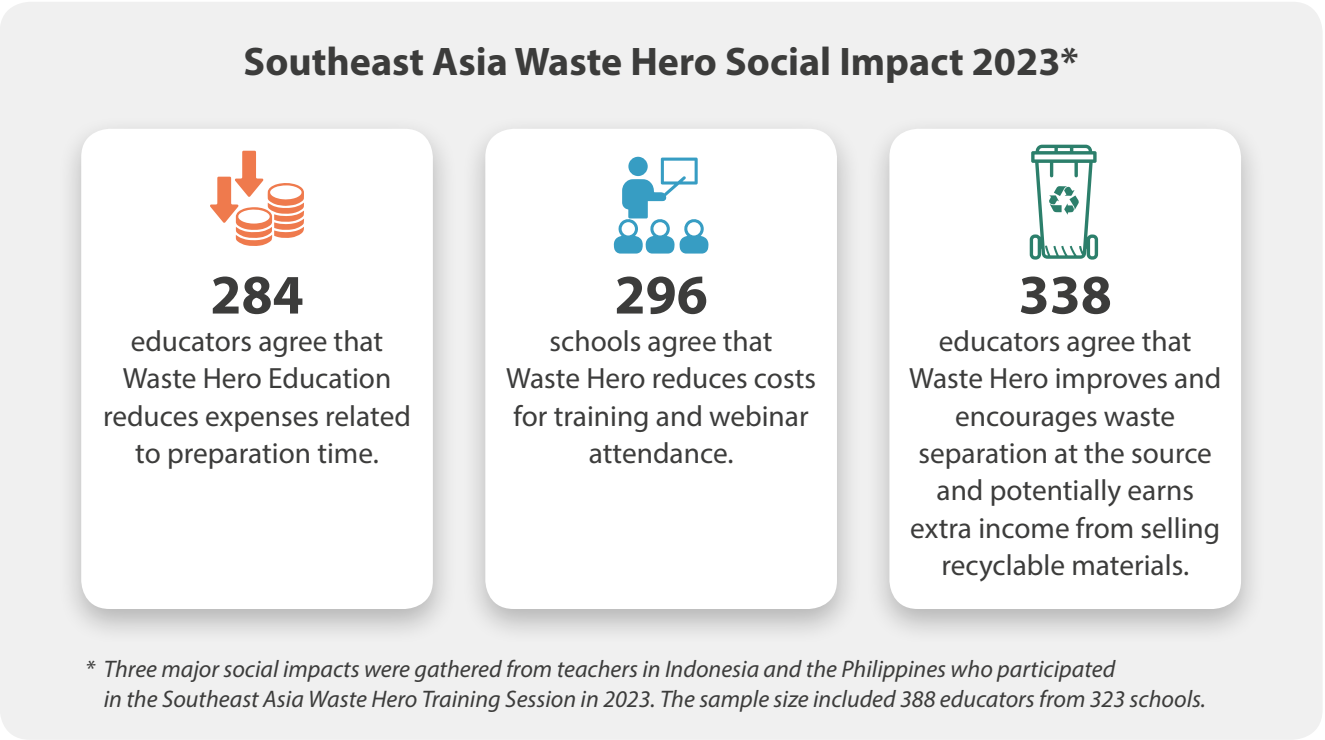


The Waste Hero Education project is a free-to-use teaching resource. This global resource for teachers includes 19 carefully crafted lesson plans focused on Recycling Fundamentals, Creating Zero Waste, and Building the Circular Economy.

These resources have been validated by an independent panel of global education experts, ensuring that the materials are suitable for learners of different educational levels in diverse global contexts. The program aims to educate one million people by 2030.



Focus Areas	Key Actions	Results	Social Value
<p>Strategic Partnerships</p>	<p>We facilitate engagement with extensive educational networks and build collaborative actions in communities at the regional and international level to promote free-to-use teaching resources with educators and school networks.</p> <p>Additionally, we discover and continue developing innovative approaches to revolutionize teaching materials, ensuring scalable and reliable solutions for educators worldwide, with customizable versions to meet local needs.</p>	<ul style="list-style-type: none"> Access to more than 1,000 school networks and Ministries of Education in Southeast Asian countries. Access to 4.7 million educators' networks, including retired teachers and students preparing to become teachers in the U.S. Five partnerships committed to disseminating the Waste Hero resources. 	<ol style="list-style-type: none"> Highlights effective solutions to littering and illegal dumping. Creates a social license to operate along with our value chain campaigns. Acts as a critical vehicle to utilize the Company's competencies and expertise to provide meaningful information on waste management. Helps support sales and bale supply, while strengthening investor relations.
<p>Engagement and Relevance</p>	<ul style="list-style-type: none"> Engaged with 10 international influencers and five local affiliates/associations to access a wider target audience and enhance trust. Participated in three regional conferences and five worldwide events to better understand the latest educational trends, meet with like-minded people, and remain up-to-date with industry peers. 	<ul style="list-style-type: none"> 7,236 teachers/educators engaged 413,056 students reached 83 countries reached 	
<p>Innovation and Adaptation</p>	<ul style="list-style-type: none"> Developed and improved a one-stop online service hub for all. Offered easy-to-use materials and lesson plans with scripts adjustable to the local context. 	<ul style="list-style-type: none"> Dedicated website with user-friendly functions, compatible with mobile devices. Available in five languages. 	
<p>Impact and Scalability</p>	<ul style="list-style-type: none"> Engaged with the 3Zero youth club to increase opportunities for utilizing resources and to empower and inspire youth groups to develop practical actions and programs with tangible results. Initiated the Waste Picker toolkit, a free-to-use manual, to support organizations in educating waste collectors on the significance of recycling supply chains and enhancing inclusivity and dignity. 	<ul style="list-style-type: none"> 14 youth clubs were created to promote a sense of community and collective action. Five partners engaged in the dissemination of the training manual. Three training hub communities engaged and trained. 	



“The National Education Association has teamed up with Indorama Ventures to help promote the ‘Waste Hero: Reduce to Zero’ teaching resource. This initiative will kick-off in the fall of 2023, offering teaching resources organized by education level and translated into a variety of languages.” – **National Education Association, September 2023**



EMPOWERING YOUNG PEOPLE THROUGH THAILAND RECYCLING EDUCATION

Indorama Ventures believes in the power of harnessing education to create positive change. As the world's largest PET producer and recycler, it is imperative that we instill awareness among consumers, business partners, and communities on the recyclability of PET.

Since 2018, our recycling education program has taught tens of thousands of Thai school children each year to dispose of their waste correctly and to ensure it is collected for recycling.

We are proud to partner with the Bangkok Metropolitan Administration (BMA), sharing the same vision of a greener and more sustainable future for Thailand. This partnership helps integrate recycling education into the school curriculum, empowering students, teachers, and communities to act and inspire others.

The first phase of the sustainable waste management project reached 100 schools under the BMA, engaging over 11,593 students and teachers. To ensure theory was put into practice, we organized a school model competition to provide students with a platform to apply their knowledge and creativity to achieve a tangible impact. 87 schools participated, demonstrating their practical application of knowledge for managing plastic waste within their schools.

We are delighted to enter into the next phase of this partnership and scale-up our efforts to promote sustainable plastic waste management and create awareness for PET to be seen as a resource rather than waste. The collaboration will focus on four key areas: education and awareness, capacity building through train-the-trainer and youth leader camps, development of comprehensive teaching plans, and launch of a waste recycle bank in pilot BMA schools.

Recognizing the importance of training teachers to promote waste separation and PET recycling, we partnered with the Saturday School Foundation, a volunteering platform for education in Thailand, to organize interactive workshops for teachers. Teachers were also provided with educational materials to enhance their outreach efforts and encourage changes in community behavior.

As part of our ongoing commitment to promoting sustainable business practices, we organized training programs for corporations on implementing effective waste separation and PET recycling practices. Through collective action and a shared commitment, we can work together to create a more sustainable future for generations to come.

In addition to educational efforts and awareness-raising activities, we also take proactive steps towards waste reduction and recycling by engaging with a range of educational institutions, universities, and local communities on PET bottle collection campaigns.

"The Bangkok Metropolitan Administration cannot achieve waste separation alone. We require the collaboration of all units in society, especially the smallest and most important – namely families, communities, and schools. If everyone understood how to separate waste, waste separation would yield more effective results. We want our children and teachers to be the motivators and share this understanding with their families and communities. I believe that this will create momentum that brings about social change. If just 10% of people start separating waste, the results will expand quickly."



Mr. Chadchart Sittipunt,
Governor of Bangkok

SOCIAL RETURN ON INVESTMENT (SROI)

We collaborated with an external party to accurately and transparently quantify the impacts of our CSR initiatives. Together, we conducted a comprehensive Social Return on Investment (SROI) analysis on the Waste Hero Project and Thailand's recycling education program. The analysis provided valuable insights into their tangible benefits and societal contributions.

Waste Hero Education

The SROI analysis shows that every \$ 1 invested in the Waste Hero Education program in Indonesia and the Philippines generates a remarkable return of 4.49 times its initial value. This finding highlights the significant social value generated by the program, demonstrating its effectiveness in advancing waste management education and promoting sustainable habits among educators and youth in these regions.

Thailand's Recycling Education Program

Similarly, the SROI analysis for Thailand's recycling education program indicates that for every \$ 1 invested, the program generates a return of 2.76 times the initial investment. This evaluation, which covers 2018-2023, reflects the substantial impact and value of the program over this period.

AMCHAM honors Indorama Ventures with Corporate Social Impact and Best-In-Class awards

Indorama Ventures won the AMCHAM Best-In-Class award for the Thai Development category at the 2023 AMCHAM Corporate Social Impact Awards. The award recognizes our Bio-Circular-Green Economic (BCG) Model initiatives. The winning project, "PET Bottles for a Better Tomorrow", was done in collaboration with Thai Wacoal, a Thai lingerie company, and focused on recycling PET bottles into high-quality recycled polyester yarn, used for Thai Wacoal's eco-product line.



For this project, two million PET bottles were collected from local communities near Thai Wacoal's facility in Bangkok, resulting in 6.5 tons of recycled yarn. This effort also provided extra income for 15 waste collectors and supported local scrap shops with higher-quality PET bottle bales.

Additionally, Indorama Ventures received AMCHAM's Corporate Social Impact Silver Recognition for the second consecutive year, recognizing our broader CSR practices and commitment to positive social and environmental impacts. These awards demonstrate our dedication to responsible business practices and creating a better world through shared economic and social value.



Chapter 7 ROBUST GOVERNANCE

158 Visionary Leadership

- 158 Our Board of Directors
- 158 Board Expertise and Industry Experience
- 158 Sustainability Governance
- 158 Incentivizing Performance

159 Embedding Responsible Business Practices

- 159 Our Approach to Corporate Governance and Responsible Business Practices
- 161 Employee Training to Ensure Responsible Business Practices

- 162 Anti-corruption

- 163 Whistleblowing

- 165 Acting with Transparency

- 165 Political Activities and Contributions

166 Sound Risk Management

- 166 Internal Risk Management Processes
- 167 Risk Management Enhancement through Robust Auditing
- 167 Embedding Our Risk Culture
- 168 Emerging Risks

173 Cybersecurity Management

- 173 Cybersecurity Governance
- 175 Cybersecurity Training and Culture
- 176 Incident Response





VISIONARY LEADERSHIP

OUR BOARD OF DIRECTORS

[GRI 2-9, 2-11, 3-3, 405-1]

Our Board of Directors (BOD) plays a vital role in upholding strong Corporate Governance (CG) practices, which are fundamental to our journey towards a sustainable future. They provide effective leadership by overseeing our business portfolio and establishing robust CG frameworks. This commitment to rigorous CG allows us to seamlessly integrate sustainability principles into our daily operations, ultimately achieving long-term business growth and success.

Our BOD comprises 12 highly qualified individuals with diverse backgrounds. They bring a wealth of experience across nationalities, industries, and disciplines. This diversity of expertise ensures a well-rounded perspective on both sound CG practices and our sustainability goals. Beyond driving overall business growth, the BOD actively oversees management and plays a critical role in developing and executing our integrated business and sustainability strategies. The Board of Directors held five meetings in 2023. The average board meeting attendance was 98.7%.

BOARD EXPERTISE AND INDUSTRY EXPERIENCE

[GRI 2-9, 2-17]

To enhance the BOD's expertise, we continuously develop their skills and competencies, including training on business and sustainability-related subjects to ensure their preparedness in incorporating ESG considerations into our overall strategy and business decisions. Our independent directors participated in various training sessions in 2023, including a seminar by distinguished business advisor Dr. Ram Charan, who highlighted key trends shaping the future of business which provided valuable insights to improve strategic decision-making.

FOR MORE
INFORMATION

SUSTAINABILITY GOVERNANCE

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

Our BOD is supported by three key committees: the Audit Committee, the Nomination Compensation and Corporate Governance (NCCG) Committee, and the Sustainability and Risk Management Committee (SRMC). These committees oversee operations to ensure compliance with established principles, policies, and procedures.

Our Sustainability Governing Structure is well-defined from the Board of Directors level, through the Sustainability and Risk Management Committee (SRMC), down to the business units. A full diagram of the sustainability governing structure is available on our website. The SRMC, established by the BOD, monitors sustainability initiatives and risk management, integrating ESG considerations into business operations and strategy. Operating according to the SRMC Charter, it reports findings to the BOD and incorporates additional committees to enhance sustainability performance. In 2023, the SRMC convened four times to discuss important sustainability-related issues, guiding Indorama Ventures' Sustainability Strategy ensuring its alignment with strategic priorities for resilient and sustainable operations in line with global best practices. Further details are available in the SRMC Report to Stakeholders 2023.

FOR MORE
INFORMATION

INCENTIVIZING PERFORMANCE

[GRI 2-19, 2-20]

The Group CEO and other executive directors conduct annual performance appraisals according to Key Performance Indicators (KPIs), including ESG performance alongside business performance, set by the NCCG Committee to ensure the efficacy of our corporate governance. Incentives based on annual performance in managing climate change and water-related issues further enhance the achievement of financial and sustainability targets, in alignment with our 2030 Vision as well as our 2025 and 2030 targets.

EMBEDDING RESPONSIBLE BUSINESS PRACTICES

FOR MORE
INFORMATION

OUR APPROACH TO CORPORATE GOVERNANCE AND RESPONSIBLE BUSINESS PRACTICES

[GRI 2-15, 2-23, 2-24, 2-25]



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



Received an "Excellent - 5 Star" CG score by the Thai Institute of Directors (IOD) **for the 11th consecutive year**. We received a perfect score in Sustainability in the Corporate Governance Report, **ranking 5th in overall performance** among the 792 companies assessed in 2023.








Achieved a 100% score for the Annual General Meeting, which was recognized by the Thai Investor Association for the 12th consecutive year.

Indorama Ventures has established business principles and practices to promote a culture that upholds ethical conduct, accountability, and transparency. We continually strive to offer the necessary resources that serve as a foundation to guide good governance and responsible business practices.

Sustainable economic value can be achieved through a solid foundation of trust and transparency with our stakeholders. By utilizing the Corporate Governance Manual (CG Manual) to promote responsible corporate governance principles and values within our workforce, Indorama Ventures launched the Corporate Governance Policy Awareness Campaign (CGPAC).

In 2022, the CG database was launched to streamline the dissemination of corporate governance-related information and facilitate the exchange of best practices with local units. Since its launch, the Corporate Governance Database has expanded beyond the sharing of best practices and knowledge. The CG team now includes essential CG training materials, equipping the HR teams of local units with the necessary resources to access, download, and tailor these materials for targeted training initiatives.

The implementation of the CG manual falls under the responsibility of each site head, who is tasked with executing its principles and informing the CGPAC team of the results. The CGPAC team then shares these findings with the NCCG and the BOD. Additionally, new employees participate in a briefing on the CG manual and are required to confirm their understanding, ensuring that our policies are universally known and followed.

Tools and Mechanisms for Ethical Business	Description
 <p>Conflict of Interest Policy and Conflict of Interest Assistance Package</p>	<p>Our policy safeguards against potential conflicts.</p> <p>The Conflict of Interest Assistance Package provides guidelines and supports the implementation of the Conflict of Interest Policy at our subsidiaries through local procedures.</p> <p>In 2023, there were no material cases regarding conflicts of interest. Any minor non-compliance with our Conflict of Interest Policy was appropriately investigated and managed.</p>
 <p>Corporate Governance Manual (CG Manual)</p> <p>FOR MORE INFORMATION</p>	<p>Outlines our vision, mission, and values as a responsible industry leader and world-class chemical company, with corporate governance principles that balance the interests of stakeholders.</p> <p>In 2023, four policies were reviewed and updated to reinforce our commitment to high governance standards and enhance the communication of our CG manual. Revisions included the incorporation of a new section addressing 'Potential Red Flags' and 'Third-Parties and Due Diligence' in the Anti-Corruption Policy, in addition to 'Modern Slavery and Human Trafficking' in the Human Rights Policy, 'Non-Retaliation' in the Whistleblower Policy, as well as updates to the Intellectual Property Policy.</p>
 <p>Whistleblower Policy</p> <p>FOR MORE INFORMATION</p>	<p>Provides information on how employees and stakeholders can file a whistleblower report and how the process is managed.</p> <p>In 2023, Indorama Ventures introduced a 'Non-Retaliation' section of our Whistleblower Policy to guarantee full protection for our employees who report concerns or complaints in good faith, shielding them from any unlawful retaliation.</p>
 <p>Code of Conduct</p>	<p>Includes policies on ethical practices, fair business practices, workplace values, and the treatment of stakeholders.</p>
 <p>Anti-Corruption Policy and Anti-Corruption Assistance Package</p> <p>FOR MORE INFORMATION</p>	<p>Our Anti-Corruption Policy outlines Indorama Ventures' firm stance against bribery and corruption.</p> <p>Designed as a comprehensive guideline and practical checklist, our Anti-Corruption Assistance Package assists all units in adhering to anti-corruption frameworks while supporting local units in assessing their corruption risks and strengthening their anti-corruption systems.</p> <p>Our Internal Audit department assisted in conducting reviews of anti-corruption practices in our local units.</p>

EMPLOYEE TRAINING TO ENSURE RESPONSIBLE BUSINESS PRACTICES

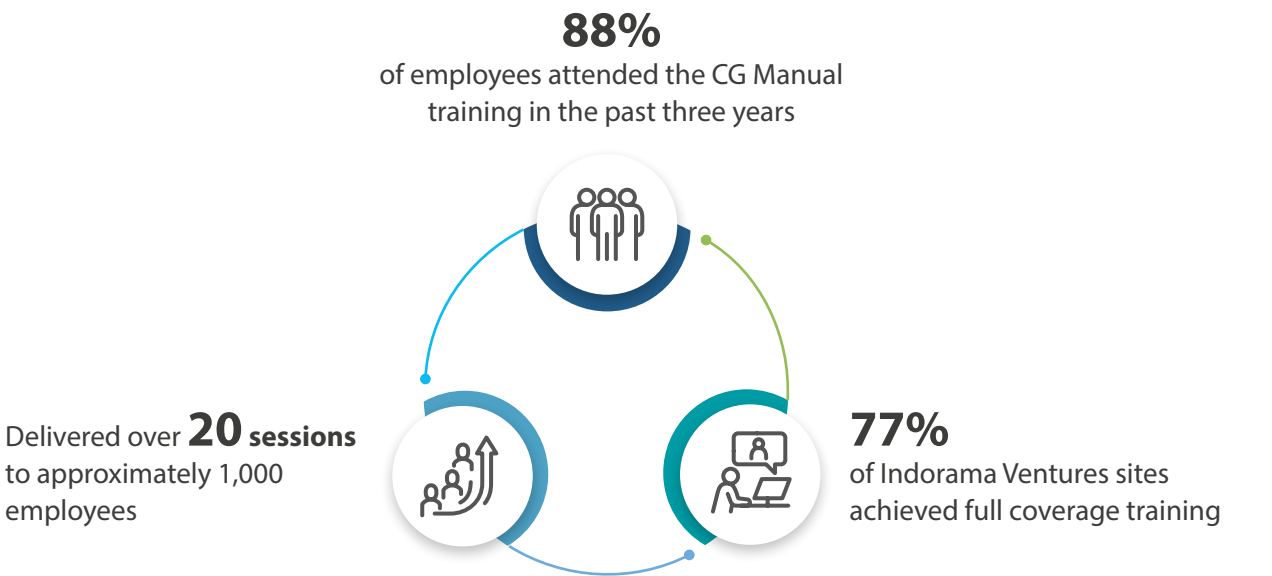
[GRI 2-24, 404-2]

Employee training plays a pivotal role in helping us maintain responsible business practices and corporate governance standards. We believe that robust training programs, such as our corporate governance training, are the key to developing a culture of compliance and integrity within the Company.



In 2023, the CG Team organized over 20 onsite and online training sessions across both domestic and international sites, reaching approximately 1,000 employees. The onsite training consisted of sessions held at the Head Office and factories in Thailand, as well as four locations in Indonesia, five in India, and two in the Philippines. The training emphasized updates to the CG Manual, covering areas such as Potential Red Flags, Third-Parties and Due Diligence, critical anti-corruption controls, exercising caution when engaging with current or former government officials, and empowering employees to make protected disclosures to the Whistleblower Committee.

Additionally, the team had the opportunity to showcase our robust corporate governance program and anti-corruption practices to 100 senior-level officers from the public sector and state-owned enterprises at Indorama Polyester Industries, Rayong.





ANTI-CORRUPTION

[GRI 3-3, 2-24, 2-27, 205-2, 205-3, 206-1]



2023 HIGHLIGHTS

NO material cases or incidents of corruption or bribery

NO legal cases involving corruption or anti-competitive practices concerning the company or our employees

NO material litigation against the company or our subsidiaries that negatively impacted our business

NO penalties imposed for material non-compliance

We are committed to continuously improving our Anti-Corruption Policy to adapt to evolving internal and external regulations and laws, align with global standards, and fulfill our corporate responsibilities.

Our CG manual includes an Anti-Corruption Policy outlining best practices to minimize corruption risks, strongly emphasizing a zero-tolerance stance towards bribery and corruption. This policy undergoes a thorough review every three years during the CG manual revision process. Indorama Ventures also maintains its status as a Certified Company by Thailand's Collective Action Coalition Against Corruption (CAC). Initially awarded in 2014, our dedication to anti-corruption practices led to a successful renewal in March 2021, extending the CAC certification for another three years. The Company submitted the recertified package to the CAC in December 2023 for our 2024 renewal.

In 2023, we took proactive measures by conducting onsite training sessions at our factories in Thailand and four other Asian countries. These sessions aimed to educate our employees on crucial anti-corruption controls, precautionary measures when interacting with government officials (both local and foreign), and the utilization of our whistleblowing channels. We are pleased to report a high level of engagement from participants during these training sessions.

WHISTLEBLOWING

[GRI 2-16, 2-24, 2-25, 2-26]

FOR MORE
INFORMATION

Indorama Ventures' Whistleblower Policy outlines the procedures that enable stakeholders to confidentially report violations or express concerns about non-compliance or potential misconduct without fear of retaliation. This policy is communicated to all employees globally and is easily accessible on the Company website. The confidentiality of whistleblower information is strictly maintained, and reports can be submitted through the designated email address or via our dedicated whistleblower site.

Our Whistleblower Policy's privacy statement was updated in February 2022 as per the Personal Data Protection Act 2019, with the policy and reporting website also compliant with the EU General Data Protection Regulation (GDPR). In 2023, a new Non-Retaliation section was added to the policy to ensure the protection of employees from any unlawful retaliation when they report concerns, complaints, or make good faith disclosures. The Whistleblower Policy also includes dedicated help desks, focal points, an ombudsman, hotlines, and disciplinary actions in case of breaches, including warnings and dismissal.



E-mail: ethics@indorama.net



Whistleblowing Reporting Channels:
<https://www.indoramaventures.com/en/our-company/governance/whistleblower-reporting-channels>



The investigations and actions taken from the Whistleblower Committee are summarised and reported to the Audit Committee, NCCG Committee and Board of Directors.

The Whistleblower Committee holds monthly meetings to discuss and follow up on investigation of cases, taking appropriate action when necessary.

Employees and external stakeholders can anonymously report suspected ethical or legal violations through these channels.

In 2023, the Whistleblower Committee received 74 cases, a notable 45.1% increase in the overall number of whistleblower cases compared to 2022, which reflects the success of our efforts to enhance employee awareness of whistleblowing procedures and improve accessibility to our whistleblowing channels.

Of these, 50 cases were classified as potential non-compliance cases, and none were found to be materially non-compliant. After a thorough review, 16 cases were substantiated, 14 were unsubstantiated, and five lacked sufficient information to initiate an investigation. 15 cases were under investigation as of 31 December 2023. 47 cases were received through the Whistleblower Reporting Channels, 21 via e-mail and six cases through other channels. All cases from 2022 have been concluded and reported to the Audit Committee, the NCCG Committee, and the BOD.

Category	Reporting Cases (from Whistleblower Channels)	Non-Compliance Cases (after investigation)
Corruption*	4	2
Human Rights - Harassment	12	7
Human Rights - Unfair Treatment	14	3
Human Rights - Discrimination	2	0
Conflict of Interest	5	1
Money Laundering or Insider Trading	0	0
Environment, Health, and Safety	5	1
Miscellaneous Reports	8	2
Total	50	16
Customer Privacy Data	0	0

* Corruption refers to bribery, extortion, fraud, deception, abuse of power, embezzlement, money-laundering, and other similar activities.

ACTING WITH TRANSPARENCY

[GRI 3-3, 207-1]

In managing and overseeing taxation matters, Indorama Ventures not only follows a stringent governance framework and tax policy with full transparency, but also adheres to all tax disclosures and filing requirements across the jurisdictions where we operate.

To ensure compliance and transparency in our tax practices, we maintain ongoing communication with tax authorities and strive to obtain advance rulings whenever feasible. We also seek input from reputable advisors to minimize uncertainty surrounding our tax obligations. Our meticulous record-keeping aligns with applicable GAAPs and other relevant standards, while our proactive management of tax risks helps mitigate potential issues. Regular reviews by our Audit Committee assess our tax strategies, risks, and overall tax operations. By prioritizing transparency, our tax policy strengthens trust with our stakeholders and society.

POLITICAL ACTIVITIES AND CONTRIBUTIONS

[GRI 3-3, 415-1]

We strive to prioritize transparency in all our advocacy, public policy endeavors, and political contributions at Indorama Ventures. Actively participating in trade associations, lobbying, and supporting tax-exempt groups, our commitment extends to strengthening industry expertise, raising societal awareness, and advocating for public policies, legislation, and regulations (e.g. aligning with climate objectives) to bring impactful change. Our continued membership in diverse trade associations not only fosters continuous engagement with stakeholders but also empowers us to adeptly respond to requests from public authorities regarding the progress of pertinent industries. In 2023, Indorama Ventures was not involved in any political contributions.



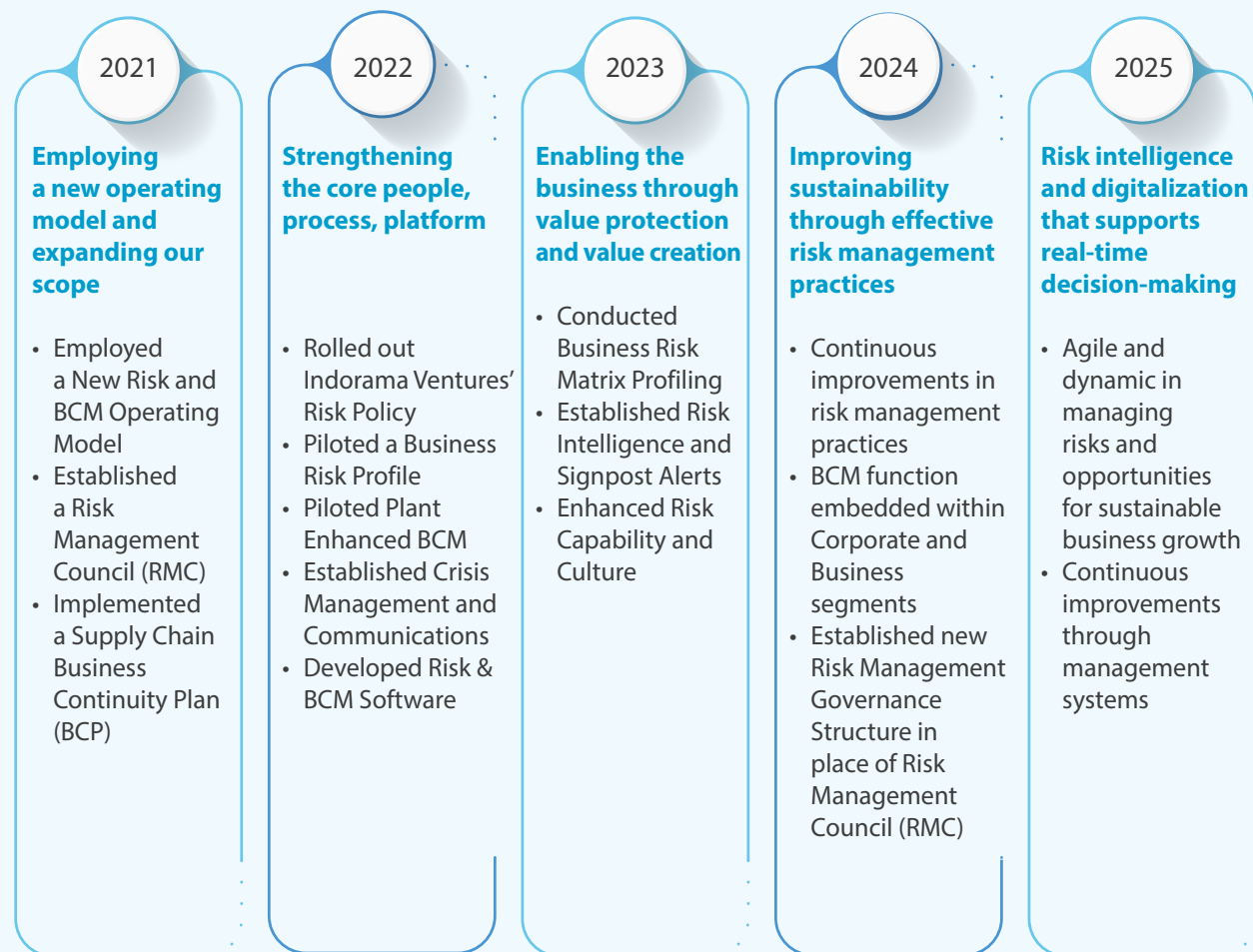


SOUND RISK MANAGEMENT

INTERNAL RISK MANAGEMENT PROCESSES

The basis of our sound risk management as a leading sustainable chemical company includes our Enterprise Risk Management, Crisis Management, and Business Continuity Management framework, alongside our group governance structure.

Our Risk Journey at a Glance



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

The Corporate Risk Profile (CRP) outlines significant strategic risks, encompassing cybersecurity, reputation, Environment, Health, and Safety (EHS), human capital, growth strategy, regulatory concerns, and value chain risks. These risks undergo assessment and validation, with control plans and indicators regularly monitored and discussed. Additionally, financial risks are presented by the Finance team. In 2023, we expanded our CRP to include sustainability risks to prevent potential adverse impacts on our operations, such as compliance issues, financial loss, and penalties. We acknowledge the critical importance of effective sustainability risk management for our long-term success and in the interests of our stakeholders.

RISK MANAGEMENT ENHANCEMENT THROUGH ROBUST AUDITING

Indorama Ventures has a robust internal and external audit system. The Internal Audit Department, reporting to the Audit Committee, conducts business process reviews, assesses risks within these processes, and evaluates the effectiveness of internal controls, providing assurance to management. The internal audit process embeds risk management by identifying and prioritizing the key risk areas, developing and executing audit plans based on the risk assessment, and recommending improvements or remediation actions for the identified issues or gaps. The Internal Audit Department also follows up on the implementation of the agreed action plans and reports on the progress and results to the Audit Committee and the management.

External audits focus on corporate risk profiles, including ISO 45001 for Health and Safety, ISO 27001 for Information Technology, and Energy Management or Resource and Efficiency Check (REC). These audits, conducted or reviewed annually by qualified internal auditors and independent third-party auditors, ensure continuous improvement and effective risk minimization.

EMBEDDING OUR RISK CULTURE

The Risk Capability and Culture Leadership Program is designed to enhance risk thinking and capabilities, strengthening our ability to swiftly adapt to shifts in the business environment. This initiative focuses on ingraining a risk leadership mindset among our leaders across Indorama Ventures globally, aiming to develop their future risk assessment capabilities.

Communication and education are meaningful actions in developing risk awareness. We encourage open and upward communications, sharing knowledge and best practices, continuous process improvements, and a strong commitment to ethical and responsible business behavior.

We also foster an environment that both recognizes and rewards people for paying attention to risk, both positive and negative, to reward the right kind of behavior. Employee Suggestions, Incentives, and Near-miss Reporting are just some of our programs that regularly promote a positive risk culture.

FOR MORE
INFORMATION

Enterprise Risk Management and Business Continuity Management Awareness Sessions

Various PET, Fibers, and Indovina sites in Brazil recently held ERM and BCM Awareness Sessions to highlight the importance of Enterprise Risk Management and business continuity in maintaining resilience in response to serious disruptions. Sessions were held on April 6 at the PET and Fibers sites in Pernambuco, and from April 10-14, 2023, at the Indovina sites in Camaçari, Mauá, and São Paulo.

The sessions were attended by the leadership team from each site and facilitated by the Global Risk Management & Business Continuity Management (GRMB) team, led by the Global Head of GRMB.

The information shared with the site leadership teams included Indorama Ventures' governance, framework, and ERM and BCM practices, which reflect Indorama Ventures' commitment to effectively implementing a resiliency model. Participants were provided with insights into the Company's Business Continuity Plan development and practices. In addition, the sessions held at the Indovina sites also provided the opportunity for participants to discuss the next steps regarding the governance and risk profile of the Indovina sites.



EMERGING RISKS

Indorama Ventures recognizes the importance of identifying diverse risk factors that may impact our business over the short-, medium-, and long-term, both nationally and globally. To increase resilience, protect stakeholder interests, and safeguard our reputation, we effectively navigate risks and maximize opportunities from both micro and macroeconomic influences through robust governance and risk management tools.



Biodiversity Loss and Ecosystem Collapse

Description

With 149 operational sites in 35 countries, Indorama Ventures faces significant threats from biodiversity loss and ecosystem collapse—among the most severe threats over the next decade. These critical issues, along with pollution, resource depletion, climate change, and socioeconomic pressures, could disrupt global supply chains, the economy, and society.

Impacts

- Environmental degradation impacts include floods, sea-level rise, erosion, disease outbreaks, and water stress.
 - Violent conflict, resource scarcity, supply chain disruptions, and higher raw material costs.
 - Operational restrictions, delays to projects, new standards, regulations, and clean-up costs.
 - Financial burdens stem from biodiversity-related taxes and licensing requirements.
- Financial ramifications could be significant. For example, if production ceased at sites with high biodiversity risk, this could result in over \$ 45 million estimated annual EBITDA loss.
- Reputational damage caused by environmental and social impacts, possibly leading to social unrest, and threatening our social license to operate.

Mitigation Plans

- Addressing biodiversity risks by implementing a Biodiversity Risk Assessment to identify and manage risks.
- Boosting operational eco-efficiency by adopting advanced technologies and promoting a circular value chain, reducing environmental impacts, and innovating sustainable products with lower carbon footprints.
- Managing biodiversity risk with short-, medium-, and long-term, integrating these into our strategy, aligned with our decarbonization and sustainability goals.

Further details are available in Table 7 in our TNFD Report 2023



Declining Global Chemical Prices

Description

The 14.1% decline in the Global Industrial Production Expenditure Index (IPEX)* in 2022 is an emerging risk for chemical producers, reflecting lower global chemical prices due to oversupply, weakened demand, and shifting market dynamics. The NE Asia Index, particularly in China, has retreated to pre-COVID levels, signaling increased competition and pricing pressures. China's growing self-sufficiency in chemical production and higher exports are expected to further pressure prices in importing regions.

Impacts

- Reduces our revenue and profit margins, affecting investments in new projects, shareholder dividends, and R&D.
- Increased competition, particularly in Northeast Asia and China, may erode our market share.
- Price fluctuations create uncertainty, complicating long-term strategic planning and capital investment, potentially slowing down expansion, product development, and operational flexibility.
- Price wars, impacting our value proposition, customer retention, brand reputation, and global competitiveness.
- The anticipated decrease in chemical prices presents both risks, reflecting a trend of decreasing chemical prices worldwide, potentially resulting in an EBITDA loss.

Mitigation Plans

- Pursuing vertical integration, maximizing and expanding capacity, and consolidating and investing in sustainable technologies to reduce costs and enhance competitiveness.
- Mergers and acquisitions provide access to new technologies.
- Adopting advanced recycling and carbon capture technologies can increase long-term global competitiveness.

* Source: The ICIS petrochemical index (IPEX) shows movements of chemical prices in three key regions, based on 12 of the most important chemicals and polymers.





Failure to Promptly Mitigate and Adapt to Climate Change



Description

Climate change is a major and growing risk for all regions where we operate. The delay in the Chemical Sectoral Decarbonization Approach (until December 2024) could impact us in the mid- and long-term as regulations are confirmed, while geopolitical competition is also a key risk factor for the global energy transition. There are currently no proven, cost-effective technologies, making climate change mitigation and adaptation an ongoing challenge. This risk is in line with the WEF Global Risks Report 2024.

Impacts

- Increased carbon taxes and fines for exceeding emission limits and non-compliance.
- Loss of economic opportunities and product premiums from the carbon footprint in existing and new products.
- Impact on market positioning and market share, and sustainability leadership due to insufficient commitment to Net Zero.
- Increased insurance premiums, reduced sustainable finance opportunities, and loan penalties.
- License to operate will be at risk due to non-compliance and could lead to license termination or suspension.

Mitigation Plans

- Monitor laws and regulations in all regions and participate in industry associations to drive the climate change agenda in the sector.
- Assess climate-related risks and opportunities and water risk, including scenario analysis and natural disaster risk.
- Track decarbonization performance for effective management and identify further actions.
- Conduct business continuity planning (group, business, and site levels)
- Engage with stakeholders to decarbonize the supply chain.
- Develop mitigation and adaptation plans (process and product) aligned with decarbonization strategies and Net Zero requirements.



Geopolitics and Increasing Regulations Disrupt Supply Chains and Reduce Market Access



Description

We are now facing a more uncertain environment influenced by geopolitical and regulatory factors. Regional conflicts and instability threaten supply chains and market access. We rely on the availability and affordability of raw materials, energy, and intermediate products, as well as access to end-use markets. Increasing regulatory pressures (e.g. EU ETS, EU Carbon Tax, and CBAM), stringent ESG regulations in different jurisdictions (e.g. EU CSRD, EU Taxonomy, EU Plastics Tax, German Supply Chain Act), as well as the growing ESG backlash further complicate operations. This risk aligns with the WEF Global Risks Report 2024.

Impacts

- Increased costs and availability issues of raw materials, energy, and intermediate products.
- Reduced operational flexibility and potential plant interruptions/shutdowns.
- Disrupt supply chains and reduce demand for chemical products, resulting in loss of market share and economic opportunities.
- Trade tensions and conflicts lead to higher tariffs, barriers, and trade and investment uncertainties.
- Sanctions and embargoes limit the export or import of certain chemical products, raw materials, or technologies, and access to financial markets, as seen with the EU sanctions on Russia.
- Disrupted trade flows impact industry growth and profitability, as well as the long-term viability and success of legitimate markets.
- Increased costs from taxes, tariffs, because of stricter environmental regulations.
- Pressure to adapt products and operations to local markets.

Mitigation Plans

- Closely monitor related laws and regulations and analyze geopolitical risks, including interstate conflicts.
- Evaluate current and future supply chain risks and opportunities, use scenario analysis and operational restructuring to optimize and localize supply chains.
- Conduct business continuity planning (group, business, and site levels).
- Engage with stakeholders to develop supply chain resilience plans and participate in industry associations to address ESG and supply chain issues.
- Integrate regulatory requirements into process operations and product stewardship.
- Upskill/reskill employees to well understand new and coming regulations requirements.



 Username

 Password

☒ Remember me ☐ Forgot password

Login



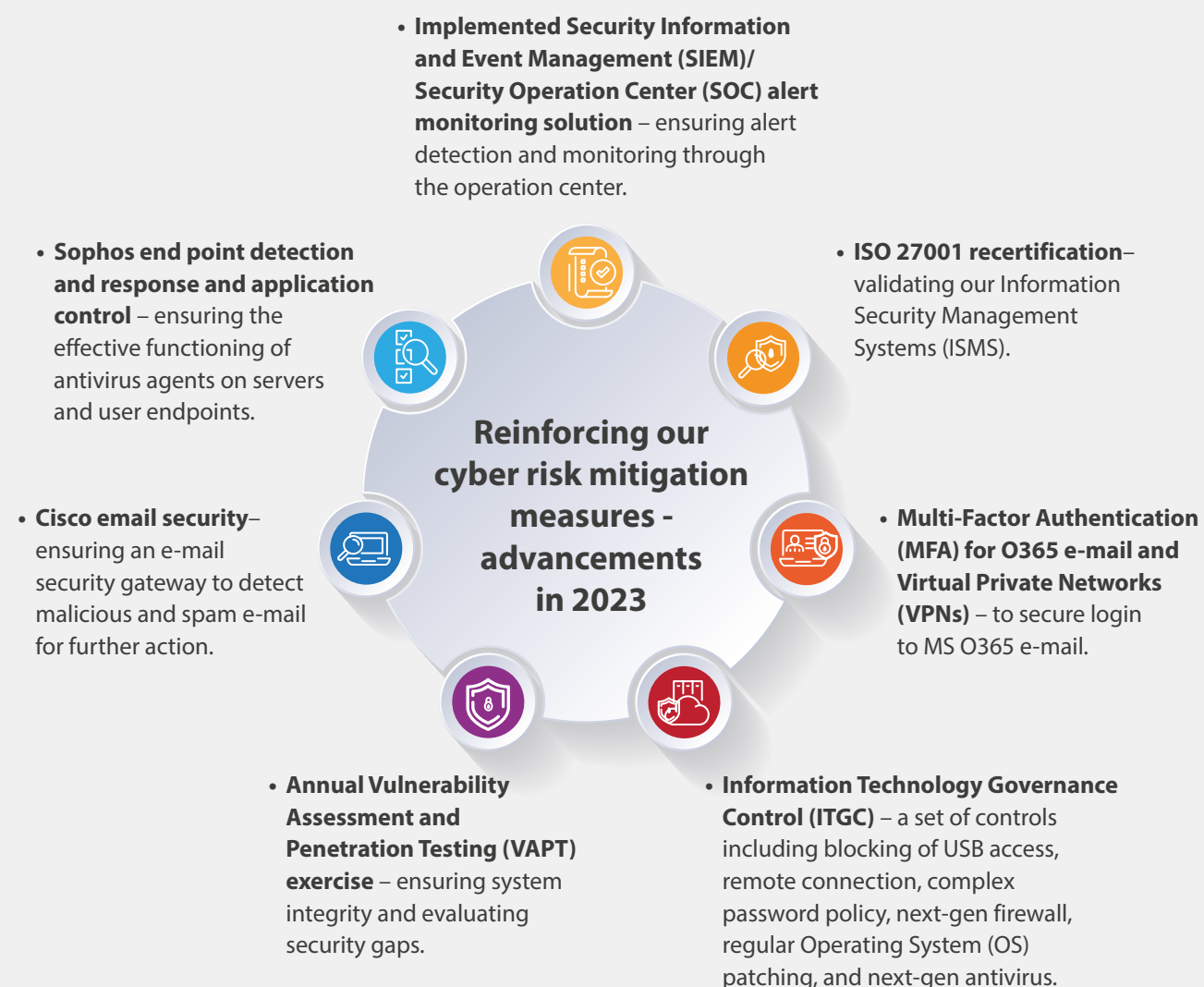
CYBERSECURITY MANAGEMENT

[GRI 3-3]

The rising prevalence of digital technologies and Information Technology (IT) has allowed Indorama Ventures to achieve operational and commercial excellence. However, the surge in digitalization and global connectivity has also heightened the risk of cyber threats and data breaches, impacting our business operations, continuity, and reputation. In response, we have intensified our commitment to IT security and cybersecurity, reinforcing our systems and processes to effectively address these evolving threats.

CYBERSECURITY GOVERNANCE

The Sustainability and Risk Management Committee (SRMC) and Audit Committee maintain oversight of Indorama Ventures' cybersecurity resilience, actively monitoring our cybersecurity framework and developing robust policies and procedures that align with our risk appetite. The SRMC receives quarterly updates on cybersecurity matters through the Enterprise Risks and BCM updates. Collaborating with our Group-wide IT team, the BCM team works to reinforce our cybersecurity risk mitigation strategies and contribute to the formulation of both short- and long-term plans for addressing cyber risks.



Cybersecurity governance is overseen by our Board member, Mr. Rathian Srimongkol, who serves as a member of the SRMC and Chairman of the Audit Committee. He provides direction and suggestions on the development and implementation of our cybersecurity strategy in compliance with industry standards, addressing the risks associated with our IT security and cybersecurity to safeguard and ensure the resilience and security of our digital systems.

We continuously apply physical and network security measures, incident response planning, employee training, and system enhancements as part of our efforts, while complying with relevant laws such as the Personal Data Protection Act (PDPA) and updating our IT security policy as needed. In 2023, we invested \$ 1.5 million on cybersecurity activities, including training and cyber-attack protection measures.

Notable Cybersecurity Highlights and Activities

Zero Data Breaches

There were zero data breaches in 2023, underscoring Indorama Ventures’ success in implementing robust security measures and our commitment to safeguarding sensitive information.

Vulnerability Assessment and Penetration Testing (VAPT)

Since 2022, we have been collaborating with an external vendor to perform VAPT activities, which include thorough vulnerability assessments and simulated hacker attacks designed to discover and rectify any potential weaknesses in our systems.

ISO 27001 Certification

Our corporate IT team has prioritized the ISO 27001 journey, highlighting our commitment to international standards and best practices in information security management. Based on our cybersecurity certification roadmap, we are proud that 50% of our IT infrastructure and information security management system has been ISO 27001 certified.

Incident Response Table Talk Exercise

Our cybersecurity team in Bangkok successfully conducted the annual tabletop exercise, allowing us to evaluate actions to safeguard against both internal and external cyber threats. This year’s simulation engaged our Cyber Incident Responders, IT infrastructure personnel, escalation points of contact, IT and security leaders, and other essential stakeholders in a simulated war room environment focusing on “Ransomware Infection via Phishing E-mails.” The exercise provided valuable insights, allowing us to identify areas that may require further improvement in our incident response capabilities. Additionally, through this process, participants gained a heightened awareness of the execution of our security incident response plan, as strengths and weaknesses in our response process were highlighted.

External IT audit

Indorama Ventures underwent an external ISO 27001 audit in 2023 to assess its IT infrastructure and information security. The audit pinpointed our strengths and areas needing improvement, with the findings having enhanced our security controls and reinforced our commitment to maximum protection.

We are pleased to announce that Indorama Ventures Global Services (IVGS) in Bangkok, Medco Plast, and Indorama Ventures Dhunseri Egypt have achieved ISO 27001 certification, affirming our dedication to safeguarding sensitive information and maintaining a secure environment. The external ISO 27001 audit was conducted on September 22, 2023.

CYBERSECURITY TRAINING AND CULTURE

To address the escalating frequency and sophistication of cyberattacks, our organization is committed to advancing a robust cybersecurity culture. Local IT teams consistently ensure our employees are regularly informed of the latest cybersecurity policies and are reminded to stay alert to cyber threats as per our IT security policies. Any breaches of these policies result in appropriate penalties, including disciplinary actions.

In addition to in-house physical training and e-mail circulation, since 2022, we have employed animated training videos and assessments, monthly awareness training materials, and a well-defined escalation process to improve our employees’ understanding of cybersecurity best practices and to report suspicious activities to specific e-mail addresses monitored by our cybersecurity executives 24/7. This proactive communications approach aims to provide prevention information in a clear and consistent manner, advancing a culture of awareness while enhancing overall cybersecurity resilience.

The Internet of Things (IoT) is an important tool in offices and plants. It connects the manufacturing machinery and devices for automatic energy management and handheld devices for production, packaging, and transportation processes, allowing for quick and accurate information transmission to various systems as part of the industrial IoT. Artificial Intelligence (AI) is used in daily office activities such as communication, team meetings, presentations, and more to help users automate their work, create instant meeting minutes, key takeaways, and responses, thereby save time.

CYBERSECURITY TRAINING AND AWARENESS

Ongoing training and assessments are conducted quarterly to educate head office staff members on a range of cybersecurity topics, including malware threats, implementing secure password practices, safeguarding sensitive information as well as complying with to the Company’s IT security policies.

On March 2, 2023, we initiated the “Strong Password” training session aimed at improving our organization’s cybersecurity practices by educating employees on the importance of creating robust passwords. This training session involved 400 employees, of which 353 successfully completed the training, resulting in a compliance rate of 86.75%.

On December 14, 2023, we conducted the “Understanding & Stopping Social Engineering Attacks (Indorama Ventures)” training session, which focused on educating employees about recognizing and preventing social engineering attacks. Out of the 483 employees targeted, 382 completed the training, resulting in a compliance rate of 77.64%.

In June 2023, we conducted a Phishing Campaign Simulation to evaluate and enhance our organization’s ability to withstand phishing attacks. This exercise involved monitoring the responses of our employees to simulated phishing emails. Out of the 400 employees targeted, 306 individuals refrained from clicking on the phishing links, resulting in a compliance rate of 76.5%.

On October 8, 2023, we launched the “Phishing Defense Best Practices” training session, which was designed to educate employees on identifying and responding to phishing attempts. Out of the 475 employees enrolled, 431 completed the training, achieving a compliance rate of 90.11%.

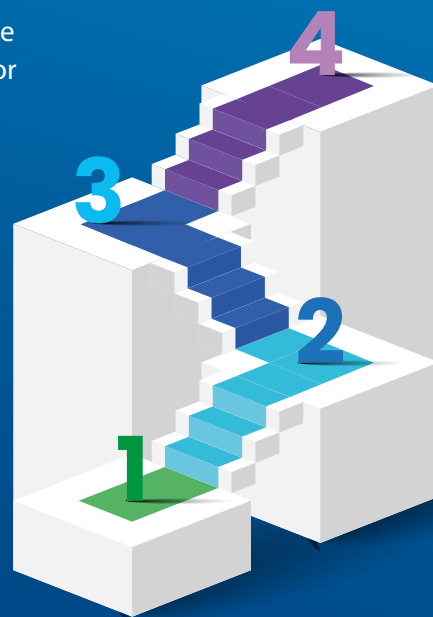


INCIDENT RESPONSE

Several cybersecurity challenges we encounter include e-mail threats, insufficient risk-based decision-making, absence of vulnerability assessments, ineffective patch management, and rapidly evolving technologies. To ascertain our preparedness in effectively responding to cybersecurity incidents, we have business continuity and contingency plans, as well as an Incident Response Procedure (IRP) established to accumulate information on such occurrences and test them at least annually. Our Incident Response (IR) team, part of the cybersecurity unit at our head office, manages the IRP. Security incidents undergo a triage process to determine if the event demands full activation of the team.

3. Our SaaS-based malware analysis lab enhances our incident response capability. This secure and monitored environment empowers our IR team to swiftly detect and address potential threats, encouraging a deeper comprehension of malware behavior, while allowing for more effective mitigation strategies.

Incident Response Procedure



1. When activated, the IR member is responsible for initiating a war room between the incident response team, IT teams, and other relevant internal and external stakeholders to remediate the incident.

4. An established escalation process on suspicious e-mails is frequently communicated to employees through e-mails and training programs. E-mails directed to ivl_infra@indorama.net will be attended to by cybersecurity executives, who monitor indications of attacks 24/7 using enterprise security systems.

2. The Security Operations Center (SOC) enhances our insights into the security landscape and improves our capacity to identify and promptly respond to security incidents.

In 2023, Indorama Ventures experienced a total of 10 cybersecurity incidents, the majority of which were attributed to phishing e-mails. All incidents were promptly remediated.



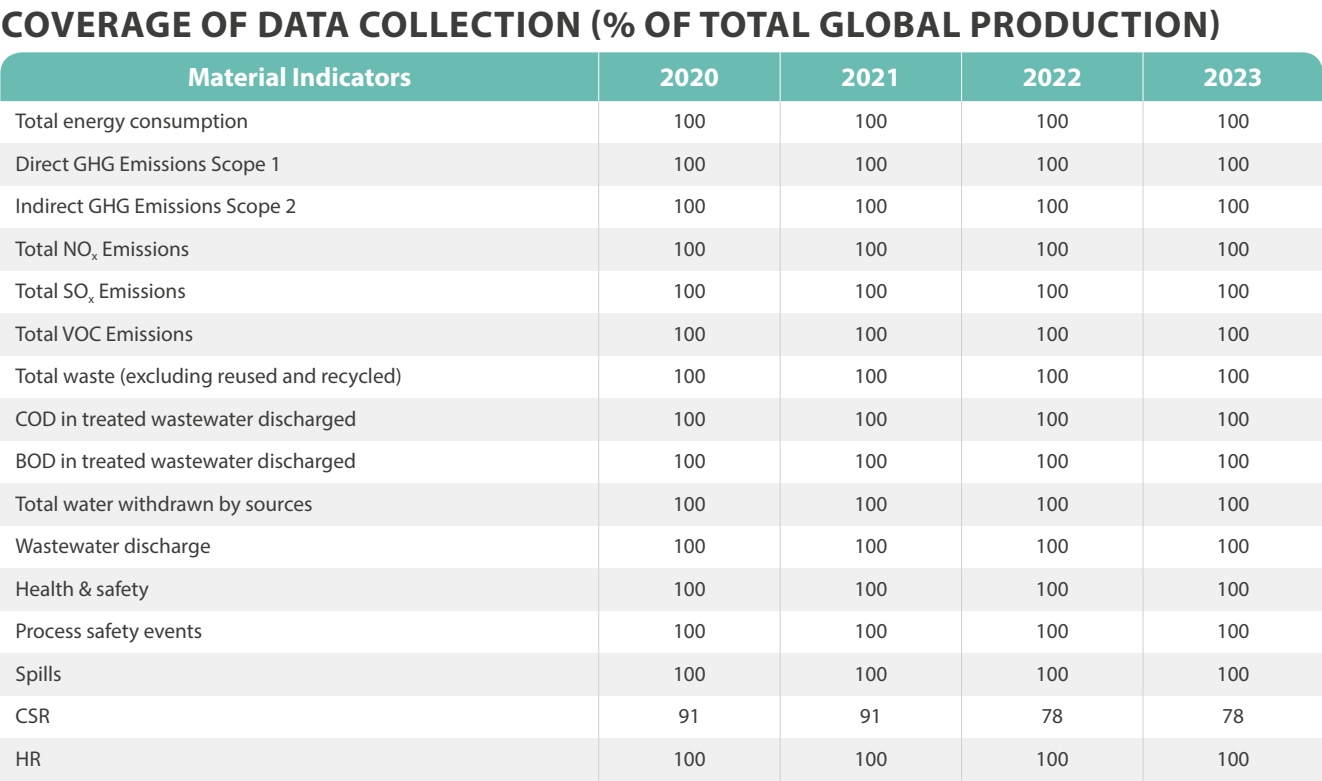


Chapter 8

APPENDICES

- 180 Global ESG Performance Data
- 194 About this Report
- 198 Independent Assurance Statement
- 202 GHG Scope 1, 2, and 3 Audit Certificate

Our 2023 Sustainability Report covers all Indorama Ventures sites across the globe in all business units including PET, Feedstock (PTA, PIA, EO/EG, PX, NDC, PNDA), Indovinya, Fibers, Packaging, Recycling, and Wool as listed below.



Region Operation	Country	Business
Americas		
AlphaPet, Inc.	USA	<div><div></div></div>
Auriga Polymers Inc.	USA	<div><div></div><div></div></div>
Avgol America Inc.	USA	<div><div></div></div>
Empresa Carioca de Produtos Químicos S.A.	Brazil	<div><div></div></div>
Indorama Ventures (Oxide & Glycols) LLC	USA	<div><div></div></div>
Indorama Ventures EcoMex S. de R.L. de C.V.	Mexico	<div><div></div></div>
Indorama Ventures Fibras Brasil Ltda.	Brazil	<div><div></div></div>
Indorama Ventures Hygiene Athens Inc.	USA	<div><div></div></div>
Indorama Ventures Hygiene Covington Inc.	USA	<div><div></div></div>
Indorama Ventures Lifestyle Brazil Ltda.	Brazil	<div><div></div></div>
Indorama Ventures Mobility Puebla, S.A. de C.V.	Mexico	<div><div></div></div>
Indorama Ventures Mobility Scottsboro Inc.	USA	<div><div></div></div>
Indorama Ventures Mobility Winnsboro LLC	USA	<div><div></div></div>
Indorama Ventures Olefins LLC	USA	<div><div></div></div>
Indorama Ventures Oxides International LLC	USA	<div><div></div></div>
Indorama Ventures Oxides LLC	USA	<div><div></div><div></div><div></div><div></div></div>
Indorama Ventures Polymers Mexico, S. de R.L. de C.V.	Mexico	<div><div></div><div></div></div>
Indorama Ventures Polymeros S.A.	Brazil	<div><div></div></div>
Indorama Ventures Propylene Oxides LLC	USA	<div><div></div></div>
Indorama Ventures PTA Montreal LP	Canada	<div><div></div></div>
Indorama Ventures Solucoes Sustentaveis Brasil Ltda.	Brazil	<div><div></div><div></div></div>
Indorama Ventures Sustainable Recycling LLC	USA	<div><div></div><div></div></div>
Indorama Ventures Sustainable Solutions LLC	USA	<div><div></div><div></div></div>
Indorama Ventures Sustainable Solutions Fontana Inc.	USA	<div><div></div><div></div></div>
Indorama Ventures Xylenes & PTA LLC	USA	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div>NDC, PIA, PX, PNDA</div>
Oleoquímica Indústria e Comércio de Produtos Químicos Ltda.	Brazil	<div><div></div></div>
Oxiteno S.A. Indústria e Comércio	Brazil	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Oxiteno México, S.A. de C.V.	Mexico	<div><div></div><div></div><div></div><div></div></div>
Oxiteno Uruguay S.A.	USA	<div><div></div></div>
Oxiteno USA LLC	USA	<div><div></div></div>
Performance Fibers Operations Mexico, S. de R.L. de C.V.	Mexico	<div><div></div></div>
StarPet Inc.	USA	<div><div></div></div>
Europe		
Avgol Limited Liability Company	Russia	<div><div></div></div>
Beverage Plastics Limited	Northern Ireland	<div><div></div></div>
Filatura Tollegno 1900 S.r.l.	Italy	<div><div></div></div>
Indorama Ventures Corlu PET Sanayi Anonim Sirketi	Turkey	<div><div></div></div>
Indorama Ventures Europe B.V.	The Netherlands	<div><div></div><div></div></div>
Indorama Ventures Fibers Germany GmbH	Germany	<div><div></div><div></div></div>
Indorama Ventures Hygiene Denmark A/S	Denmark	<div><div></div></div>
Indorama Ventures Lifestyle Bulgaria EOOD	Bulgaria	<div><div></div></div>
Indorama Ventures Lifestyle Italy S.p.A.	Italy	<div><div></div><div></div></div>
Indorama Ventures Mobility Bohemia s.r.o.	The Czech Republic	<div><div></div></div>
Indorama Ventures Mobility Cremona s.p.a.	Italy	<div><div></div></div>
Indorama Ventures Mobility Krumbach GmbH & Co. KG	Germany	<div><div></div></div>
Indorama Ventures Mobility Longlaville S.A.S.	France	<div><div></div></div>
Indorama Ventures Mobility Luxembourg S.A.	Luxembourg	<div><div></div></div>
Indorama Ventures Mobility Moravia a.s.	The Czech Republic	<div><div></div></div>
Indorama Ventures Mobility Moravia a.s.	Slovakia	<div><div></div></div>
Indorama Ventures Mobility Oberburg GmbH	Germany	<div><div></div></div>
Indorama Ventures Poland Sp. z o.o.	Poland	<div><div></div></div>
Indorama Ventures Polymers Germany GmbH	Germany	<div><div></div></div>
Indorama Ventures Portugal PTA - Unipessoal, LDA.	Portugal	<div><div></div></div>
Indorama Ventures Quimica S.L.U.	Spain	<div><div></div><div></div><div></div><div></div>PJA</div>
Indorama Ventures Recycling Poland Sp. Z.o.o. (Bielsko-Biała)	Poland	<div><div></div><div></div></div>
Indorama Ventures Recycling Poland Sp. Z.o.o. (Łęczycza)	Poland	<div><div></div></div>
Indorama Ventures Recycling Verdun S.A.S.	France	<div><div></div></div>
Schoeller GmbH & Co KG	Austria	<div><div></div></div>
Schoeller Kresice s.r.o.	The Czech Republic	<div><div></div></div>
Tollegno 1900 Poland Sp. z.o.o.	Poland	<div><div></div></div>
UAB Orion Global Pet	Lithuania	<div><div></div></div>
UCY Polymers CZ s.r.o.	The Czech Republic	<div><div></div></div>
Wellman France Recyclage S.A.S	France	<div><div></div></div>
Wellman International Limited, Ireland	Ireland	<div><div></div></div>
Wellman International Limited, the Netherlands	The Netherlands	<div><div></div></div>
Wellman Neufchâteau Recyclage S.A.	France	<div><div></div><div></div></div>

Region Operation	Country	Business
Asia		
Asia Pet (Thailand) Limited	Thailand	●
Avgol India Private Limited	India	●
Avgol Limited (Dimona)	Israel	●
Avgol Nonwovens India Private	India	●
FiberVisions (China) Textiles Products 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 Mobility (Kaiping) Co., Ltd.	China	●
Indorama Ventures Mobility (Kaiping) No.2 Co., Ltd.	China	●
Indorama Ventures Mobility (Kaiping) No.3 Co., Ltd.	China	●
Indorama Ventures Mobility (Qingdao) Co., Ltd.	China	●
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 Packaginmexivomecg (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	●
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	●
PetValue Philippines Corporation	The Philippines	● ●
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) Co., Ltd.	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 ● Indovina ● PET ● Hygiene ● Mobility ● Lifestyle ● Packaging ● Recycling ● Wool

Business Verticals: **Combined PET** – Feedstock, PTA, PET, Packaging, Recycling **Fibers** – Fibers (Hygiene, Lifestyle and Mobility) and Wool **Indovina**
The previous name of the business division was Integrated Oxides and Derivatives (IOD)

NDC Naphthalene Dicarboxylate
PIA Purified Isophthalic Acid
PNDA Purified 2, 6 - Naphthalene Dicarboxylic Acid
PX Paraxylene

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

GLOBAL PERFORMANCE DATA

GRI Standards		Unit	2020	2021	2022	2023
Production						
General	Total production (captive consumption)	Ton of production	15,547,062	16,521,350	16,748,664	16,034,161
	PET	Ton	5,359,788	5,469,996	5,457,361	5,287,277
	PTA	Ton	4,243,812	4,566,010	4,124,856	3,608,170
	Packaging	Ton	223,716	241,602	304,964	320,266
	Fibers	Ton	1,723,674	1,997,837	1,765,967	1,717,055
	Feedstock (e.g. IPA/PX/NDC/PNDA)	Ton	793,167	831,811	740,533	582,811
	Wool	Ton	4,602	6,168	7,140	10,816
	Recycling Plants Production (flakes+in process reuse)	Ton	180,739	217,414	344,543	365,382
	Olefins	Ton	3,017,564	3,190,512	4,003,300	4,142,384
Revenue						
General	Total revenues (including inter-company sales)	\$ (million)	13,769	17,533	23,864	19,047
Materials						
301-1	Materials used by weight or volume	Ton	15,038,845	15,990,880	17,356,455	16,308,928
	Non-renewable raw materials	Ton	14,759,365	15,616,149	16,595,070	15,761,590
	- PTA	Ton	5,260,904	5,567,369	5,450,517	5,339,496
	- MEG	Ton	2,071,956	2,184,696	2,115,053	2,104,844
	- Paraxylene	Ton	2,785,304	2,996,541	2,720,688	2,365,482
	- Indovina's raw materials	Ton	1,532,558	1,783,223	3,903,983	3,713,852
	- Acetic Acid	Ton	154,037	163,937	159,336	135,726
	- Purified isophthalic acid	Ton	96,462	93,539	97,875	95,364
	- PET	Ton	398,514	426,209	380,635	432,703
	- PP	Ton	274,328	270,314	221,539	207,663
	- PE	Ton	56,757	58,436	48,350	40,918
	- HDPE	Ton	8,211	10,639	19,751	22,937
	- Others	Ton	2,120,334	2,061,244	1,477,343	1,302,605
	Bio-based raw materials	Ton	24,284	28,833	209,212	223,082
	- Palm kernel oil and PKO fatty alcohols	Ton	-	-	136,204	150,302
	- Bio-MEG	Ton	10,031	9,615	9,875	9,175
	- Cellulose	Ton	7,212	10,298	7,745	6,289
	- PLA	Ton	3,641	4,065	4,233	4,543
	- Wool	Ton	3,400	4,855	8,070	7,633
	- Others	Ton	-	-	43,085	45,139
	301-2 Recycled input materials used	Ton	230,912	317,064	342,961	324,256
	Percentage recycled materials used	%	1.54	1.98	1.98	1.99
Energy						
302-1	Total Energy consumption within the organization	GJ	111,045,550	115,583,712	122,147,400	120,904,857
	Total non-renewable energy consumption	MWh	30,845,986	32,106,587	33,929,833	33,584,683
	- Natural gas	GJ	70,444,220	72,030,245	79,098,642	79,115,199
	- Coal	GJ	20,796,788	20,816,598	17,477,273	17,806,805
	- Fuel oil	GJ	431,744	1,895,027	653,786	392,006
	- Diesel	GJ	252,356	190,526	435,183	529,711
	- LPG	GJ	57,672	98,096	98,078	249,331
	- Gasoline	GJ	41,100	35,004	41,810	50,028
	- Fuel gas	GJ	-	-	-	-
	- Tail gas	GJ	-	-	466,210	569,877
	- Other	GJ	513,760	476,118	465,377	427,277
	Total Renewable energy consumption	GJ	798,257	485,511	579,224	728,630
	- Palmshell	GJ	317,212	416,226	425,094	497,758
	- Biomass	GJ	481,045	69,285	150,961	228,619
	- Bio LPG	GJ	-	-	3,141	2,185
	- Bioethanol	GJ	-	-	28	68
	Direct energy sold	GJ	(3,228,551)	(3,411,550)	(2,915,134)	(2,340,503)
	Total Indirect energy consumption (electricity, cooling, steam purchased from outside of Indorama Ventures group)	GJ	20,938,204	22,968,136	25,746,952	23,376,496
		MWh	5,816,168	6,380,038	7,151,931	6,493,471
	Renewable electricity generated and consumed	GJ	23,326	24,933	37,269	59,530
		MWh	6,479	6,926	10,352	16,536
	Renewable electricity purchased through certificate	GJ	668,105	1,883,403	716,325	620,907
		MWh	185,585	523,168	198,979	172,474

GRI Standards		Unit	2020	2021	2022	2023
	Total direct electricity sold	GJ	397,319	354,050	659,971	472,446
		MWh	110,366	98,347	183,325	131,235
	Total steam sold	GJ	133,695	519,650	586,479	650,230
		MWh	37,138	144,347	162,911	180,619
	Total indirect electricity sold	GJ	64,105	16,449	16,127	12,069
		MWh	17,807	4,569	4,480	3,353
	Total non-renewable energy consumption	GJ	109,560,514	113,194,408	120,814,902	119,495,940
		MWh	30,433,476	31,442,891	33,559,695	33,193,317
	Total Renewable energy consumption	GJ	1,485,032	2,389,306	1,332,497	1,408,918
		MWh	412,509	663,696	370,138	391,366
302-3	Energy intensity	GJ/Ton of production	7.14	7.00	7.29	7.54
302-4	Energy Saved due to conservation and efficiency improvement	GJ	435,645	1,575,159	413,476	2,267,194

Reused / Recycled Water

Total volume of recycled/reused water	m³	5,786,158	5,555,472	6,739,271	6,250,851
Percentage of recycled/reused water	%	6.59	5.93	7.20	6.96

Water Withdrawal

303-3	Total water withdrawal by source					
	Total water withdrawal by source (with + without water stress)	m³	82,050,413	88,154,618	86,910,036	83,500,378
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	78,234,318	84,704,174	85,376,163	82,412,722
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	3,816,095	3,450,444	1,533,873	1,087,656
	Surface water/rainwater	m³	50,870,402	61,522,902	48,332,122	47,660,402
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	47,343,325	58,361,273	48,239,270	47,415,500
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	3,527,077	3,161,629	92,852	244,902
	Groundwater	m³	12,113,628	7,459,005	11,722,585	11,418,275
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	12,112,289	7,458,027	11,293,294	10,988,468
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	1,339	979	429,290	429,807
	Seawater	m³	-	-	-	-
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	-	-	-	-
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	-	-	-	-
	Produced water	m³	684,830	193,615	129,085	170,647
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	627,250	64,141	490	507
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	57,580	129,474	128,595	170,141
	Third-party water	m³	18,381,553	18,979,096	26,726,244	24,251,053
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	18,151,454	18,820,734	25,843,108	24,008,248
	Other water (>1,000 mg/ L Total Dissolved Solids)	m³	230,100	158,362	883,135	242,805
	Total water withdrawal by source (with water stress)	m³	34,675,873	39,501,965	37,566,089	34,203,988
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	34,467,798	39,224,933	37,294,453	34,022,998
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	208,075	277,032	271,636	180,990
	Surface water/rainwater	m³	19,514,459	23,446,101	25,372,029	25,599,863
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	19,514,459	23,446,101	25,372,029	25,599,863
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	-	-	-	-
	Groundwater	m³	3,747,740	3,961,213	3,600,532	3,567,032
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	3,747,740	3,961,213	3,600,532	3,567,016
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	-	-	-	16
	Seawater	m³	-	-	-	-
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	-	-	-	-
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	-	-	-	-
	Produced water	m³	81,039	153,254	106,889	108,850
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	34,370	34,585	-	-
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	46,669	118,669	106,889	108,850
	Third-party water	m³	11,332,636	11,941,396	8,486,639	4,928,243
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	11,171,229	11,783,034	8,321,892	4,856,119
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	161,407	158,362	164,747	72,124
	Total water withdrawal by source (without water stress)	m³	47,374,540	48,652,654	49,343,947	49,296,389
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	43,766,520	45,479,242	48,081,710	48,389,724
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	3,608,020	3,173,412	1,262,237	906,666
	Surface water	m³	31,355,943	38,076,801	22,960,093	22,060,539
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	27,828,867	34,915,172	22,867,241	21,815,637
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	3,527,077	3,161,629	92,852	244,902

GRI Standards		Unit	2020	2021	2022	2023
	Groundwater	m³	8,365,888	3,497,792	8,122,053	7,851,243
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	8,364,549	3,496,813	7,692,762	7,421,452
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	1,339	979	429,290	429,791
	Seawater	m³	-	-	-	-
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	-	-	-	-
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	-	-	-	-
	Produced water	m³	603,791	40,361	22,196	61,797
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	592,880	29,556	490	507
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	10,911	10,805	21,706	61,291
	Third-party water	m³	7,048,918	7,037,700	18,239,605	19,322,810
	Freshwater (≤1,000 mg/L Total Dissolved Solids)	m³	6,980,224	7,037,700	17,521,216	19,152,129
	Other water (>1,000 mg/L Total Dissolved Solids)	m³	68,693	-	718,388	170,681

Wastewater discharge

303-4	Total wastewater discharge by source					
	Total water discharge (with+without water stress)					
	Total water discharge	m³	48,753,355	49,662,741	46,990,764	45,576,757
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	39,684,310	40,515,778	38,767,716	36,213,752
	Other water (>1,000 mg/L total dissolved solids)	m³	9,120,543	9,146,963	8,223,048	9,363,005
	Total Surface water/rainwater discharge	m³	26,649,830	26,147,436	24,645,275	24,566,153
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	-	-	22,543,112	22,120,077
	Other water (>1,000 mg/L total dissolved solids)	m³	-	-	2,102,163	2,446,077
	Total Groundwater discharge	m³	65,486	92,209	416,408	203,729
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	-	-	334,820	140,651
	Other water (>1,000 mg/L total dissolved solids)	m³	-	-	81,587	63,078
	Seawater discharge	m³	3,220,926	3,132,273	2,034,927	1,745,450
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	-	-	2,034,927	1,745,450
	Other water (>1,000 mg/L total dissolved solids)	m³	-	-	-	-
	Third-party / municipality / common WWTP water discharge	m³	18,722,156	20,184,379	16,937,671	15,610,476
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	-	-	10,980,924	8,847,394
	Other water (>1,000 mg/L total dissolved solids)	m³	-	-	5,956,748	6,763,082
	Third-party for other organization water discharge	m³	94,511	106,001	2,956,483	3,450,949
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	-	-	2,873,934	3,360,181
	Other water (>1,000 mg/L total dissolved solids)	m³	-	-	82,549	90,769
	Total water discharge (With Water Stress)	m³	25,906,869	25,674,905	22,681,126	19,763,325
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	24,871,405	25,416,890	19,280,294	16,177,768
	Other water (>1,000 mg/L total dissolved solids)	m³	1,311,729	560,322	3,400,833	3,585,557
	Surface water / rainwater discharge	m³	14,429,383	14,164,176	14,089,106	13,323,342
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	-	-	13,842,562	13,010,518
	Other water (>1,000 mg/L total dissolved solids)	m³	-	-	246,543	312,824
	Groundwater discharge	m³	47,719	52,544	287,723	186,445
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	-	-	220,385	139,285
	Other water (>1,000 mg/L total dissolved solids)	m³	-	-	67,337	47,160
	Seawater discharge	m³	1,663,141	1,771,417	1,460,691	1,422,689
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	-	-	1,460,691	1,422,689
	Other water (>1,000 mg/L total dissolved solids)	m³	-	-	-	-
	Third-party / municipality / common WWTP water discharge	m³	9,763,971	9,676,833	6,711,487	4,694,671
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	-	-	3,698,315	1,553,004
	Other water (>1,000 mg/L total dissolved solids)	m³	-	-	3,013,172	3,141,667
	Third-party for other organization water discharge	m³	2,654	9,935	132,120	136,178
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	-	-	58,340	52,272
	Other water (>1,000 mg/L total dissolved solids)	m³	-	-	73,780	83,907
	Total water discharge (Without Water Stress)	m³	22,846,486	23,987,836	24,309,638	25,813,432
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	15,350,542	15,724,020	19,487,423	20,035,984
	Other water (>1,000 mg/L total dissolved solids)	m³	7,984,815	8,817,375	4,822,215	5,777,448
	Surface water / rainwater discharge	m³	12,220,447	11,983,260	10,556,169	11,242,811
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	-	-	8,700,549	9,109,558
	Other water (>1,000 mg/L total dissolved solids)	m³	-	-	1,855,620	2,133,252
	Groundwater discharge	m³	17,767	39,665	128,685	17,285
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	-	-	114,435	1,366
	Other water (>1,000 mg/L total dissolved solids)	m³	-	-	14,250	15,919

GRI Standards		Unit	2020	2021	2022	2023
	Seawater discharge	m³	1,557,785	1,360,856	574,236	322,760
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	-	-	574,236	322,760
	Other water (>1,000 mg/L total dissolved solids)	m³	-	-	-	-
	Third-party / municipality / common WWTP water discharge	m³	8,958,631	10,507,990	10,226,185	10,915,806
	Freshwater (<=1,000 mg/L total dissolved solids)	m³	-	-	7,282,608	7,294,390
	Other water (>1,000 mg/L total dissolved solids)	m3	-	-	2,943,576	3,621,415
	Third-party for other organization water discharge	m3	91,857	96,066	2,824,363	3,314,771
	Freshwater (<=1,000 mg/L total dissolved solids)	m3	-	-	2,815,594	3,307,909
	Other water (>1,000 mg/L total dissolved solids)	m3	-	-	8,769	6,862
	Waste generation and significant waste-related impacts					
	Total water discharge volume	m³	48,752,910	49,520,229	46,907,077	44,941,189
	COD in treated wastewater discharged	Ton	17,654	24,765	8,272	3,125
	BOD in treated wastewater discharged	Ton	1,693	2,735	3,005	973
	TSS in treated wastewater discharged	Ton	1,900	1,860	651	636
	Oil and grease intreated wastewater discharged	Ton	170	243	995	84
Water consumption						
303-3	Total Wate Withdrawal (by sources) (A)	m³	82,050,413	88,154,618	86,910,036	83,500,378
	- Surface water	m³	50,870,402	61,522,902	48,332,122	47,660,402
	- Once through cooling water	m³	-	-	-	-
	- Municipal water and water utilities	m³	19,066,383	19,172,711	26,855,329	24,421,701
	- Groundwater	m³	12,113,628	7,459,005	11,722,585	11,418,275
	- Rain water		-	-	-	-
	Water intensity	m³/Ton of production	5.28	5.34	5.19	5.21
303-4	Water discharge (excluding salt water) (B)	m³	45,532,429.04	46,530,468.19	44,955,837.25	43,831,307.77
303-5	Total net freshwater consumption from all areas (Water withdrawal (excluding saltwater) - Water discharge (excluding saltwater)) (A-B)	m³	36,517,984	41,624,150	41,954,199	39,669,070
	Total net freshwater consumption in water-stressed areas (Total water withdrawals – Total water discharges)	m³	8,769,004	13,827,060	14,884,963	14,440,663
Emissions						
305-1	Direct (Scope 1) GHG emissions	tCO ₂ e	6,974,574	7,207,125	7,195,277	7,102,530
305-2	Energy indirect (Scope 2) GHG emissions	tCO ₂ e	2,487,233	2,582,952	2,606,124	2,478,410
	Total GHG emissions (Scope 1 & 2)	tCO ₂ e	9,461,807	9,790,077	9,801,401	9,580,940
305-4	GHG emissions intensity					
	Scope 1 GHG intensity	tCO ₂ e/Ton of production	0.4486	0.436	0.430	0.443
	Scope 2 GHG intensity	tCO ₂ e/Ton of production	0.161	0.156	0.157	0.155
	Scope 1 & 2 GHG intensity	tCO ₂ e/Ton of production	0.609	0.593	0.585	0.598
	GHG intensity (Scope 1 & 2) in Tons of CO ₂ e per currency total revenue	tCO ₂ e/\$ (million)	687.18	558.38	410.72	503.01
	GHG Intensity in Tons of CO ₂ e per full-time equivalent (FTE) employees	tCO ₂ e/FTE	313.29	324.16	324.54	317.24
305-5	GHG emissions reduced as a direct result of reduction initiatives	tCO ₂ e	-	28,702	148,102	263,379
305-7	Nitrogen oxides (NO _x), sulfur oxides (SO _x) and other significant air emissions					
	Total NO _x emissions	Ton	4,937	12,433	7,536	7,448
	Total SO _x emissions	Ton	4,658	6,999	5,730	5,708
	Total VOC emissions	Ton	3,298	2,364	4,287	3,253
	Total PM emissions	Ton	872	915	1,137	1,217
Solid Waste						
306-3	Total weight of waste generated	Ton	333,758	427,079	463,913	463,310
	- Waste generated (Total hazardous waste)	Ton	117,157	140,010	156,012	148,303
	- Waste generated (Total non-hazardous waste)	Ton	216,601	287,069	307,901	315,007
306-4	Total waste (hazardous + non-Hazardous) diverted from disposal	Ton	158,174	225,344	117,629	113,901
	Total hazardous waste diverted from disposal by recovery option					
	- Reuse	Ton	39,840	47,897	0	0
	- Recycling	Ton	2,511	2,931	53,083	46,477
	Total hazardous waste recycled/reused	Ton	42,351	50,828	53,083	46,477
	Total non-hazardous waste diverted from disposal by recovery option					
DJSI 2.3.2	- Reuse	Ton	65,318	82,289	1,560	1,378
	- Recycling	Ton	50,505	92,227	62,986	66,046
	Total non-hazardous waste recycled/reused	Ton	115,823	174,516	64,546	67,424

GRI Standards		Unit	2020	2021	2022	2023
306-5 DJSI 2.3.2	Waste directed to disposal					
	Total hazardous waste disposed	Ton	74,806	89,183	102,929	101,826
	- Incineration (with energy recovery)	Ton	52,439	71,709	84,128	85,726
	- Incineration (without energy recovery)	Ton	12,900	7,435	6,872	6,083
	- Landfill	Ton	6,416	6,557	5,440	3,804
	- Others	Ton	77	0	0	0
	• Composting	Ton	77	0	0	0
	• Deepwell injection	Ton	0	0	0	0
	- Unknown disposal methods	Ton	2,974	3,482	6,489	6,213
	Total non-hazardous waste disposed	Ton	100,779	112,553	243,355	247,583
	- Incineration (with energy recovery)	Ton	10,245	6,341	10,945	18,607
	- Incineration (without energy recovery)	Ton	2,425	1,135	583	1,260
	- Landfill	Ton	53,603	61,155	96,403	79,761
	- Others	Ton	12,882	0	0	0
	• Composting	Ton	12,829	0	0	0
DJSI 2.3.2	• Deepwell injection	Ton	53	0	0	0
	- Unknown disposal methods	Ton	21,624	43,922	135,424	147,955
	Total waste reused, recycled and incinerated with energy recovery	Ton	220,857	303,394	212,702	218,235
	Total waste reused, recycled and incinerated without energy recovery	Ton	112,901	123,685	251,212	245,075
Return on Environmental Investments						
DJSI 2.1.4	Total Expenses	\$	20,463,460	46,700,000	11,509,500	13,333,440
	Capital Investments	\$	19,499,307	44,700,000	11,275,000	13,072,000
	Operating Expenses	\$	964,153	2,000,000	234,500	261,440
	Savings, cost avoidance, income, tax incentives, etc.	\$	9,049,329	14,000,000	4,634,000	3,194,000
	% of operations covered	%	100	100	100	100
Significant Spills						
306-3	Waste generated					
	Total significant spills	Case	25	52	13	8
		Ton	49	348	23	2.8
	- Hydrocarbon spills	Case	18	7	10	5
		Ton	33	35	1	1.3
	- Chemical spills	Case	7	29	3	1
		Ton	17	293	21	0.1
	- Other spills (e.g. wastewater, dowtherm)	Case	0	16	0	2
	- Non-hydrocarbon spills	Ton	0	20	0	1.4
Environmental Compliance						
2-27	Total number of environmental violations	Case	1	33	20	23
	Number of significant violations of legal obligations/ regulations (The fine/penalty individually costs \$10,000 or more (or equivalent when converted from local currency)	Case	1	7	4	5
	Total number of pending environmental violations	Case	0	0	0	4
	Amount of fines/penalties from significant cases	\$	22,357	196,896	121,946	411,900
	Environmental liability accrued at year end from significant cases**	\$	0	0	19,800	330,500
Occupational Health & Safety						
403-9	Work-related injuries					
	Total Recordable Injury Rate (TRIR)	No/Million man-hours	4.55	4.90	4.10	3.41
	Employees	No/Million man-hours	4.94	5.97	5.20	4.23
	Contractors	No/Million man-hours	16.96	9.31	1.45	1.53
	Total Recordable Injuries (not including first aid incidents)	Case	259	299	301	272
	Employees	Case	209	267	268	235
	Contractors	Case	50	32	33	37
	Lost Time Injury Frequency Rate (LTIFR)	No/Million man-hours	2.38	3.30	2.55	2.44
	Employees	No/Million man-hours	2.93	4.05	3.30	3.02
	Contractors	No/Million man-hours	0.81	1.22	0.80	1.12
	Fatalities (all Employees and Contractors)	Person	0	2	1	3
	Employees	Person	0	1	0	0
	- Male	Person	0	1	0	0
	- Female	Person	0	0	0	0

GRI Standards		Unit	2020	2021	2022	2023
403-10	Contractors	Person	0	1	1	3
	- Male	Person	0	1	1	3
	- Female	Person	0	0	0	0
	Total Lost Time Injuries	Case	136	202	188	195
	Employees	Case	124	181	170	168
	Contractors	Case	12	21	18	27
	Work-related ill health					
	Occupational Illness Frequency Rate (OIFR)	No/Million man-hours	0.18	0.06	0	0.01
	Employees	No/Million man-hours	0.24	0.09	0	0.02
	- Male	No/Million man-hours	0.06	0.03	0	0.02
	- Female	No/Million man-hours	0.98	0.35	0	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	10	4	0	1
	Employees	Case	10	4	0	1
	- Male	Case	2	1	0	1
	- Female	Case	8	3	0	0
	Contractors	Case	0	0	0	0
Process Safety Events	- Male	Case	0	0	0	0
	- Female	Case	0	0	0	0
	Fatalities (all Employees and Contractors)	Person	0	0	0	0
	Employees	Person	0	0	0	0
	- Male	Person	0	0	0	0
	- Female	Person	0	0	0	0
	Contractors	Person	0	0	0	0
	- Male	Person	0	0	0	0
	- Female	Person	0	0	0	0
	Near Miss	Case	1,977	2,558	2,794	2,478
	Process Safety Events					
	DJSI 3.4.6	Process Safety Events				
	Tier 1					
	- No. of events	Case	18	15	10	15
	- Rate	Case/Million man-hours	0.32	0.24	0.14	0.19
	Tier 2					
	- No. of events	Case	13	21	14	17
	- Rate	Case/Million man-hours	0.23	0.33	0.19	0.21

** Fines or penalties not paid yet, including expected fines for cases that are not yet closed. In other words, it can be viewed as ongoing “tally” of outstanding expected fines or penalties, and includes violations that occurred in other years.

GLOBAL HUMAN RESOURCES DATA

Standard Requirements		Unit	2020	2021	2022	2023
Employees						
2-7	Employees					
	Total employees by gender	Person	25,207	25,760	30,201	29,056
	- Male	Person	19,790	20,261	23,102	22,466
	- Female	Person	5,417	5,499	7,099	6,590
	Total permanent employees by gender	Person	23,134	23,666	25,740	26,093
	- Male	Person	18,158	18,425	19,397	19,763
	- Female	Person	4,976	5,241	6,343	6,330
	Total Temporary employees by gender	Person	2,073	2,094	4,461	2,963
	- Male	Person	1,632	1,836	3,705	2,703
	- Female	Person	441	258	756	260
Human Rights Grievances						
2-25	Processes to remediate negative impacts					
	Total number of grievances about human rights through formal grievance process	Case	8	22	33	35
	Number of grievances about human rights (related to employees) through formal grievance process	Case	7	12	29	33
	Number of grievance about human rights (not related to employees) through formal grievance process	Case	0	0	1	2
	Total number of human rights grievances addressed in this reporting period	Case	8	7	21	4
	Number of human rights grievances (related to employees) addressed during the reporting period	Case	7	7	15	4
	Number of human rights grievances (not related to employees) addressed during the reporting period	Case	0	1	0	0
	Total number of human rights grievances filed in previous reporting period resolved during the reporting period	Case	0	1	3	3
	Number of human rights grievances (related to employees) filed in previous reporting period resolved during the reporting period	Case	1	1	4	3
	Number of human rights grievances (not related to employees) filed in previous reporting period resolved during the reporting period	Case	0	0	0	0
Collective Bargaining						
2-30	Collective bargaining agreements					
	Total employees covered by collective bargaining agreements	Person	9,578	9,914	10,900	10,580
	Percentage of total employees covered by collective bargaining agreement	%	41.40	41.89	42.35	40.55
	Number of consultations/negotiations with trade unions over organizational changes	Number	103	903	791	704
Labor Practice Grievance						
103-2	The management approach and its components					
	Total number of grievances about for labor practices filed through formal grievance mechanism	Case	63	65	364	58
	Total number of grievances about labor practices addressed during the reporting period	Case	80	58	73	34
	Total number of grievances about labor practices resolved during the reporting period	Case	75	60	37	9
	Total number of grievances about labor practices filed prior to reporting period that were resolved during the reporting period	Case	43	7	91	9
Employment						
401-1	New employee hires and employee turnover					
	Total new employees	Person	1,822	3,295	3,999	2,863
	- Male	Person	1,259	2,334	2,446	1,911
	- Female	Person	563	961	1,553	952
	Total new employee hire rate	New hire rate (%)	7.23	12.79	13.24	9.85
	- Male	New hire rate (%)	6.36	11.52	10.59	8.51
	- Female	New hire rate (%)	10.39	17.48	21.88	14.45
DJSI 3.3.4	Total new employees by age	Person	-	-	-	2,863
	Over 50 years old	Person	-	-	-	210
	- Male	Person	-	-	-	144
	- Female	Person	-	-	-	66

Standard Requirements		Unit	2020	2021	2022	2023
DJSI 3.3.4	30-50 years old	Person	-	-	-	1,371
	- Male	Person	-	-	-	918
	- Female	Person	-	-	-	453
	Below 30 years old	Person	-	-	-	1,282
	- Male	Person	-	-	-	849
	- Female	Person	-	-	-	433
	Total new employee hire rate by age	New hire rate (%)	-	-	-	9.85
	Over 50 years old	New hire rate (%)	-	-	-	2.95
	- Male	New hire rate (%)	-	-	-	2.54
	- Female	New hire rate (%)	-	-	-	4.59
	30-50 years old	New hire rate (%)	-	-	-	8.96
	- Male	New hire rate (%)	-	-	-	8.09
	- Female	New hire rate (%)	-	-	-	11.48
	Below 30 years old	New hire rate (%)	-	-	-	34.84
	- Male	New hire rate (%)	-	-	-	31.04
	- Female	New hire rate (%)	-	-	-	45.82
401-1	Percentage of open positions filled by internal candidates	%	-	-	-	4.50
	Average hiring cost / FTE	\$	-	-	-	752.83
	Employee turnover					
	Total employee turnover	Person	1,964	2,703	3,529	3,540
	- Male	Person	1,413	1,951	2,392	2,396
	- Female	Person	551	752	1,137	1,144
	Total employee turnover rate	Turnover rate (%)	8.49	11.42	13.71	13.57
	Total employee turnover rate by gender	Turnover rate (%)	-	-	-	13.57
	- Male	Turnover rate (%)	-	-	-	12.12
	- Female	Turnover rate (%)	-	-	-	18.07
	Total employee turnover by age	Person	-	-	-	3,540
	Over 50 years old	Person	-	-	-	807
	- Male	Person	-	-	-	587
	- Female	Person	-	-	-	220
	30-50 years old	Person	-	-	-	1,691
	- Male	Person	-	-	-	1,131
DJSI 3.3.8	- Female	Person	-	-	-	560
	Below 30 years old	Person	-	-	-	1,042
	- Male	Person	-	-	-	678
	- Female	Person	-	-	-	364
	Total employee turnover rate by age	Turnover rate (%)	-	-	-	13.57
	Over 50 years old	Turnover rate (%)	-	-	-	11.34
	- Male	Turnover rate (%)	-	-	-	10.34
	- Female	Turnover rate (%)	-	-	-	15.29
	30-50 years old	Turnover rate (%)	-	-	-	11.06
	- Male	Turnover rate (%)	-	-	-	9.96
	- Female	Turnover rate (%)	-	-	-	14.19
	Below 30 years old	Turnover rate (%)	-	-	-	28.32
	- Male	Turnover rate (%)	-	-	-	24.79
	- Female	Turnover rate (%)	-	-	-	38.52
	Voluntary employees turnover	Person	1,461	2,149	2,916	1,723
	Voluntary employees turnover rate	Turnover rate (%)	6.32	9.08	11.33	6.60
401-3	Number of employees laid off	Person	93	148	243	299
	Number of negotiations	Person	58	37	50	28
	Parental leave					
	Number of employees taken parental leave	Person	615	899	781	602
	- Male	Person	328	584	266	408
	- Female	Person	287	315	515	194
	Number of employees return to work after parental leave	Person	554	821	715	557
	- Male	Person	321	534	261	408
	- Female	Person	233	287	454	149
	Return to work rate (after parental leave)	%	90.08	91.32	91.55	92.50
	- Male	%	97.87	91.44	98.12	100
	- Female	%	81.18	91.11	88.16	76.80
	Retention to work (after parental leave and still employed for the next 12 months)	Person	468	720	669	500
	- Male	Person	242	497	232	363
	- Female	Person	226	223	437	137

Standard Requirements		Unit	2020	2021	2022	2023
Employees training*						
404-1	Average hours of training per year per employee					
	Total training hours provided to employee	Hour	429,886	708,106	789,313	831,855
	- Male	Hour	335,311	552,323	591,984	632,210
	- Female	Hour	94,575	155,783	197,328	199,645
	Total Average training	Hours/Employee	18.58	29.92	30.66	31.88
	- Male	Hours/Employee	18.47	29.98	30.52	31.99
	- Female	Hours/Employee	19.01	29.72	31.11	31.54
	Mandatory course	Hour	214,305	301,340	398,704	498,503
	Non-mandatory course	Hour	215,582	406,766	390,609	333,352
	Total amount spent	\$	2,070,050	2,400,752	3,590,000	3,074,554
	- Mandatory course	\$	625,605	708,545	1,110,162	1,108,115
	- Non-mandatory course	\$	1,444,445	1,692,207	2,479,838	1,966,439
	- Region - Asia	\$	870,159	1,024,422	1,073,187	847,622
	- Region - EMEA	\$	757,347	611,035	1,105,987	1,279,529
	- Region - Americas	\$	442,544	765,295	1,410,825	947,403
Performance Appraisal						
404-3	The percentage of employees receiving performance appraisals and career development reviews					
	Total employees receiving performance appraisal reviews	Person	15,648	15,959	16,549	17,694
	Percentage of employee receiving yearly performance reviews	%	67.64	67.43	64.29	67.81
	Total employees receiving career development reviews	Person	6,505	7,641	7,803	9,333
Percentage of employees - Race / Ethnicity						
405-1	Diversity of governance bodies and employees					
	Asian					
	- Percentage of total workforce	%	-	18.04	4.65	3.05
	- Percentage of total management workforce	%	-	15.00	8.77	11.68
	Black or African American					
	- Percentage of total workforce	%	-	12.15	14.75	19.37
	- Percentage of total management workforce	%	-	14.13	9.77	10.54
	Hispanic or Latino					
	- Percentage of total workforce	%	-	9.57	12.50	14.47
	- Percentage of total management workforce	%	-	7.36	7.78	9.97
	White					
	- Percentage of total workforce	%	-	30.04	62.40	59.68
	- Percentage of total management workforce	%	-	38.72	68.71	64.68
	Indigenous of Native					
	Percentage of total workforce	%	-	10.70	1.39	0.83
	Percentage of total management workforce	%	-	9.97	0.83	0.28
DJSI 3.1.2	Other					
	Percentage of total workforce	%	-	19.49	4.31	2.60
	Percentage of total management workforce	%	-	14.81	4.10	2.85
	Percentage women in management positions in revenue-generating functions (e.g. sales) as % of all such managers	%	25.22	25.30	25.40	16.73
	Total STEM position	Person	-	-	-	738
	Percentage women in STEM position	%	-	-	-	23.21
Employees by Level*						
405-1	Total employee by level	Person	23,134	23,666	25,740	26,093
	Executive Management	Person	115	117	127	129
	- Male	Person	100	102	111	113
	- Female	Person	15	15	16	16
	Senior Management	Person	606	620	674	684
	- Male	Person	492	503	547	555
	- Female	Person	114	117	127	129
	Middle Management	Person	2,458	2,515	2,735	2,732
	- Male	Person	1,911	1,955	2,126	2,115
	- Female	Person	547	560	609	617
	Junior Management	Person	8,922	9,127	9,927	9,971
	- Male	Person	5,353	5,476	5,956	5,734
	- Female	Person	3,569	3,651	3,971	4,237
	Non Management*	Person	11,033	11,287	12,277	12,577
	-Male	Person	10,235	10,470	11,388	11,246
	-Female	Person	798	817	888	1,331

Standard Requirements		Unit	2020	2021	2022	2023
Employees by Age*						
405-1	Diversity of governance bodies and employees					
	Total employees by age	Person	23,134	23,666	25,740	26,093
	Over 50 years old	Person	6,267	6,118	6,430	7,117
	- Male	Person	5,132	4,927	5,077	5,678
	- Female	Person	1,135	1,191	1,353	1,439
	30-50 years old	Person	13,265	13,962	15,416	15,296
	- Male	Person	10,194	10,683	11,472	11,350
	- Female	Person	3,071	3,279	3,944	3,946
	Below 30 years old	Person	3,602	3,586	3,894	3,680
	- Male	Person	2,832	2,815	2,848	2,735
	- Female	Person	770	771	1,046	945
Remuneration ratio of women to men						
405-2	Ratio of basic salary and remuneration of women to men					
	Strategic (base salary only)	Ratio	0.964	0.965	0.966	0.967
	Strategic (base salary + other cash incentives)	Ratio	0.957	0.958	0.959	0.960
	Managerial (base salary only)	Ratio	0.949	0.951	0.953	0.955
	Managerial (base salary + other cash incentives)	Ratio	0.953	0.955	0.957	0.959
	Supervisory and Operational	Ratio	0.934	0.937	0.940	0.942
Employee Engagement						
DJSI 3.3.9	Employee satisfaction score	%	73.89	73.89	73.31	73.31
	- Male	%	74.54	74.54	74.04	74.04
	- Female	%	77.40	77.40	77.28	77.28
	Data coverage of employee satisfaction survey	%	82.87	82.87	84.06	84.06
	Employee Net Promoter Score (NPS)	%	76.20	76.20	75.85	75.85
Non-discrimination						
406-1	Incidents of discrimination and corrective actions taken					
	Total number of incidents of discrimination and corrective actions taken	Case	8	12	17	2
	Number of incidents of discrimination and corrective actions taken regarding employees	Case	5	10	16	2
	Number of incidents of discrimination and corrective actions taken to all excluding employee	Case	3	2	1	0
Human Capital Return on Investment (HC ROI)						
DJSI 3.3.3	Total Revenue	\$	10,594,000,000	14,629,000,000	18,713,000,000	15,555,000,000
	Total Operating Expenses	\$	10,447,276,765	13,543,614,607	17,314,417,736	15,363,230,256
	Total employee-related expenses	\$	1,042,535,314	1,161,570,769	1,285,033,076	1,365,412,515
	Human Capital Return on Investment (HC ROI)	-	1.14	1.93	2.09	1.14
Rights of Indigenous People						
411-1	Incidents of violations involving rights of indigenous people	Case	0	0	0	0
Human Rights Assessment						
412-1	Operations that have been subject to human rights reviews or impact assessments					
	Total number of operations	Number	123	124	147	148
	Total number of operations that have been subject to human rights reviews or impact assessments	Number	123	124	147	148
	Percentage of operations that have been subject to human rights reviews or impact assessments	%	100	100	100	100
Human Rights Integration						
412-2	Employee training on human rights policies or procedures					
	Total number of hours of employees training on human rights policies or procedures concerning aspects of human rights that are relevant to operations	Hours	11,044	22,622	28,173	15,676
	Total number of employees trained in human rights policies or procedures concerning aspects of human rights that are relevant to operations	Person	9,366	16,673	10,786	11,185
	Percentage of employees trained in human rights policies or procedures concerning aspects of human rights that are relevant to operations	% of total employees	37.2	64.7	35.7	38.5

* 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	2020	2021	2022	2023
Local Community Engagement						
413-1	Operations with local community engagement, impact assessments and development programs					
	Percentage of operations with implemented local community engagement, impact assessments, and development programs	%	91	91	78	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	46	47	43	41
	Number of operation with implemented social impact assessment including gender assessment	Number	14	12	11	27
	Number of operation with implemented environmental impact assessment	Number	42	38	33	41
	Number of operation with implemented public disclosure of results of environmental and social impact assessment	Number	27	24	24	23
	Number of operation with implemented local community development programs	Number	25	23	19	32
	Number of operation with implemented stakeholder engagement plans	Number	21	24	22	26
	Number of operation with implemented broad base local community consultation committees and processes	Number	15	22	19	26
	Number of operation with implemented work councils, occupational health and safety committees and other employee representation bodies to deal with impacts	Number	42	39	35	37
	Number of operation with implemented formal local community grievance process	Number	18	25	22	29
Social Grievances						
413-1	Operations with local community engagement, impact assessment and development programs					
	Number of grievances regarding society received through formal grievance process	Number	1	0	2	4
	Total number of societal grievances addressed during this reporting period	Number	1	0	2	4
	Total number of societal grievances resolved during this reporting period	Number	1	0	2	4
	Total number of societal grievances resolved in the previous reporting period	Number	0	1	2	2
Total Philanthropic Activities						
413-1	Total philanthropic activities	%	100	100	100	100
	Charitable donations	\$	449,703	743,123	377,456	461,106
	Community investments	\$	451,890	751,889	1,654,785	2,437,869
	Commercial Initiatives in the community	\$	188,583	157,982	304,832	327,947
Philanthropic Contributions						
413-1	Total cash contributions	\$	1,090,176	1,405,621	1,708,752	2,773,633
	Time: Estimate employee costs	\$	696,748	210,969	560,385	390,181
	Time: Employee volunteering during paid working hours	Hours	33,607	9,493	22,864	15,126
	Total in-kind giving	\$	250,528	200,981	472,446	327,693
	Total management overheads	\$	73,118	46,392	155,874	125,597



ABOUT THIS REPORT

MANAGEMENT RESPONSIBILITY STATEMENT

[GRI 2-14]

The 2023 Sustainability Report reflects Indorama Ventures' ongoing dedication to adhering to Environmental, Social, and Governance (ESG) standards. It outlines our comprehensive strategy for generating value, considering both tangible and intangible aspects, as well as financial and non-financial elements of the business. This involves the identification of stakeholders, recognition of critical issues, and adherence to the International Integrated Reporting (IR) Framework. In alignment with the 2021 GRI Sustainability Reporting Standards, we detail our sustainability initiatives and their connections to our financial performance in this report, evaluating our performance as a sustainable chemical company within the reporting scope.

The Chief Sustainability Officer (CSO) is responsible for crafting our annual Sustainability Report, following the GRI Reporting Standards to determine topics, content, and quality. Additional information is accessible through links in the relevant sections. Throughout this report, terms such as "us", "our", and "the Company", pertain to Indorama Ventures.

OUR APPROACH

For over 10 years, we have actively communicated our sustainability-related initiatives, achievements, and future plans through the publication of our Sustainability Report.

The 2023 Sustainability Report adheres to the Global Reporting Initiatives (GRI) standards and references global benchmarks such as the International Integrated Reporting (IR) Framework, UN SDGs, UNGC principles, and AA1000 Assurance Standard. Serving as a Communication on Progress report, it outlines Indorama Ventures' adherence to the UNGC's 10 principles across human rights, labor, the environment, and anti-corruption. Our commitment to annual sustainability reporting under these frameworks allows readers to easily access and compare our performance with similar global organizations. Additionally, the information in the report has been independently verified by external auditors.

SCOPE AND BOUNDARY REPORT

[GRI 2-4]

In this report, we present consolidated data for entities in which Indorama Ventures' more than 50% ownership and for joint ventures where we have management control. Information from entities where we have minority ownership or no management control has been excluded. Our quantitative environmental data is gathered through meter readings, production system outputs, detailed accounting models, and, where necessary, estimations based on specific ground rules. We disclose consolidated information from 149 operational sites (including new entities acquired from July 1, 2022, to June 30, 2023), encompassing global operations, subsidiaries, and factories located in 35 countries (with exceptions detailed for excluded entities). The data provided pertains to activities occurring between January 1, 2023, and December 31, 2023. Additionally, we consider significant global events that transpired after December 31, 2023, in certain instances. Further details regarding our reporting boundaries can be found in the GRI Content Index on our website, in addition to our previous Sustainability Reports.

REPORTING PRINCIPLES

Value Creation

As a globally integrated company, we acknowledge our responsibility to generate value. Therefore, we emphasize strong governance and maintain a distinct purpose and well-defined strategy. This approach enables us to convert various forms of capital into valuable outcomes and outputs for our diverse range of stakeholders. Within Indorama Ventures, the value creation process links top management decision-making with performance targets and outcomes. This connection provides us with valuable insights into our operations and supply chains, allowing us to make strategic commitments that contribute to our long-term success.

Report Content

This Sustainability Report demonstrates our commitment to sustainability, showcasing the measurable impact of our efforts that extend beyond mere compliance with external obligations. Continuous and integrated information exchange within Indorama Ventures and with our stakeholders is crucial for the organization's long-term success. Through active engagement with our stakeholders and by addressing their concerns, we create long-term value together while leveraging our expertise, resources, and time.

Moreover, we evaluate our sustainability initiatives against ESG criteria, together with economic issues and scenarios, adjusting our approach accordingly. This process allows us to discover new innovations, identify growth opportunities, and integrate sustainability into our day-to-day operations, thereby maintaining our competitive advantage.

Our latest biennial materiality assessment was conducted in 2022, incorporating feedback from stakeholders to pinpoint topics that could impact the Company's long-term value across economic, governance, environmental, and social dimensions. This robust Double Materiality Assessment shapes our company narrative, aligns with stakeholder expectations, and enhances long-term value creation. The advantages lie in informed decision-making, proactive risk management, and a strengthened commitment to responsible, resilient business operations. To be proactive, we have focused more on the Double Materiality Approach by further analyzing both financial and materiality impacts.



The identified issues were cross-referenced with GRI topics, associated with relevant indicators, and scrutinized by both the Sustainability Team and the SRMC. This final assessment resulted in the identification of nine key material topics, accompanied by refined performance indicators and targets aimed at promoting internal performance enhancements. Additional information is available on pages 44-45 of the report and on our website.

Report Quality

We place an equal emphasis on environmental, social, and economic growth within our sustainability framework. The Sustainability Report 2023 integrates qualitative and quantitative ESG information, closely aligning with recognized international reporting standards. Our adherence to GRI standards in reporting allows us to effectively communicate with stakeholders in an accurate, balanced, clear, comparable, complete, timely, and verifiable manner within the sustainability context. As a crucial aspect of our report preparation, we incorporated feedback from our diverse stakeholder groups to identify the most significant material topics. In accordance with the <IR> framework, our report highlights interdependencies within the organization and external environment, encourages transparency in resource allocation, and underscores our dedication to sustainable value creation.

Sustainability Report Assurance and GHG Verification

Attaining external verification is a key component in establishing our credibility and reinforcing the transparency and integrity of our report. To ensure compliance with the GRI Standards, <IR> Framework, and the AA1000 Assurance Standard, we engaged the services of independent external auditors, TUV India Private Limited. The Independent Assurance Statement issued by TUV India Private Limited is available on pages 198-202 of this report, providing assurance that the information presented in our Sustainability Report 2023 has undergone thorough verification.

TUV NORD CERT GmbH, serving as the independent external assurance auditor, conducted the verification of information pertaining to GHG Scope 1, 2, and 3 emissions across nine categories. This verification process was carried out in accordance with the GHG Protocol, ISO 14064-1, and ISO 14064-3. Before publication, the final report undergoes a thorough review by our senior leadership, including the Chairman of the ESG Council, Chief Sustainability Officer, and business executives.

GREENHOUSE GAS (GHG) ACCOUNTING

We follow the Greenhouse Gas Protocol on Corporate Accounting and Reporting, as specified by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). Our systematic implementation of GHG accounting is consistently consolidated across all our global operations with strict adherence to these established requirements.

DATA METHODOLOGY

Data Coverage

In 2023, we expanded our data verification coverage from 141 to 149 sites. Our data reporting for operations is based on 100% ownership, unless specified otherwise (e.g., for an 80% owned operation, we report 100% of the data). The information presented in the report is specific to the Company, and the metric system and US dollars are the standard units for reporting data unless indicated otherwise.

It is important to acknowledge the inherent limitations in measuring and reporting non-financial information, which introduce an undetermined number of uncertainties. Variations in measurement techniques and data selection criteria may exist between Indorama Ventures and our subsidiaries. Nevertheless, our commitment remains unwavering in presenting the most comprehensive and accurate metrics within the scope of our capabilities.

Changes in size, structure, ownership, and developments

The list of entities acquired, incorporated and/or other developments is available in the 2023 Annual Report on page 20 and on our website under "Investor Relations – Newsroom."

Exceptions

The content for the 2023 Sustainability Report was compiled by incorporating data on environmental, safety, governance, and human resources from all entities, including joint ventures in which we possess a minimum share of 50% and exercise management control. However, there is an exception where the environmental and safety information excludes the following:

1. 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, United States
- Huvis Global Corporation, United States
- Toyobo Indorama Advanced Fibers Company Limited

2. Sales and corporate offices
3. Human resources information other than human rights and employee engagement excludes joint ventures with a 50% or less shareholding and no management control
4. Information on the entities acquired, or operations commenced on or after July 1, 2023
 - Indorama Yarns Private Limited
 - Indorama Ventures Yarns Private Limited
 - PT. Indorama Ventures Sustainable Solutions Indonesia

FORWARD-LOOKING STATEMENTS

The Sustainability Report for 2023 incorporates 'forward-looking statements' with reference to the future performance of Indorama Ventures, based on projections. These statements are intended to provide stakeholders with insights into our 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 our ability to achieve our targets, and we undertake no obligation to update any forward-looking statements should 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 on 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

Independent Assurance Statement

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

Indorama Ventures Public Company Limited (hereafter 'Indorama Ventures') commissioned TUV India Private Limited (TUVI) to conduct independent external assurance of non-financial ESG indicators disclosed in Indorama Ventures's Sustainability Report 2023 (hereinafter 'the Report') for the period January 01, 2023, to December 31, 2023. This engagement comprises a "limited assurance" of Indorama Ventures's sustainability information for the applied reporting period. The Report is developed based on GRI Standards 2021, IIRC Integrated Reporting (<IR>), and AA1000AS v.3 (Type 1, Moderate Level).

Management's Responsibility

Indorama Ventures 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 Indorama Ventures 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, Indorama Ventures's management team takes responsibility for the accurate preparation of the Report in reference to the applied criteria of GRI Standards and <IR> framework. They ensure that the Report is free of any intended or unintended material misstatements, so stakeholders can trust the information provided. Indorama Ventures 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

- Verification of the application of the Report content according to material topics identified based on the double materiality, 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;
- Review of the policies, initiatives, practices, and performance described in the Report;
- Review of the ESG disclosures made in the Report against the requirements of the GRI Standards and <IR> framework;
- Verification of the reliability of the GRI Standards disclosure on environmental and social topics;
- 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 covering - Total renewable energy consumption and Total renewable electricity consumption	302-1
	Energy intensity	302-3
	Water withdrawal (from municipal supplies, lakes, river, sea , ground water, third-party water, etc)	303-3
Water and effluents ¹ (with and without water stress)	Water discharge (surface water, ground water, seawater, third-party water, etc., TDS, BOD, COD, TSS, and oil & grease as applicable)	303-4
	Total water consumption from all areas (Water withdrawal-Water discharge) and water consumption from all areas with water stress (Total water withdrawals – Total water discharges)	303-5
Emissions	Direct (Scope 1) GHG emissions	305-1
	Energy indirect (Scope 2) GHG emissions	305-2
	Nitrogen oxides (NOx)/sulphur oxides (SOx) and other significant air emissions (Volatile Organic Compounds (VOCs), particulate matters (PM) and other emissions as applicable)	305-7
Waste	Waste generated	306-3
	Waste diverted from disposal	306-4
	Waste directed to disposal	306-5
Occupational health and safety	Work-related injuries -covering LTIFR – Employees, LTIFR – Contractors, Number of days lost to injuries, accidents, fatalities (for employees and contractor)	403-9

¹ “Out of total 149 reported sites, COD was monitored at 149 sites, 68 sites sent discharge wastewater to the third party for treatment, 72 sites reported negligible COD, and no liquid discharge reported by 5 sites.”

	Work-related ill health- covering OIFR (employees and contractors), total of occupational disease cases, fatalities (employees and contractors)	403-10
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 149 operating sites across 35 countries. A remote verification (via web-based video conference calls) was conducted in November 2023 followed by February 2024. The assurance encompassed

- IRSL – Fibers (Plot No A31, MIDC, MIDC Industrial Area, Butibori, Khapa, Maharashtra 441112),
- IDPI Haldia – PET (JL-126, Mouza- Basudevpur, PS Durgachak, & JL-145, Mouza- Paranchak, PS Bhabanipur, Haldia, District: Midnapore (East), Pin-721 602, West Bengal),
- IDPI Karnal India - Integrated PET (Survey No. 217, VPO: Munak, Asandh-Kohand Road, Karnal, Haryana-132040 (India)),
- Avgol Bhopal – Fibers (Plot No. 184 & parts of Plot no. 183 & 185, Sector A, Mandideep Industrial Area, Dist. Raissen, 462046, Madhya Pradesh, India),
- Camacari – IOD (Rua Benzeno, 1065 – Pólo Petroquímico de Camaçari - 42.810-020 - Camaçari / Bahia, Brazil and Rua Amônia, S/N – Pólo Petroquímico de Camaçari - 42.810-340 - Camaçari / Bahia, Brazil).

The assurance activities were done together with a desk review for all other Indorama Ventures 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 Indorama Ventures's strategy or management of sustainability-related issues or the sufficiency of the Report against the principles of GRI Standards, IIRC Integrated Reporting (<IR>), 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 Indorama Ventures are complete and true.

Verification Methodology

TUVI adopted a risk-based approach, focusing on verification efforts on issues of high material relevance to Indorama Ventures 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,

- TUVI reviewed the approach adopted by Indorama Ventures for the stakeholder engagement and materiality determination process (based on the principle of double materiality and the requirements of the GRI Standards).
- TUVI verified the disclosures and claims made in the Report and assessed the robustness of the data management system, information flow, and controls;
- TUVI examined and reviewed the documents, data, and other information made available by Indorama Ventures for the reported disclosures, including the disclosure on management approach and performance disclosures;
- TUVI conducted interviews with key representatives, including data owners and decision-makers from different functions of the Indorama Ventures, during the remote assessments;
- TUVI performed sample-based reviews of the mechanisms for implementing the ESG related policies, as described in the Indorama Ventures Report;
- 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 GRI Standards, IIRC Integrated Reporting (<IR>), and AA100AS v.3 along with AA1000 AP (2018).

Opportunities for Improvement

The following are the opportunities for improvement reported to Indorama Ventures. However, they are generally consistent with management's objectives and programmes.

- 1) Indorama Ventures may develop the internal application for learning related to behavioral safety for India site locations,
- 2) Indorama Ventures may develop plans to induct green hydrogen in its fuel mix,
- 3) Indorama Ventures may perform a detailed climate risk analysis applicable to entire supply chain starting from raw material, transport, manufacturing, testing, packaging, finished goods transport, use phase and end of life,
- 4) Indorama Ventures can consider extending benefits of paternity leave to all employees,
- 5) Indorama Ventures may encourage their suppliers for adoption of green mobility,
- 6) Indorama Ventures may develop the climate change risk assessment and calibrate, how the group level targets are synchronize to mitigate the risk.

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.

Indorama Ventures 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 Indorama Ventures are fairly represented. TÜV did not perform any assurance procedures on the prospective information, such as targets, expectations, and ambitions, disclosed in the Report. Consequently, TÜV draws no conclusion from the prospective information. This assurance statement has been prepared in reference to the terms of our engagement.

Disclosures: TÜV is of the opinion that the reported disclosures generally meet the GRI Standards reporting requirements. Indorama Ventures refers to universal disclosure to Report contextual information about Indorama Ventures, while the ‘Management Approach’ is discussed to Report the management approach for each material topic.

Universal Standard: Indorama Ventures 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.

TÜV 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. TÜV is of the opinion that the reported material topics and topic-specific standards that Indorama Ventures 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. TÜV 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.

TÜV confirms that Indorama Ventures 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: Indorama Ventures's Engineers, technicians, skilling and re-skilling of employees to enhance their competencies, safety performance, capabilities, experience, motivations to innovate, etc.

TÜV*

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Social and Relationship Capital: Indorama Ventures'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 Indorama Ventures'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 Indorama Ventures 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: Indorama Ventures 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 determination process has been conducted and reviewed based on the principle of double materiality and the requirements of the GRI Standards, considering involvement of internal and external stakeholders in upstream and downstream value chain in identifying the material issues to the Indorama Ventures range of businesses. The Report fairly brings out the aspects, topics, and their respective boundaries of the diverse operations of Indorama Ventures. In our view, the Report meets the requirements.

Responsiveness: TÜV believes that the responses to the material aspects (identified through the Double Materiality Test) are fairly articulated in the report, i.e., disclosures on Indorama Ventures policies and management systems, including governance. In our view, the Report meets the requirements.

Impact: Indorama Ventures 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. Indorama Ventures 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 TÜV’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 TÜV’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, TÜV 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

TÜV is an independent, neutral third party providing sustainability services with qualified environmental and social specialists. TÜV states its independence and impartiality and confirms that there is "no conflict of interest" with regard to this assurance engagement. In the reporting year, TÜV did not work with Indorama Ventures on any engagement that could compromise the independence or impartiality of our findings, conclusions, and recommendations. TÜV was not involved in the preparation of any content or data included in the report, with the exception of this assurance statement. TÜV maintains complete impartiality towards any individuals interviewed during the assurance engagement.

For and on behalf of TÜV India Private Limited



Manojkumar Borekar

Project Manager and Reviewer
Head – Sustainability Assurance Service

TÜV*



Date: 27-05-2024
Place: Mumbai, India
Project Reference No: 8120813961



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CERTIFICATE

Carbon Footprint 2023

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 **01.01.2023 - 31.12.2023** (inclusive)

to be **39,107,299** 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), wastewater treatment (anaerobic and aerobic), fire suppression equipment, SF6 in electrical equipment, compressed air, chilled water, cooling water.
Scope 2: Electricity purchased (location and market based), third party electricity and heat, steam purchased, cooling and chilling. Biogenic emissions: Biomass, palm shell and bio LPG.
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, Capital goods and use of sold products (US, Thailand and Australia sites only).

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. 3537 3546


Certification Body
at TÜV NORD CERT GmbH

Essen, 2024-07-16

TÜV NORD CERT GmbH Am TÜV 1 45307 Essen www.tuev-nord-cert.com



ANNEX

to Certificate Registration No. 44 776 180191-001
for the **Carbon Footprint 2023** 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	7,102,530
Scope 2 (Location based)	2,478,410
Scope 1 and 2 (Location based)	9,580,940
Scope 2 (Market based)	2,375,660
Scope 1 and 2 (Market based)	9,478,190
Biogenic emissions	76,521
Scope 3 Purchased Goods and Services (including Nitrogen)	22,881,050
Scope 3 Upstream Transportation	665,855
Scope 3 Waste	214,770
Scope 3 Business Travel	24,488
Scope 3 Employee Commuting	42,965
Scope 3 Downstream Transportation	1,670,940
Scope 3 Emissions from electricity (T&D, WTT)	843,938
Scope 3 Emissions from Fuels (WTT)	841,191
Scope 3 Capital goods emissions	533,387
Scope 3 Use of sold products	1,807,773
Scope 1, Scope 2 (Location based) and Scope 3	39,107,299
Scope 1, Scope 2 (Market based) and Scope 3	39,004,549


Certification Body
at TÜV NORD CERT GmbH

Essen, 2024-07-16

TÜV NORD CERT GmbH Am TÜV 1 45307 Essen www.tuev-nord-cert.com





DATA REPORTING, VERIFICATION AND REPORT ASSURANCE

[GRI 2-5]

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

100% Reporting Certification and Assurance in accordance with the GRI Standards, Framework and AA1000AS by an independent auditor.

100% GHG Accounting, Verification and Assurance in accordance with **ISO 14064-1** and **ISO 14064-3** by an independent auditor.

CONTACTS AND FEEDBACK



sustainability@indorama.net



Sustainability Report
Executive Summary 2023



Annual Report 2023
(Form 56-1 One Report)



Indorama Ventures - ESG Profile





SUSTAINABILITY REPORT 2023

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THIS SUSTAINABILITY REPORT
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