

# TNFD Report

*In accordance with*

**Taskforce on Nature-related Financial  
Disclosure Framework**



## **INDORAMA VENTURES'S WAY FORWARD**

### **Mobilizing for Action**

The decline in biodiversity and ecosystem functions threatens most of the UN Sustainable Development Goals (SDGs). The protection and restoration of biodiversity are critical. Our best approach is to move from nature-negative to nature-positive activities, with the final goal of halting and reversing biodiversity loss.



### **A Win – Win Approach**

Indorama Ventures firmly believes that we can transform the biodiversity crisis into an opportunity. Not only will we be making a positive impact globally, but we also see a stronger business as a result. Healthy biodiversity promotes stability and resilience in ecosystems, which are vital for a stable supply chain. The push for more eco-friendly solutions drives innovation and opens new business opportunities. Our work enables a self-sustaining positive feedback loop, generating goodwill among beneficiary communities, consumers, and employees. This, in turn, strengthens and confirms the mission of Indorama Ventures's mission to be a world-class, sustainable chemical company making great products for society.

### **Fostering Collaboration**

Success in addressing the biodiversity crisis requires close collaboration between governments (policies and regulations), the private sector (investment), and end consumers (habits and behaviors). The decisions we make today as a society will have implications for tomorrow. We have taken our first steps to understand how the Group's business activities are not separate from biodiversity but rather integral parts of a larger ecosystem, which is important for long-term business sustainability. We strive to continue our research and take the lead in implementing good practices. We call on everyone to join us in acting responsibly.

## Table of Contents

|           |  |           |
|-----------|--|-----------|
| <b>1.</b> | <b>INTRODUCTION</b> .....                            | <b>5</b>  |
| <b>2.</b> | <b>GOVERNANCE</b> .....                              | <b>6</b>  |
| <b>3.</b> | <b>STRATEGY</b> .....                                | <b>7</b>  |
| 3.1       | Nature-related Risks and Opportunities .....         | 8         |
| 3.2       | Biodiversity Risk Frameworks .....                   | 11        |
| 3.2.1     | Biodiversity Framework.....                          | 12        |
| 3.2.2     | Reporting Methodology .....                          | 13        |
| <b>4.</b> | <b>RISK &amp; IMPACT MANAGEMENT</b> .....            | <b>16</b> |
| 4.1       | Action Plan of Indorama Ventures .....               | 17        |
| <b>5.</b> | <b>METRICS &amp; TARGETS</b> .....                   | <b>18</b> |
| 5.1       | Conservation of Biodiversity and the Ecosystem ..... | 19        |
| 5.2       | Water reduction and stewardship .....                | 20        |
| 5.3       | Waste reduction .....                                | 20        |
| 5.4       | Sustainable sourcing.....                            | 21        |
| 5.5       | Emission reduction.....                              | 21        |
| 5.6       | Reporting .....                                      | 22        |
| <b>6.</b> | <b>CONCLUSION</b> .....                              | <b>22</b> |

**List of Figures**

Figure- 1. Sustainability Governing Structure ..... 6  
Figure- 2. Interlinkage of Dependencies and Impacts on Natural Resources and Business ..... 8  
Figure- 3. Biodiversity Risk Assessment Processes .....12  
Figure- 4. Indorama Ventures’ Commitment to Sustainability Targets and performance .....18

**List of Tables**

Table 1. Impacts and Materiality Rating on our Business based on the ENCORE analysis. .... 7  
Table 2. Dependencies and Materiality Rating on our Business based on the ENCORE analysis.  
..... 8  
Table 3. Nature-related Risks and Opportunities ..... 9  
Table 4. Biodiversity Risk Metrics for Indorama Ventures .....14  
Table 5. Countries with priority sites that have potential biodiversity risk impacts for  
Indorama Ventures .....15  
Table 6. Countries with priority sites that have potential biodiversity risk impacts for  
Indorama Ventures .....16  
Table 7. Nature Risk Management Roadmap .....17

## 1. INTRODUCTION

The [World Economic Forum's Global Risk Report 2023](#) highlights biodiversity loss and the threat of ecosystem collapse are the most potentially severe risks for the next decade. The interaction of biodiversity loss, pollution, resource depletion, climate change, and socioeconomic drivers is going to result in a disastrous combination over the next ten years. It is estimated that more than half of the world's economic production depends moderately to heavily on nature. The demise of ecosystems will have profound effects on the economy and society. Increased zoonotic disease outbreaks, decreased crop yields and nutritional value, escalating water stress, potentially violent conflict, and loss of livelihoods that rely on food systems and nature-based services like pollination. Ever more dramatic floods, sea-level rises, and erosion due to the degradation of natural flood protection systems like water meadows and coastal mangroves are a few of these.

Up until recently, the biodiversity crisis was not given much attention. We have been prioritizing the climate change crisis, especially in business; however, we won't be able to make a difference if we don't prioritize biodiversity as well.

Both are inextricably linked, and if one collapses, the other will as well. For these reasons, we believe that Indorama Ventures has an important role to play in the conservation of nature and biodiversity. It is our intention to preserve biodiversity in the communities where we have influence and operate.

The Taskforce on Nature-related Financial Disclosures (TNFD) is an initiative aimed at addressing the critical link between financial systems and the natural world. Like the Task Force on Climate-related Financial Disclosures (TCFD), TNFD seeks to enhance the transparency and accountability of businesses and financial institutions regarding their impact and dependency on nature. We will be using this framework to identify Indorama Venture's impact and dependencies on nature, and assess, manage, and mitigate our risks in relation to biodiversity.

### **About Indorama Ventures**

Indorama Ventures is one of the world's leading petrochemicals producers with a presence in 35 countries, with 148 manufacturing facilities, 30,000+ employees, and a consolidated revenue of US\$ 18.7 billion in 2022. It's headquartered in Bangkok, Thailand. It operates across a diverse range of industries including fibers, packaging, chemicals, and feedstocks. The company's core business revolves around the production of intermediate petrochemicals such as purified terephthalic acid (PTA), polyethylene terephthalate (PET), ethylene oxide (EO), ethylene glycol (EG), and various specialty chemicals. These products serve as crucial inputs for various industries, including textile and apparel, beverage packaging, automotive, home furnishings, and personal care.

Indorama Ventures is actively engaged in sustainable initiatives. The company is committed to responsible manufacturing practices, resource efficiency, and environmental stewardship. It actively promotes the circular economy by implementing recycling programs and developing sustainable solutions for packaging and other applications.

In support of the UN Sustainable Development Goals (SDGs), Indorama Ventures is aware of the importance of biodiversity loss and the need to minimize its impacts on the ecosystem. Addressing biodiversity loss risk is essential for achieving the SDGs holistically and Indorama Ventures is committed to making a positive impact.

**2. GOVERNANCE**

Indorama Ventures has a robust governance structure in place to address sustainability issues effectively. The company recognizes the importance of integrating sustainability into its overall business strategy, operations, and decision-making processes.



Figure- 1. Sustainability Governing Structure

The Board of Directors provides strategic guidance and oversight on sustainability matters. The Board ensures that sustainability is integrated into the company's long-term vision, goals, and risk management practices. This top-level commitment sets the tone for sustainability throughout the organization.

There are three sub-committees to the Board: Sustainability and Risk Management Committee (SRMC), Nomination, Compensation, and Corporate Governance Committee (NCCG), and the Audit Committee.

The SRMC, which meets quarterly, is chaired by the Group CEO, and includes the Deputy Group CEO - Combined PET, IOD and Fibers businesses, Chief Strategy Officer, Chairman of ESG Council, and three independent directors. The Seven members of the SRMC work with all key functions of the organization including Communications, Risk Management, Strategy, Business Continuity Management (BCM), Environment, Health & Safety (EHS), and Sustainability in view of the broad and multidisciplinary nature of sustainability matters. More information on the individual members of the SRMC is available [here](#).

While we have a strong risk management structure in place for climate-related risks, we are moving a boundary to nature-related risks. More information on our climate risk management can be found in our TCFD report [here](#).

**3. STRATEGY**

The risks associated with climate change have a growing impact on both the ecosystem and their own commercial activities.

Nature somehow poses a material risk to business in most industries across all geographies. All businesses rely on natural resources, either directly or indirectly. Therefore, we consider the consequences as a whole and pay more attention to the impacts and dependencies of nature.

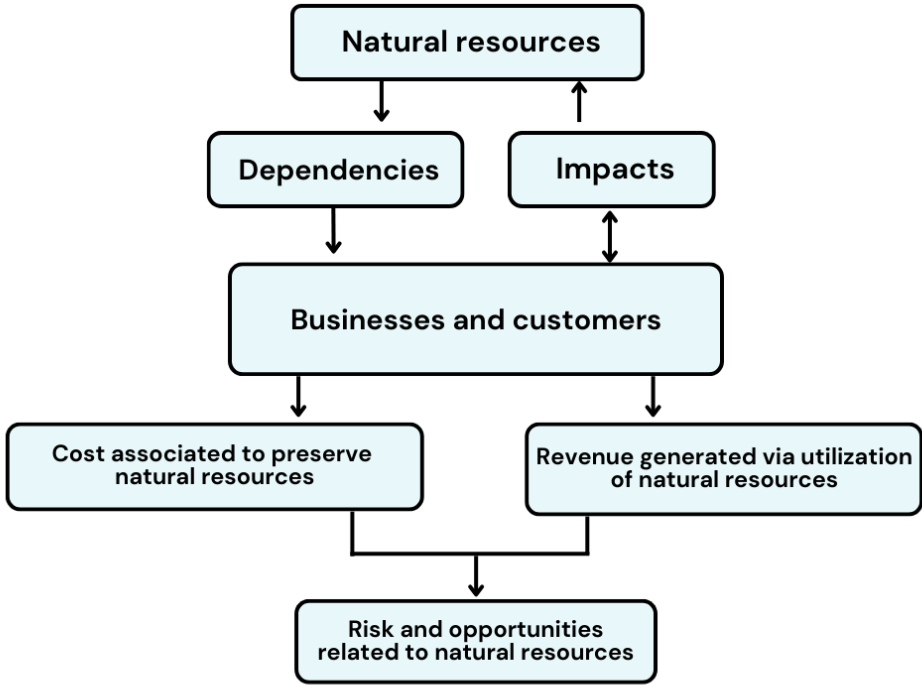
ENCORE (Exploring Natural Capital Opportunities, Risks, and Exposure) is a tool developed by the United Nations Environment Programme (UNEP). This tool aids in comprehending how our actions and decisions can impact and shape natural capital. ENCORE offers insights into opportunities for sustainable development as well as the risks linked to the overexploitation or degradation of natural resources. Indorama Ventures has identified dependencies and impacts on natural capital that hold significance for our business.

**Table 1. Impacts and Materiality Rating on our Business based on the ENCORE analysis.**

| Impacts                   | Materiality rating |
|---------------------------|--------------------|
| Water use                 | Very high          |
| Terrestrial ecosystem use | High               |
| Water pollutants          | High               |
| Soil pollutants           | High               |
| Non-GHG air pollutants    | Medium             |

**Table 2. Dependencies and Materiality Rating on our Business based on the ENCORE analysis.**

| Dependencies                           | Materiality rating |
|--|--------------------|
| Mass stabilization and erosion control | Low                |
| Mediation of sensory impacts           | Low                |
| Surface water                          | Low                |
| Ground water                           | Low                |



*Figure- 2. Interlinkage of Dependencies and Impacts on Natural Resources and Business*

**3.1. Nature-related Risks and Opportunities**

For Indorama Ventures, it is significant to consider the potential impact on the ecosystem and species, and thus, our dependencies and impacts are highlighted in tables 1 and 2.

Although nature-related risks often overlap with non-financial and financial aspects and interdependencies. Below are the major risks and opportunities identified for Indorama Ventures at the group level.



**Table 3. Nature-related Risks and Opportunities**

| Nature related Risk |   |   |
|---------------------|---|---|
| Physical            | <ul style="list-style-type: none"> <li>• Increase severity of extreme weather events such as cyclones, droughts, and floods, and natural disasters will affect acute disturbance of operation, resulting in acute disturbance.</li> <li>• Increase in vulnerability of ecosystem will have effects on business activities.</li> <li>• Raw material cost, operational cost, and management cost.</li> </ul>  |   |
| Transition          | <p><u>Regulatory</u></p> <ul style="list-style-type: none"> <li>• Expanding number of policy interventions</li> <li>• Requiring additional disclosure specifications</li> <li>• Risk of current and future legislation leading to restriction of operations at certain sites of operation or delays to specific projects.</li> <li>• Risk of forthcoming regulation leading to new standards</li> <li>• Clean up and compensation costs.</li> <li>• Biodiversity-related taxes, fees, and charges e.g., Taxation like Carbon Emission tax, Prohibition on resource extraction and utilization like water and land</li> <li>• Licensing to continue to operate.</li> </ul> | <p><u>Operational</u></p> <ul style="list-style-type: none"> <li>• Resource dependency, scarcity, and quality: reduced availability of natural resources and raw materials (from both renewable and non-renewable)</li> <li>• Operational and supply chain disruption</li> <li>• Potentially higher costs of doing business.</li> </ul> |
|                     | <p><u>Market</u></p> <ul style="list-style-type: none"> <li>• Loss of consumer demand and investor security.</li> <li>• Getting green investments and loans or having higher cost of capital.</li> <li>• Risk of production due to input price and its cost due to restrictions on sourcing and decline of global abundance of resources.</li> </ul>  | <p><u>Reputational</u></p> <ul style="list-style-type: none"> <li>• Increasing pressure from stakeholders</li> <li>• Reputation damage from environmental and social impacts</li> <li>• Social Unrest</li> <li>• Affecting to social license to operate.</li> </ul>   |

- End of life of product would have the cost on collection and recycling.
- Declining brand value.

## Nature related Opportunities

### Compliance and Transparency

- Proactively aligning with evolving regulations
- Demonstrating commitment to responsible practices
- Integrating the identified biodiversity risks into multidisciplinary company-wide risk
- Engaging in dialogue with regulatory authorities can provide opportunities to support policies and regulations development.
- Potentially attracting government incentives or grants.

### Operational Excellence

- Implementing Biodiversity Risk Assessment
- Implementing operational eco-efficiency measures e.g., modern technologies, circular value chain
- Management processes
- Enhancing emergency response capabilities business continuity management that can minimize operational disruptions and associated costs

### Investment, Expansion and New Market

- Developing innovative and sustainable products e.g., lower carbon footprint, circularity
- Attracting investors
- Biodiversity-linked Sustainable Finance

### Reputational

- Embracing innovative technologies and processes that promote sustainability and biodiversity.
- Engaging and creating opportunities for dialogue with stakeholders

### 3.2. Biodiversity Risk Frameworks

We utilize two beneficial tools to comprehensively identify and analyze our biodiversity risk for Indorama Ventures.

**Integrated Biodiversity Assessment Tools (iBAT)** is a useful tool that provides a rapid screening assessment and helps in identifying impact areas of high biodiversity value.

The International Union for Conservation of Nature (IUCN), Birdlife International, the World Conservation Monitoring Centre, United Nations Environment Programme and Conservation International have joined alliance to create the Integrated Biodiversity Assessment Tool (iBAT).

To estimate the threat of extinction for a species based on current, past, and future threats, Species assessments are conducted following a structured approach, utilizing the strict IUCN Red List Categories and Criteria. IUCN usually evaluates each species' Red List category every five to ten years. This reevaluation will allow us to track the changes in the species' status over time. Species' populations may increase, decrease, or remain stable due to various factors such as habitat loss, climate change, conservation efforts. Thus, we need to emphasis our strategy based on these changes.

The mean score linked with the Species Threat Abatement and Restoration Metric (STAR) is also offered by iBAT, allowing us to estimate the relative opportunities for positive biodiversity action.

**WWF Biodiversity Risk Filter** is an online tool that enables industries and financial institutions to Inform, Explore, Assess, and Respond to biodiversity risks. Biodiversity Risk Filter uses spatial data, such as maps of important ecosystems and species distributions, to provide valuable insights into the potential impacts of developing and existing projects on biodiversity. Biodiversity Risk filter helps to define the potential risks on operational sites, supply chains, and investments which help to focus on our efforts and actions to address them. The tool calculates a scape risk for 33 different indicators, each indicator representing an aspect of biodiversity-related risk. For each of the indicators, a scape risk score is calculated based on assessment of the condition of that aspect of biodiversity at a specific location and the dependency and impact of the industry sector on that indicator.

### 3.2.1. Biodiversity Framework

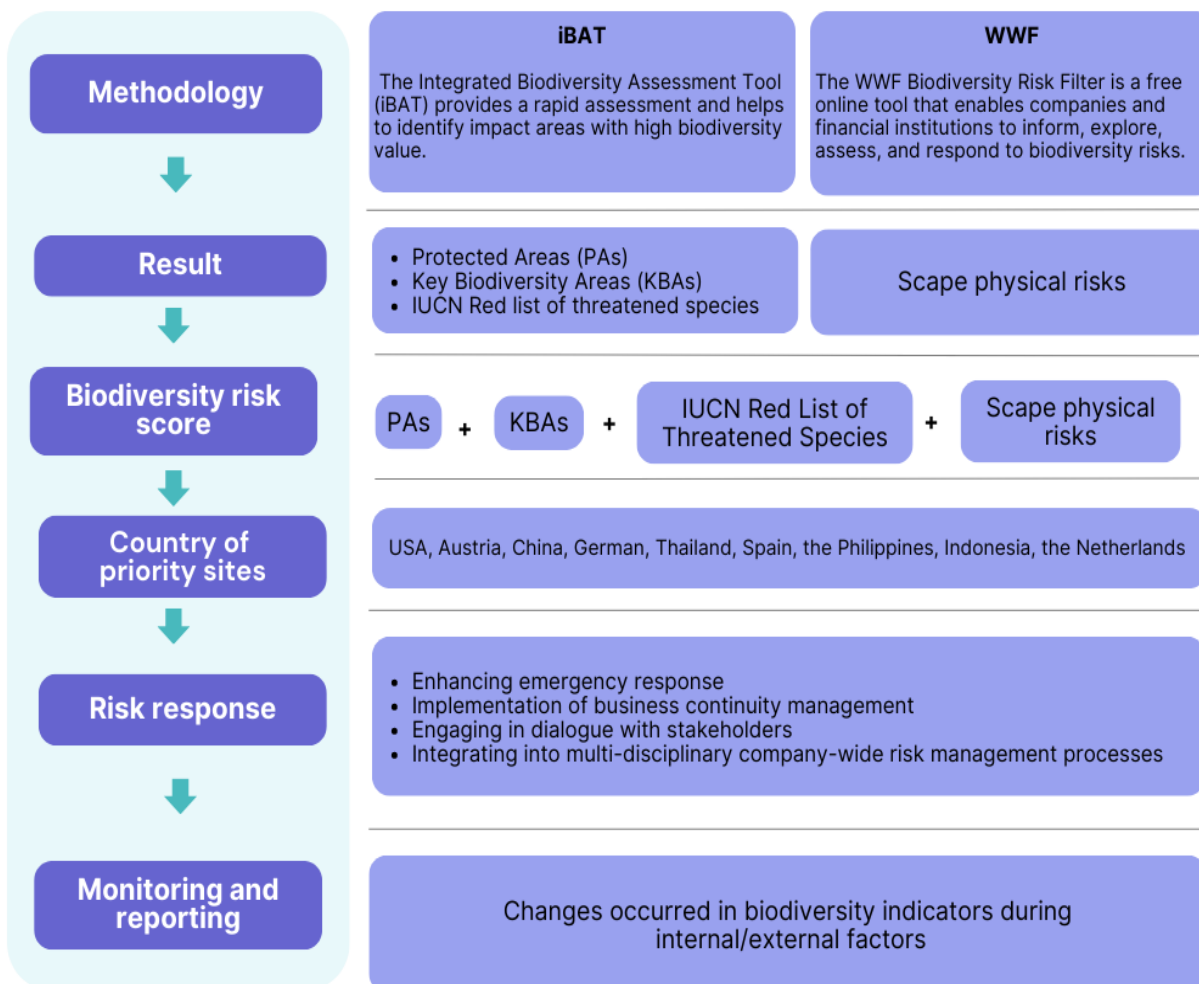


Figure- 3. Biodiversity Risk Assessment Processes

At both the corporate and business levels, iBAT and WWF biodiversity risk filter tools and techniques serve a valuable purpose in categorizing and prioritizing biodiversity risk. The evaluation of Protected Areas (PAs), Key Biodiversity Areas (KBAs) at operational sites and the IUCN Red List of Threatened Species helps in identifying priority sites and developing the biodiversity risk process.

Biodiversity risk emerges from the interlinked dependencies and impacts of businesses on local and global biodiversity. Primary research includes the diversity and intactness of ecosystems, the diversity and abundance of species and genes. Based on the existing requirements from reporting bodies, Indorama Ventures classifies risk types and risk categories into physical risk and transition risk, which are comprised of regulatory risk, reputational risk, and market risk in biodiversity risk assessment.

Based on the institutional questionnaires and rating expectations, Indorama Ventures underlines the importance of risk management while trying to depict the least impact on business and no impact on biodiversity and ecosystems.

Our iBAT analysis focused on various categories including Critically Endangered (CR), Endangered (EN), and Vulnerable (VU). Some of these species rely on geographic locations for breeding and survival. They hold a crucial place within the food chain, supporting both flora and fauna. Preservation of ecological niches becomes paramount for species habitats. Identifying these vital habitats is a significant priority for Indorama Ventures, as they contribute to the conservation of threatened species.

### **3.2.2 Reporting methodology**

TNFD framework is used to define methods and guidelines for risk assessment for biodiversity and ecosystem services, with risk assessment tools like iBAT and the WWF Biodiversity Risk Filter, which cover all 148 sites of Indorama Ventures (as of June 2023).

This TNFD report has been developed in accordance with the TNFD's risk management and disclosure framework, which aims to enable organizations to report and act on evolving nature-related risks. We incorporate the risk assessment results conducted via the iBAT tool and the WWF Biodiversity Risk Filter, which covers all 148 sites of Indorama Ventures (as of June 2023). During the desktop research, the number of species identification was carried out based on the Red List of IUCN for each site. Identified species living in and around the project area or within protected areas or areas with high biodiversity and species within 30 km and 50 km of the site area, respectively.

Reference to methodologies used for assessment of Physical and Reputational risks. WWF biodiversity risk filter and iBAT tools for assessing the potential risks and effects on biodiversity associated with a company's operations as a location-specific approach.

#### **1) Habitat Mapping**

Habitat mapping provides valuable information about different species and their distribution. It reveals how different habitats are interconnected with each other, like routes and areas. For that, we utilized the existing tools to identify species which are threatened species like Critically Endangered (CR), Endangered (EN), and Vulnerable (VU) and are dependent on location for breeding and survival.

#### **2) Identification of impact on affect species**

Impact assessment is an ongoing process to assess the potential and negative consequences on ecosystem interaction. Consideration of species-specific sensitivities and external influence on species location, Changes in daily activity patterns, migration patterns are some evaluating factors to check the species population in and around the operation area.

### 3) Identification of Invasive species

Domination of alien or invasive species in the local area or project area may trigger the rate of extinction of local species through their best-fit survival competition. In a business context, where we have a supply chain extend to meet demand for raw materials, these invasive species might propagate into the site area. This would lead to disruptions in the food web and the order of the food chain in the Key Biodiversity Areas (KBAs) and hamper the operation.

### 4) Identification of species based on the IUCN classification for site

Through desktop research, number of species identification was conducted. Utilizing the IUCN Red List of Threatened Species within a 50 km radius, a diverse spectrum of species within and surrounding sites, including protected areas or zones contiguous to key biodiversity areas, were encompassed. Using the iBAT tool, we quantified species falling under the Critically Endangered (CR), Endangered (EN), and Vulnerable (VU) categories according to the IUCN Red List of Threatened Species, all within a 50 km radius of each site.

### 5) Distance criteria for Biodiversity Risk Assessment

Distance criteria play a crucial role in ensuring that the assessment captures both direct and indirect impacts on biodiversity. Utilizing the iBAT tool, the assessment encompasses risk-associated regions within a 50 km radius. Enterprises situated in key biodiversity areas are susceptible to biodiversity risks tied to shifts in land use and land cover.

**Table 4. Biodiversity Risk Metrics for Indorama Ventures**

| Risks arising from Site Operations |  | Protected Areas & Key Biodiversity Areas |                              |                               |
|------------------------------------|--|--|------------------------------|-------------------------------|
|                                    |  | < 10 km.<br>(Number of Sites)            | < 20 km<br>(Number of Sites) | < 30 km.<br>(Number of Sites) |
| Low                                | The site impacts indicate that such impacts are significant with a negligible risk.      | Not enough data                          | Not enough data              | 143 sites                     |
| Moderate                           | The nature of the site impact suggests that the impact is significant with moderate risk | Not enough data                          | Not enough data              | 2 sites                       |

|                  |   |                 |                 |                |
|------------------|---|-----------------|-----------------|----------------|
| <b>High</b>      | The nature of site impacts suggests that the impacts are significant with a high-level of risk. | Not enough data | Not enough data | <b>2 sites</b> |
| <b>Very high</b> | The nature of site impacts suggests that the impacts are significant with a high-level risk.    | Not enough data | Not enough data | <b>2 sites</b> |

This report also encompasses data in line with the Global Reporting Initiative (GRI) standard i.e., GRI 304: Biodiversity. For each operational site, the report provides the following biodiversity-related features, counts of Protected Areas (PAs) and Key Biodiversity Areas (KBAs) within the designated radius of the operational sites, as well as counts of IUCN Red List species potentially found within a 50 km radius.

The identification of priority sites in nine countries with potential biodiversity risk impact at Indorama Ventures is informed by IUCN data (KBAs, PAs) and the WWF Risk Filter (Physical Risk score). Based on these assessments, locations are categorized and prioritized according to their scores, leading to the designation of priority sites.

**Table 5. Countries with priority sites that have potential biodiversity risk impacts for Indorama Ventures**

| America | Europe   | Asia  |
|---------|--|---|
| USA     | Austria<br>Germany<br>The Netherlands<br>Spain | China<br>Indonesia<br>The Philippines<br>Thailand |

#### 4. RISK & IMPACT MANAGEMENT

Indorama Ventures implements several tools to identify and evaluate potential nature-related impacts and dependencies associated with its operations. While climate related tools can be found in our [TCFD report](#), specific biodiversity related tools include [iBAT](#) and [WWF Biodiversity Risk Filter](#). iBAT incorporates the IUCN Red List, information on Protected Areas (PAs), and Key Biodiversity Areas (KBAs) to assess the potential impact on biodiversity and prioritize conservation efforts. Additionally, WWF Biodiversity Risk Filter is used to evaluate physical risks related to ecosystem services, helping to identify potential vulnerabilities and develop strategy, action plan and mitigation measure.

From the outcomes of the assessment, we also analyze nature-related risks in terms of their financial impact, particularly if sites with the highest risk score (as mentioned above in Table 5 above) encounter the severe situation that finally results to plant shutdown and business failure. The estimated impact against 2022 production and EBITDA are summarized in Table 10.

**Table 6. Countries with priority sites that have potential biodiversity risk impacts for Indorama Ventures**

|                                   | Production Loss<br>(Million tons)         | EBITDA Loss<br>(Million USD) | EBITDA loss from shutdown<br>(Million USD) |         |         |
|-----------------------------------|---|------------------------------|--|---------|---------|
|                                   |   |                              | 30 days                                    | 60 days | 90 days |
| Top 10 highest biodiversity risks | 1.72<br><i>(10 % of total production)</i> | 68                           | 11.2                                       | 22.4    | 33.5    |

Note: In 2022, total production was 16.75 million tons and total EBITDA was 2,251 million USD.



## 4.1. Action Plan of Indorama Ventures

Based on our research and assessment, we have identified the following short, medium, and long-term actions for Indorama Ventures in the context of biodiversity risk management.

We are in the process of integrating biodiversity-related risk, which is a new initiative, into our company strategy to develop the action plans and response strategies. We have initiated this process with climate indicators, aligning with our decarbonization strategies and will subsequently extend our focus to other indicators that will support the company's vision and strategy.

**Table 7. Nature Risk Management Roadmap**

| Short-Term (0- 5 years)   | Mid-term (6 -10 years)  | Long-Term (11-30 years)   |
|---|---|---|
| <ul style="list-style-type: none"> <li>• Educate our employees about biodiversity.</li> <li>• Set a strategy with our risk team.</li> <li>• Develop Biodiversity Risk Mitigation Action Plan (BRMAP) for priority sites.</li> </ul> | <ul style="list-style-type: none"> <li>• Conduct biodiversity assessment covering more metrics.</li> <li>• Develop Biodiversity Risk Mitigation Action Plan (BRMAP) for all Indorama Ventures sites.</li> <li>• Set biodiversity targets.</li> <li>• Develop a global policy to support biodiversity and deforestation regulations</li> </ul> | <ul style="list-style-type: none"> <li>• Monitor progress and data reporting to see if we are on track for our targets.</li> <li>• Identify and take mitigation action for impacts and dependencies of our suppliers and our products.</li> </ul> |

We completed the initial biodiversity risk assessment for Indorama Ventures in June 2023, focusing on our own operations in the first phase. We evaluated the impact and dependencies of all our sites on biodiversity and ecosystem services. This encompassed considering IUCN red list species within approximately a 50 km radius of site locations, as well as Protected Areas (PAs), and Key Biodiversity Areas (KBAs) around a 30 km radius of site locations, and risks relating to ecosystem services. From these assessments, we have found the top 9 countries for the initial phase of our Biodiversity

Action Plan (BAP). These sites are situated in the USA, Austria, China, Germany, Thailand, Spain, the Philippines, Indonesia, and the Netherlands.

## 5. METRICS & TARGETS

For the years 2025 and 2030, Indorama Ventures has established several sustainability goals to guide our company’s operations and address the opportunities, risks, and dependencies associated with nature and biodiversity.

The protection and restoration of biodiversity assume paramount importance as we are to collectively achieve our sustainability goals. We are committed to protecting nature and natural resources by actively supporting green projects that contribute to decarbonization which leads to the mitigation of climate change and biodiversity conservation. As we initiated emphasis on identifying our risk from Climate Change, pollution load in water, air, and environmental degradation within our reporting boundaries. Our Target are in align with upcoming mitigation strategy and action plan.

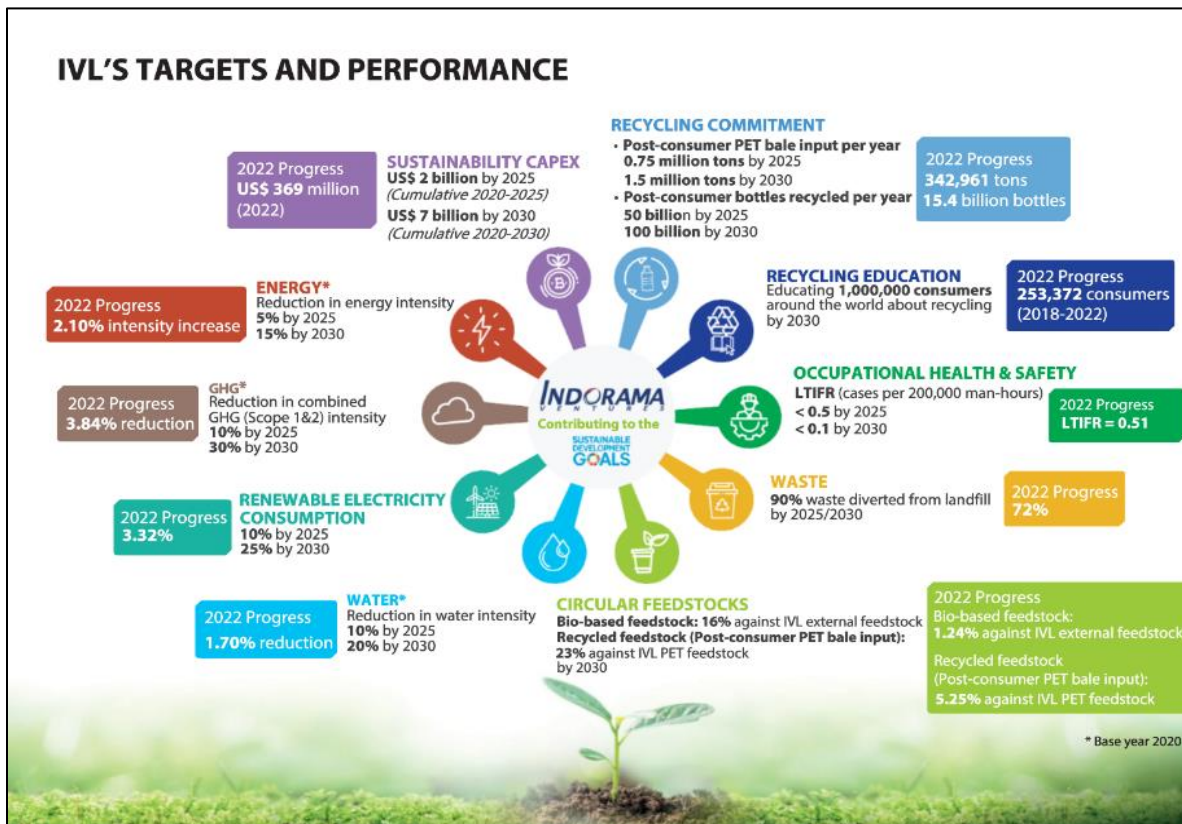


Figure- 4. Indorama Ventures’ Commitment to Sustainability Targets and performance

## 5.1. Conservation of Biodiversity and the Ecosystem

At Indorama Ventures, we place an emphasis on biodiversity conservation, as reflected in our [Biodiversity Statement](#). We will ensure that we do not conduct operations in nationally significant areas or habitats, such as World Heritage Sites or International Union for Conservation of Nature (IUCN) protected areas. We are integrating biodiversity into our strategy and decision-making processes. We actively adopt preventive, minimization, and improvement measures to protect all species and habitats, including those at risk and of high biodiversity value. We are prioritizing our knowledge among stakeholders to promote research related projects for biodiversity conservation and initiate steps to enhance and restore ecosystems. Our approach also involves the engagement of local communities, adherence to sustainable practices, and the implementation of the mitigation strategy. Furthermore, we align our efforts with the United Nations Sustainable Development Goals (SDGs), especially SDG 14 and SDG 15, which focus on Life Below Water and Life on Land.

Indorama Ventures commits to protecting threatened species and damaged habitats, including those under threat and of high biodiversity value, through preventive, minimization, and improvement measures.

### **Our Biodiversity pathway includes:**

- Environmental protection initiatives to improve water quality, conserve soil, and preserve native areas and wildlife.
- Forest preservation activities in collaboration with local communities generate sales and income opportunities for the population.
- Development of small producers working with nature-based raw materials through agro-forestry, local vegetation, and restoration in our IOD business without negatively impacting their operations (e.g., palm oil and sugar cane).

Indorama Ventures extends its commitment to biodiversity conservation by urging suppliers to follow our Biodiversity Statement.

Through these actions, Indorama Ventures demonstrates our dedication to responsible business practices and the preservation of biodiversity in ecologically important areas and habitats.

In our efforts towards biodiversity management, we utilize the WWF Risk Filter tool to conduct a thorough risk assessment. By doing so, we will be able to identify and prioritize biodiversity conservation strategies for high-impact sites over the next five years. Our assessment process was completed in June 2023, with the aim of establishing the initial set of biodiversity management strategies by 2025.

## Case studies of Indorama Ventures

### 1.) Indorama Ventures Xylenes & PTA (IVXP), USA

The Wetlands Edge Environmental Center (WEEC) was established to educate students on responsible environmental and natural resources stewardship. This site has been certified by the Wildlife Habitat Council (WHC), a non-profit organization dedicated to enhancing the quality and quantity of wildlife habitats on corporate, private, and public lands. The WEEC facility consists of an aquatic life exhibit structure with two floors of touch tanks, a 1,650-gallon marine tank, and a 780-gallon freshwater ecosystem. Furthermore, more than two miles of pathways traverse the 320-acre habitat, allowing visitors to witness a swamp, a marsh, bottomland hardwoods, upland species, young pines, and one of the world's largest white oak trees.

### 5.2. Water reduction and stewardship

Indorama Ventures is committed to water reduction and stewardship as part of its broader environmental sustainability efforts. Indorama Ventures implements a range of initiatives to minimize water usage, promote responsible water management across its operations, and actively contribute to the conservation and responsible management of water resources. These include implementing efficient water management practices, adopting water-saving technologies, conducting regular audits to identify areas for improvement, promoting water recycling and reuse, promptly addressing water leaks, engaging stakeholders to raise awareness about sustainable water practices, and ensuring compliance with water regulations. By 2025, we committed to

- Water intensity reduction 10% by 2025 and 20% by 2030.

\*Base year 2020

### 5.3. Waste reduction

We manage our waste responsibly, strive to exceed regulatory requirements. We also ensure that our waste and hazardous waste are disposal through authorized vendors who reuse, recover, or recycle waste in an environmentally and sustainable sound manner.

- We committed to manage our own waste at our own sites with proper due diligence of waste, especially hazardous waste, by following the guidelines on regulatory bodies from respective government time to time.
- We committed to divert 90% of waste from our site to landfills by 2025.

\*Base year 2020

The achievement of the Zero Waste to Landfill (ZWL) certificate by Indorama Polyester Industries Public Company Limited in Rayong, Thailand exemplifies a waste project that contributes to biodiversity preservation. By implementing sustainable practices and responsible waste management, these companies have proven their commitment to conserving resources and minimizing environmental impacts. The ZWL certification recognizes their achievement of over 99% diversion rate management, meaning that almost all waste generated is being reused or recycled rather than ending up in landfills. By reducing waste and promoting resource efficiency, such initiatives help to protect water quality, preserve aquatic habitats, and support ecosystem functioning, ultimately benefiting biodiversity.

#### **5.4. Sustainable sourcing**

Our suppliers are required to adhere to all relevant environmental laws, regulations, and standards. Our Supplier Code of Conduct has been upgraded to a Responsible Sourcing Policy, encompassing guidelines concerning the procurement of palm oil, palm kernel oil, and derivatives. The policy includes legal compliance, ethical considerations, and human rights issues, including child and forced labor, health and safety, anti-bribery and corruption, mutual trust and respect, and environmental performance monitoring, among other key metrics.

Suppliers are expected to actively work towards minimizing the environmental impacts of their activities and products, including greenhouse gas emissions and energy consumption, and to ensure that their development efforts do not compromise local biodiversity and ecosystems.

We are in the process of planning engagements and educational initiatives to inform stakeholders about biodiversity and its relevance to our company. These efforts will involve press releases, training programs, and workshops.

In 2022, we implemented ESG (Environmental, Social and Governance) capacity-building programs, with a primary focus on our raw material suppliers that has contributed to approximately 90% of our raw material spending by 2025 and has successfully engaged with over 45% of suppliers within this category.

#### **5.5. Emission reduction**

We have broadened our vision towards 2030 with a new purpose statement: “Reimagining Chemistry Together to Create a Better World.” Vision 2030 stands for the significant progression of our continued journey towards net zero. We committed to

- GHG management: GHG (Scope 1 & 2) Intensity Reduction 10% by 2025 and 30% by 2030
- Energy Intensity 5% by 2025 and 15% by 2030
- Renewable Electricity consumption 10% by 2025 and 25% by 2030
- 90% of waste diverted from landfill by 2025 and 2030.

\*Base year 2020

Our green projects are helping the company to achieve its operational efficiency targets, increase its use of renewable energy (especially renewable electricity - both onsite generation and offsite procurement through power purchase agreements), implement new decarbonization technologies including carbon capture, introduce bio-feedstock to its petrochemical value chain, and expand its PET recycling capability.

Emission reduction has significant positive effects on biodiversity. By mitigating climate change, preserving habitats, improving water quality, and conserving ecosystem services, emission reduction directly and indirectly supports diverse species and ecosystems. It helps slow down the rate of climate change, minimize habitat destruction, and reduce pollution-related harm to plants and animals in the area. By addressing the root causes of emissions and promoting sustainable practices, emission reduction plays a crucial role in safeguarding biodiversity and ensuring the long-term well-being of our planet's ecosystems.

## 5.6. Reporting

We regularly report on our progress and performance that made against our targets in sustainability report. In line with Task force Nature-related Financial Disclosure (TNFD) framework our commitments to aligned with Biodiversity and reforestation. We will further develop targets in line with our biodiversity strategy and action plan and disclose biodiversity related performance according to TNFD final draft (v.04) framework that will be published in September 2023.

## 6. CONCLUSION

Indorama Ventures demonstrates an unwavering commitment to understanding and mitigating the consequences of its business activities on ecosystems and nature at large. The company places significant emphasis on measuring and transparently reporting its environmental impact, proactively managing risks, and continually enhancing its sustainability performance. Moving forward, Indorama Ventures pledges that any future production sites will adhere to the mitigation hierarchy and remediate any significant impacts on biodiversity loss within our ecosystem. For more information on our biodiversity-related commitments, please refer to our [Biodiversity Statement](#).

Following the recommended disclosures from the TNFD, Indorama Ventures has assessed nature impacts, dependencies, risks, and opportunities. Information was collected using the ENCORE tool, iBAT, and the WWF Biodiversity Risk Filter.

The impacts and materiality ratings on our business are as follows:

- Water Use (Very high)
- Terrestrial Ecosystem Use (High)
- Water Pollutants (High)
- Soil Pollutants (High)
- Non-GHG Air Pollutants (Medium)

The dependencies and materiality ratings on our business are as follows:

- Mass Stabilization and Erosion Control (Low)
- Mediation of sensory impacts (Low)
- Surface water (Low)
- Groundwater (Low).

The results from iBAT and WWF Biodiversity Risk Filter indicate that we have covered all our sites. This indicates that there are 9 priority countries with potential biodiversity risk impact on Indorama Ventures, and we will utilize this information for developing our action plan in the next phase.

Achieving success in nature conservation necessitates collaborative efforts from governments, the private sector, and end consumers. Governments play a critical role in implementing policies and regulations that support nature preservation. The private sector, including companies like Indorama Ventures, can contribute through investments in sustainable practices and technologies. Similarly, end consumers can drive positive change through conscious consumption habits and behaviors. Indorama Ventures acknowledges the long-term implications of present decisions and actively strives to comprehend the interconnectedness of its business activities with biodiversity and the broader ecosystem. Through ongoing research, implementation of best practices, and assuming a leadership role, Indorama Ventures endeavors to effect positive change and inspire others to embrace responsible action.

In conclusion, Indorama Ventures is resolutely committed to taking responsible action and mitigating the impact of its operations on ecosystems and nature. By embedding sustainability considerations into its business practices, Indorama Ventures aims to significantly contribute to the preservation of biodiversity and foster a harmonious relationship between business and nature.

## **Appendix 1 - Abbreviation**

### List of abbreviation is used:

- 1) BAP - Biodiversity Action Plan
- 2) BRMAP - Biodiversity Risk Mitigation Action Plan
- 3) ENCORE - Exploring Natural Capital Opportunities, Risks and Exposure
- 4) KBA – Key Biodiversity Area
- 5) GHG – Green House Gases
- 6) PA – Protected Area
- 7) PET – Polyethylene Terephthalate
- 8) TNFD - Task Force on Nature-Related Financial Disclosures
- 9) TCFD - Task Force on Climate-Related Financial Disclosures
- 10) SDGs – Sustainable Development Goals
- 11) WEEC - Wetlands Edge Environmental Center
- 12) WWF - World Wildlife Fund
- 13) ZWL - Zero Waste to Landfill