



Charoen Pokphand Group

Climate & Nature Resilience Supplement 2025

(IFRS S2 & TNFD)



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Introduction



Introduction

Climate change and biodiversity loss are increasingly impacting the economy, society, and business operations. Companies across sectors face environmental risks that may disrupt operations, supply chains, investment strategies, and competitive positioning. To effectively respond to these challenges and unlock opportunities for sustainable growth, organizations are encouraged to adopt environmental disclosures aligned with internationally recognized frameworks such as IFRS S2 and the Taskforce on Nature-related Financial Disclosures (TNFD).

Charoen Pokphand Group is aware that its wide range of businesses; spanning agricultural and food, retail, telecommunication to financial and banking, not only impact the environment but also depend on natural resources and ecosystem services. This dual relationship creates business risks impacts, such as deforestation, emissions, and resource depletion can lead to regulatory challenges, reputational damage, and shifting consumer expectations, while the Group's dependency on clean water, healthy soil, and stable climate makes it vulnerable to environmental degradation and climate change.

Recognizing these interconnected risks, Charoen Pokphand Group is committed to strengthening environmental risk management to support long-term business resilience and sustainability. As a result, this report has been prepared to outline the risks and opportunities related to climate and nature, along with the organization's management strategies that support the broader sustainability objectives as follows:



**Strengthen risk management
by addressing climate and
nature-related risks**



**Support sustainable investment
and clarify climate and nature-
related financial risks**



**Boost transparency and
investor confidence by
providing reliable ESG data
for better decisions**



**Unlock financial opportunities
through green finance,
sustainability-linked loans,
and carbon markets**

Risk Assessment Framework

Effective risk management is a cornerstone of sustainable business operations and organizational resilience. Charoen Pokphand Group recognizes the dynamic nature of risks in today's interconnected global landscape and strives to integrate comprehensive strategies to identify, evaluate, and mitigate risks effectively. The Risk Assessment Framework provides a structured approach, aligned with globally recognized standards and principles, to ensure compliance, safeguard assets, and achieve long-term sustainability as follows:

- Charoen Pokphand Group's Corporate Governance Principles
- Charoen Pokphand Group's Codes of Conduct
- COSO Enterprise Risk Management Framework 2017
- ISO 31000:2018 – Enterprise Risk Management Guidelines
- ESG Integrated Risk Management by WBCSD
- IFRS S1 and S2
- Taskforce on Nature-related Financial Disclosure



Taskforce on Nature-related
Financial Disclosures

Governance



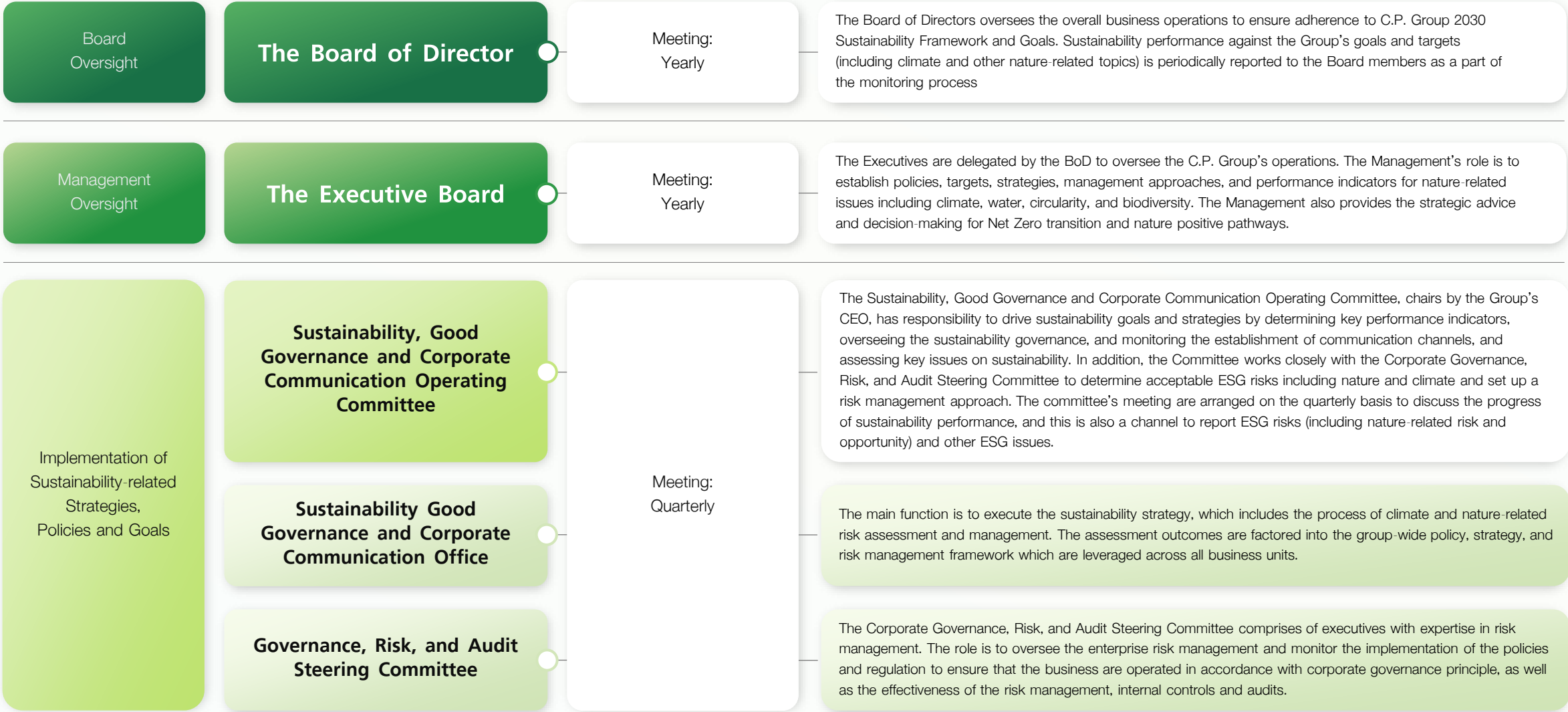
Governance

Charoen Pokphand Group has established a robust governance structure to oversee climate and nature-related risks in alignment with the Task Force on Climate-related Financial Disclosures (TCFD) and the Taskforce on Nature-related Financial Disclosures (TNFD). The governance structure consists of the Board of Directors (BOD), led by the Chairman, and the Executive Board, chaired by the Chief Executive Officer (CEO). To ensure the integration of climate and nature-related risk management, C.P. Group has set up the Sustainability Committee and the Corporate Governance, Risk, and Audit Steering Committee. These committees play a critical role in: identifying and managing risks and opportunities related to climate change and nature loss. driving the implementation of TCFD and TNFD-aligned strategies across all business units.

Charoen Pokphand Group enhances corporate resilience by integrating environmental, social, and governance (ESG) considerations into business decision-making. At the executive level, the organization is structured into eight key functions, including Sustainability, Good Governance, Corporate Communication (SGC) Office, and Corporate Compliance Office. These functions play a vital role in: Implementing C.P. Group's sustainability strategy based on TCFD and TNFD principles, Ensuring nature- and climate-related risks are appropriately managed under a comprehensive risk management framework. Aligning corporate reporting with international sustainability disclosure standards, such as IFRS S2, GRI, and CDP By integrating TCFD and TNFD principles, C.P. Group is committed to enhancing transparency, accountability, and resilience, ensuring long-term value creation for all stakeholders.



Role and Responsibility



Strategy



Risk Identification

In an era of escalating environmental challenges, businesses are increasingly exposed to climate and nature-related risks that threaten operational stability, supply chain resilience, and long-term financial performance. As the global climate continues to change, the intensifying frequency and severity of extreme weather events, biodiversity loss, and ecosystem degradation demand a proactive approach to risk identification, assessment, and management.

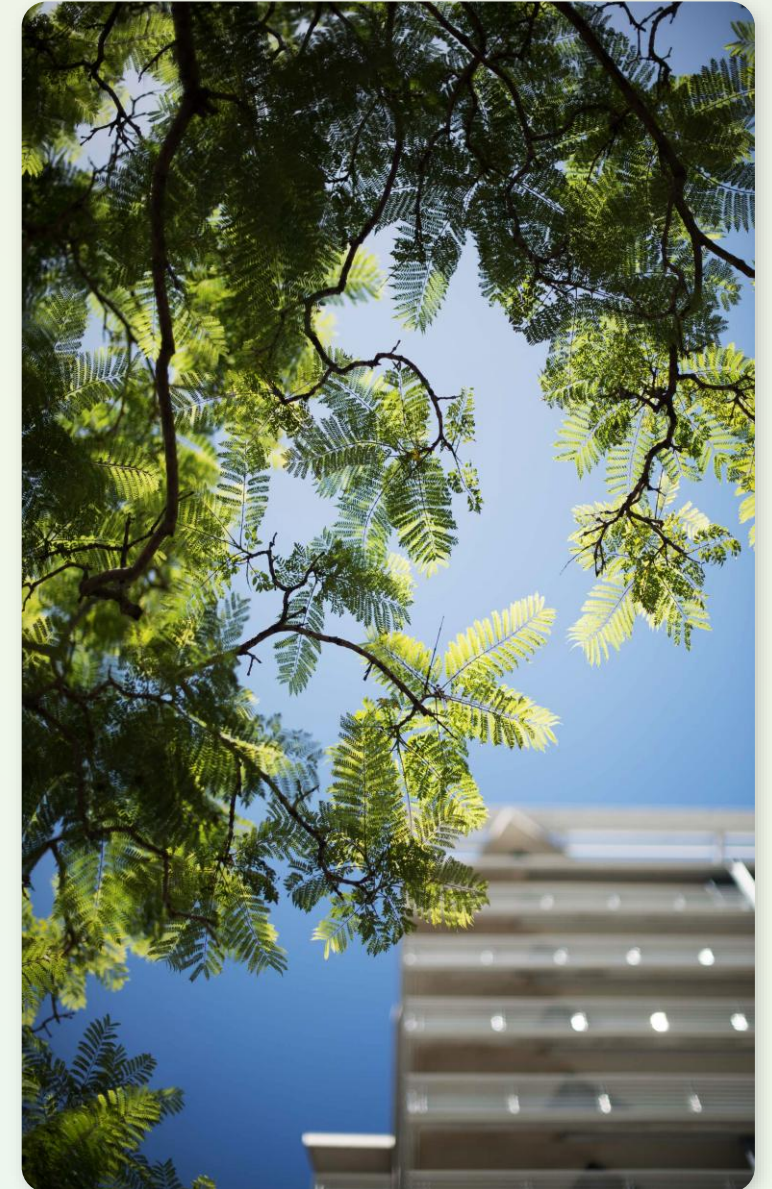
For Charoen Pokphand Group, a global conglomerate with a diverse portfolio spanning agribusiness, food production, retail, telecommunications, and industrial ventures, these risks are particularly material. With extensive agricultural and food supply chain operations, the Group is vulnerable to climate-induced disruptions, such as shifting precipitation patterns, extreme heat, water scarcity, and biodiversity decline. These can directly impact crop yields, livestock health, seafood production, and overall food security.

At the same time, these challenges present significant opportunities for Charoen Pokphand Group to future-proof its operations. By identifying emerging risks and opportunities, such as regulatory shifts, carbon pricing, and nature-related opportunities, the Group can enhance strategic planning, innovate sustainable products and practices, and strengthen resilience across value chains. Proactively aligning with global frameworks and responding to evolving consumer expectations for sustainability also positions CP Group to unlock green finance, improve brand trust, and build long-term business value.

This chapter aims to systematically assess and categorize the key climate and nature-related risks impacting Charoen Pokphand Group's operations, with a particular focus on their direct and indirect effects on production efficiency, regulatory compliance, and market competitiveness..

By identifying these risks, Charoen Pokphand Group can develop strategies to enhance resilience, mitigate financial and reputational threats, and capitalize on emerging opportunities in the transition to a more sustainable and nature-positive economy. The assessment framework considers both physical risks such as rising temperatures, shifting precipitation patterns, and natural disasters and transition risks, including regulatory shifts, market changes, and evolving consumer expectations. Additionally, nature-related risks such as deforestation, water scarcity, and biodiversity loss are analyzed for their potential impact on Charoen Pokphand Group's long-term sustainability.

By systematically identifying climate and nature-related risks, Charoen Pokphand Group can build adaptive strategies to not only safeguard its assets but also align with global sustainability goals, strengthen stakeholder trust, and secure long-term value creation.



Climate Nexus Nature-related Risk and Opportunity

In recent years, climate change and nature-related issues have consistently ranked among the top material concerns for Charoen Pokphand Group. This is driven by both the increasing physical and transitional risks posed by climate change such as extreme weather events, resource scarcity, and evolving regulatory landscapes as well as growing stakeholder expectations for corporate environmental responsibility. These factors have a direct impact on the Group's operations, supply chains, and long-term profitability, making sustainability not only an ethical imperative but also a strategic business priority.

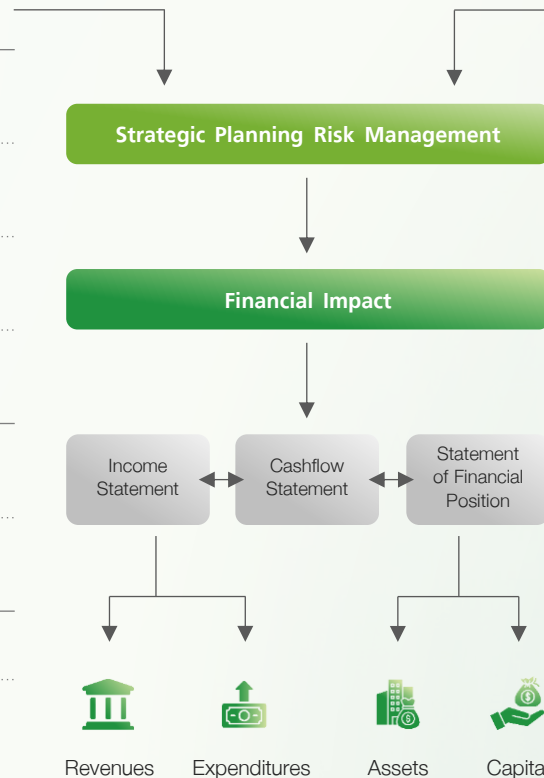
To address the challenges, Charoen Pokphand Group has integrated climate and nature-related risks into its Enterprise Risk Management (ERM) framework. This approach enables the company to identify, assess, and monitor both physical and transitional risks across its operations and value chains. Charoen Pokphand Group actively identifies and evaluates emerging risks and opportunities related to climate change and nature loss such as biodiversity decline, carbon pricing, water scarcity, and evolving environmental regulations that could affect its long-term resilience and business performance. Outlined below are the climate-nature nexus risks and opportunities identified by the Group.

Risks

Transition Risks	Policy and Legal - Regulatory mandates on products and services - Adoption of the GBF and NDCs
	Technology - Transitioning to lower-emission technologies - Failure of climate tech adoption
	Market Uncertainty in market trends and regulatory shifts affecting demand for sustainable products
	Reputation - Failure to meet demands for climate action - Increased scrutiny of sustainability claims
Physical Risks	Acute: - Increasing severity and frequency of flooding; - Raw material scarcity and supply chain disruptions caused by heatwave
	Chronic: - Long-term droughts and shifting rainfall patterns - Long-term resource scarcity & supply chain instability
Systematic Risks	Ecosystem Collapse Global food supply chain disruptions
	Aggregate Risk - Water scarcity and biodiversity loss - Consumers and regulators are enforcing stricter standards, making compliance more difficult and costly

Opportunities

Resource Efficiency	Implement circular economy solutions to minimize waste, promote recycling, and extend product lifecycles
Products/ Services	Develop low-carbon, biodiversity-friendly products and services
Access to Finance	Access to green finance



Risk and Opportunities Identification: Transition Risks

Time Horizontal	Short-term	Medium-term	Long -term
	1-5 year	5-10 year	>10 year

Risk Type	Drivers	Effects on CPG Business Model	Climate	Nature	Time Horizontal
Transition Risks	Policy and Legal				
	Regulatory mandates on products and services: carbon tax, Emissions Trading Systems (ETS), deforestation-free, Kunming-Montreal Global Biodiversity Framework (GBF), and Nationally Determined Contributions under the Paris Agreement	- Market losses due to non-compliance products. - Higher OPEX costs for use of non-renewable energy and high-carbon embedded raw materials. - CAPEX to minimize embodied carbon and nature-related risk mitigations throughout value chain e.g. traceability system, regenerative agriculture etc.	✓	✓	Short-Medium
	Technological Innovation				
	Transitioning to lower-emission technologies	Upfront costs for new equipment, infrastructure, or process redesign and uncertain return;	✓	✓	Medium
	Failure of climate technology adoption	Unproven technology can cause production delays, system failures, or integration issues leading to downtime and lost revenue.	✓	✓	Medium-Long
	Market				
	Uncertainty in market trends and regulatory shifts affecting demand for sustainable products	- Uncertain revenues and difficulty in forecasting sales. - Increasing cost for marketing or rebranding to respond to shifting consumer preferences	✓	✓	Medium
	Reputation				
	- Failure to meet stakeholder and consumer demands for climate action - Increased scrutiny of corporate sustainability claims	- Misleading commitments on carbon reduction, biodiversity, or deforestation-free sourcing risk reputational damage, legal issues, and loss of consumer - Habitat destruction, deforestation, and invasive species spread from land use, causing regulatory risks, reputational harm, and disruptions	✓	✓	Medium-Long

Risk and Opportunities Identification:

Physical Risks/ Systematic Risks

Time Horizontal	Short-term	Medium-term	Long -term
	1-5 year	5-10 year	>10 year

Risk Type	Drivers	Effects on CPG Business Model	Climate	Nature	Time Horizontal
Physical Risks	Acute				
	- Increasing severity and frequency of extreme flooding events impacting ecosystems - Heat-driven pest outbreaks and animal diseases	- Operational disruption & property damage - Increasing operation cost and insurance premium - Raw material scarcity and supply chain disruptions	✓	✓	Short
Systematic Risks	Chronic				
	- Long-term droughts and shifting rainfall patterns - Long-Term resource scarcity & supply chain instability	- Raising cost for climate-resilient crop investments, - Higher costs for temperature-controlled farming facilities - Persistent cost increases in procurement & transportation - Permanent decline in raw material availability - Continuous investment in resource-efficiency technology	✓	✓	Long
Physical Risks	Ecosystem Collapse				
	Global Food Supply Chain Disruptions	- Higher procurement costs for food and retail business - Potential price volatility for the products	✓	✓	Long
Systematic Risks	Aggregate Risk				
	- Water scarcity and biodiversity loss - Consumers and regulators are enforcing stricter standards, making compliance more difficult and costly	- Higher operational costs - Competition for freshwater resources, - Raw material scarcity and supply chain disruptions	✓	✓	Medium

Risk and Opportunities Identification:

Opportunity

Time Horizontal	Short-term	Medium-term	Long -term
	1-5 year	5-10 year	>10 year

Risk Type	Drivers	Effects on CPG Business Model	Climate	Nature	Time Horizontal
Resource Efficiency and Circular Economy	Implement circular economy solutions to minimize waste, promote recycling, and extend product lifecycles	- Cost saving and resource efficiency - Compliance with global sustainability regulations - Create new profit opportunities e.g., resale, recycling, product-as-a-service	✓	✓	Short
Products/ Services	Develop low-carbon, biodiversity-friendly products and services	- Access to new markets and customers - Lower operational costs	✓	✓	Short
Resilience	Access to green finance	- Funding for climate adaptation or low-carbon transitions - Support R&D for sustainable products or services, helping businesses stand out in competitive markets	✓	✓	Short

Business Model Effect

Business Line

Business Model Effect

Risk and Opportunity

Value Chain Transformation



Agriculture & Food

Directly affected by climate conditions, which impact production costs and the sourcing of raw materials

Challenge

- Energy costs have increased due to the use of fossil fuels
- Expenses related to ESG compliance and carbon pricing

Opportunity

- Expanding market to plant-based protein and other green products

Upstream:

- Transition the supply chain toward regenerative agriculture

Midstream:

- Utilize AI and IoT to reduce waste in the production process

Downstream:

- Develop biodegradable packaging



Retail & Distribution

Adapt to shifting consumer demand toward sustainable products
Rising energy costs associated with operations

Challenge

- Capital investment for green store and logistic

Opportunity

- Increasing sales through environmentally friendly products,
- Income from EV charging station services and green logistics

Upstream:

- Encourage suppliers to adopt green packaging

Midstream:

- Use an EV logistics fleet to reduce carbon emissions

Downstream:

- Promote consumer behavior that supports the circular economy



Telecommunication

Rising energy costs and growing demand for environmentally friendly networks

Challenge

- Increasing OPEX for energy used for network and system

Opportunity

- Revenue from cloud computing and digital transformation

Upstream:

- Select suppliers that use recycled materials

Midstream:

- Reduce carbon emissions from data centers

Downstream:

- Promote e-waste recycling



E-commerce

Adapt to shifting consumer demand toward sustainable products

Challenge

- CPEX of renewable infrastructures

Opportunity

- Increasing sales through environmentally friendly products

Upstream:

- Encourage suppliers to adopt green packaging

Midstream:

- Maximize use of renewable energy

Downstream:

- Promote consumer behavior that supports the circular economy

Business Model Effect

Business Line

Business Model Effect

Risk and Opportunity

Value Chain Transformation



Real Estate

The real estate business faces increasing green building regulations and rising material costs

Challenge

- Higher costs are driven by green construction materials and alternative energy systems.

Opportunity

- Growth potential lies in the Net Zero Building and Smart City markets

Upstream:

- Adopt environmentally friendly construction materials

Midstream:

- Use AI for building management to optimize energy efficiency

Downstream:

- Develop Smart Grid systems for energy distribution and control



Automotive

The industry is undergoing a major shift from internal combustion engines to electric vehicles (EVs), alongside mounting pressure to comply with ESG standards across the supply chain

Challenge

- Higher raw material costs due to the rising prices of rare metals
- CAPEX associated with transitioning to green factories

Opportunity

- Rising demand for EVs open up opportunities to expand into battery production and green manufacturing

Upstream:

- Adjust the supply chain to incorporate recycled materials

Midstream:

- Develop factories powered by clean energy

Downstream:

- Promote EV adoption in logistics and transportation operations



Pharmaceutical

The pharmaceutical business must adapt to ESG standards in drug manufacturing and packaging, reduce greenhouse gas emissions in medical logistics, and develop sustainable business models

Challenge

- Higher energy and transportation costs, particularly cold-chain logistics.
- Increased ESG compliance costs across operation

Opportunity

- Emerging markets for Green Pharma and carbon-neutral medicines present opportunities to expand eco-friendly drugs and vaccines

Upstream:

- Use biodegradable packaging materials

Midstream:

- Implement AI systems to reduce waste in pharmaceutical production.

Downstream:

- Promote carbon-neutral healthcare services



Finance and Banking

The financial sector faces increasing requirements for ESG investing and green financing, which directly impact lending and investment strategies

Challenge

- Rising costs of restructuring investment portfolios to align with ESG principles

Opportunity

- Opportunities lie in green bonds, ESG-linked loans, and sustainable investment products

Upstream:

- Screen and select investment projects that align with ESG criteria

Midstream:

- Develop factories powered by clean energy

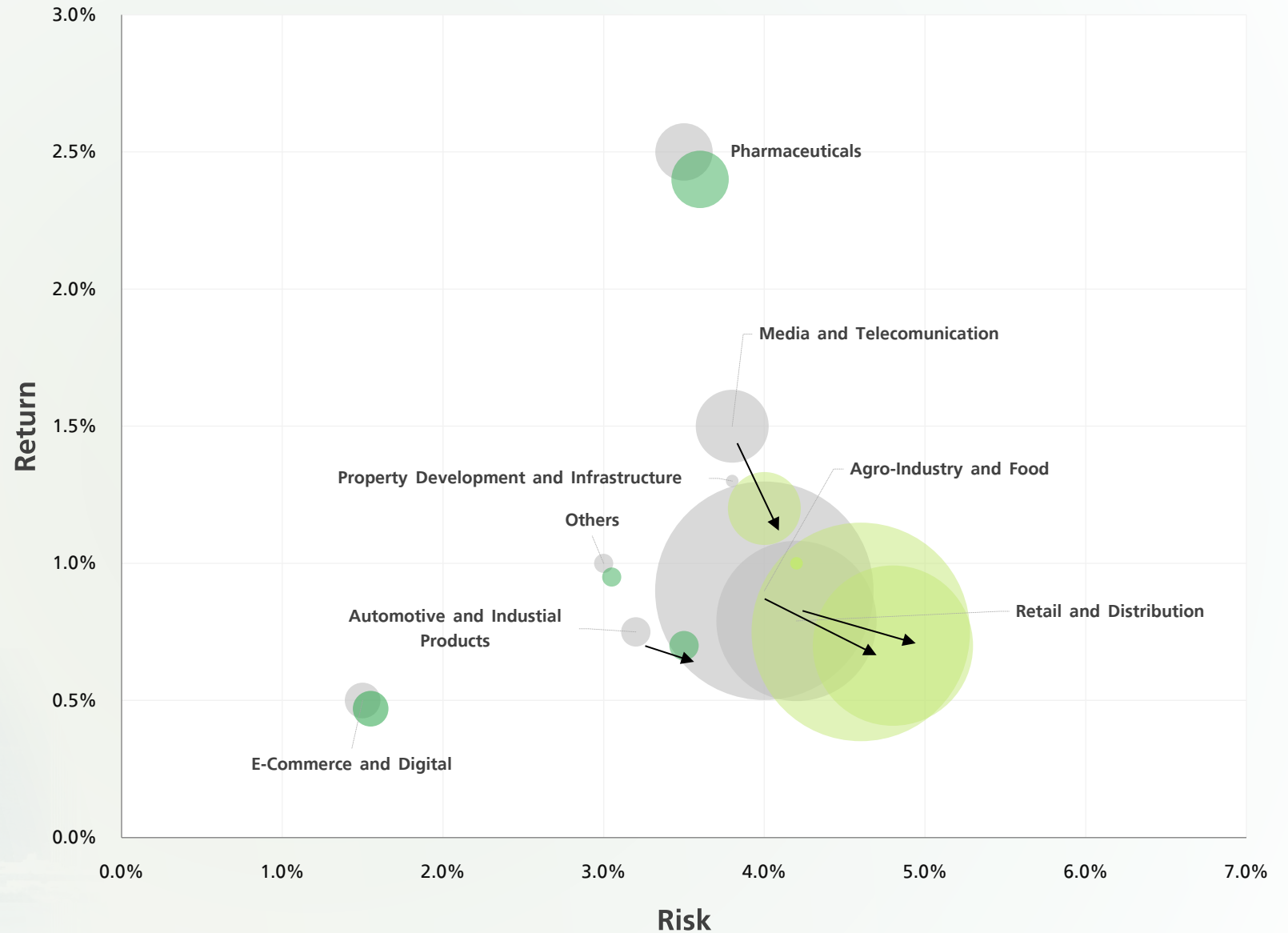
Downstream:

- Provide loans to businesses with Net Zero targets

Nature and Climate Risk Assessment

Sectoral Exposure and Strategic Implications

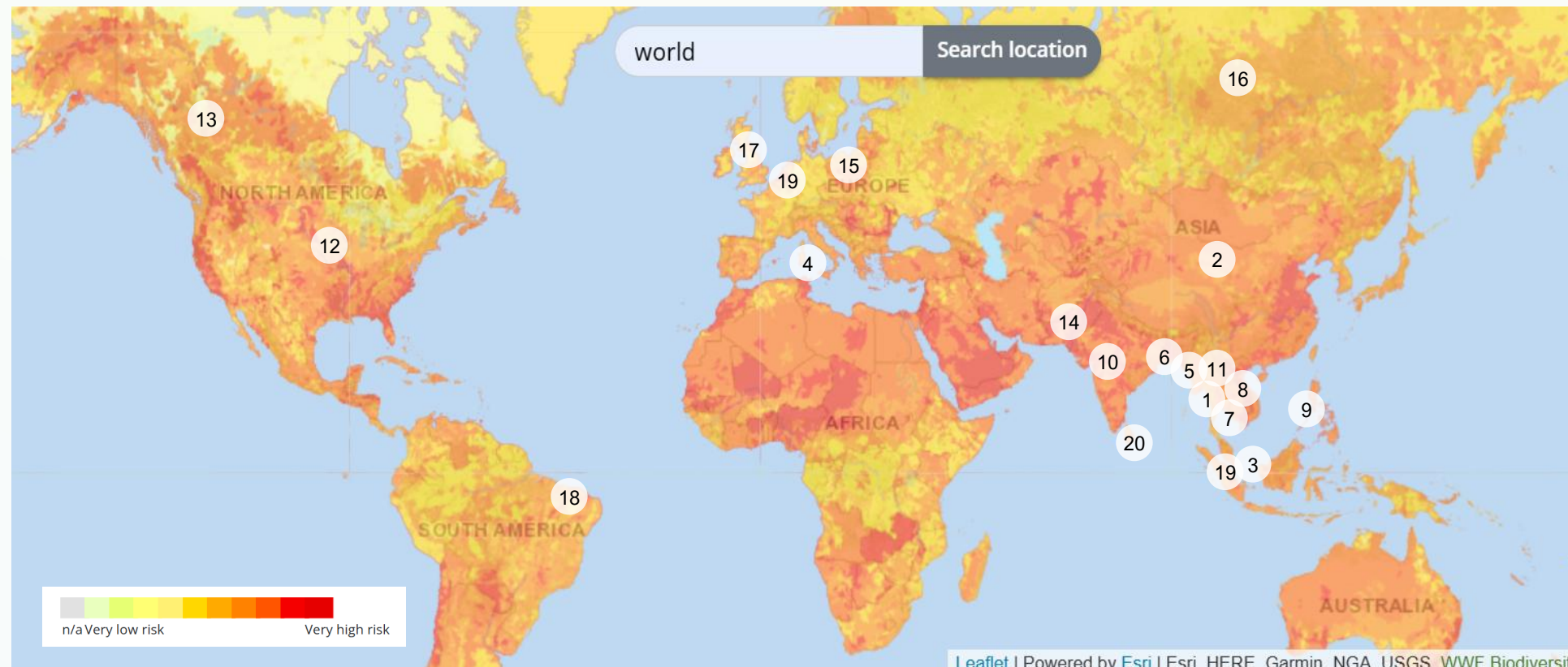
This matrix illustrates the relationship between climate-related risk and potential financial return across various industry sectors. The horizontal axis represents the level of climate risk exposure, while the vertical axis shows expected returns. Each bubble represents a business sector, with its size indicating the relative market weight or significance.



Physical Risk Exposure in C.P. Group's Operating Region

Charoen Pokphand Group has established a strong international presence through its investments and business operations across 11 key countries. According to the WWF Risk Filter, these countries demonstrate varying degrees of physical risk, primarily driven by the extent to which businesses rely on nature and are exposed to changes in natural systems, either from environmental or human-induced pressures. The risk map indicates that a significant portion of these countries are subject to moderate to high physical risks, particularly in areas relating to provisioning

services (such as access to water, food, and raw materials), regulating and supporting ecosystem services (including climate regulation and soil fertility), and pressures on biodiversity. Countries like India, Myanmar, Bangladesh, and parts of Southeast Asia exhibit considerable exposure to these risks, as shown by darker red and orange zones on the map.



- | | |
|----------|----------|
| THA (1) | US (12) |
| CHN (2) | CAN (13) |
| MYS (3) | PAK (14) |
| TUR (4) | POL (15) |
| BGD (5) | RUS (16) |
| MMR (6) | GBR (17) |
| KHM (7) | BRA (18) |
| VNM (8) | SIN (19) |
| PHL (9) | BEL (20) |
| IND (10) | LKA (21) |
| LAO (11) | |

Measuring Risk

Revenue	Low	Low-Medium	Medium	Medium-High	High
	(±) <0.5%	(±) 0.5-1.5%	(±) 1.6-2.5%	(±) 2.6-3.5%	(±) >3.5%

Risk Type	Effects of Risks and Opportunities	Financial Impacts		Mitigation
		Net-Zero by 2050	IEA	
Transition Risks	Policies and Regulations Transition			
	- Rising compliance costs driven by stricter climate policies and regulations - Use of non-renewable energy - Carbon pricing e.g. ETS, carbon tax etc. - No-deforestation, land conversion and nature-related products - Kunming-Montreal Global Biodiversity Framework (GBF) - Nationally Determined Contributions under the Paris Agreement	3,490 million THB	11,620 million THB	Shift to renewable energy sources to reduce reliance on fossil fuels
	Technologies Transition			
	- Capital investments for low-carbon technologies and climate-resilient infrastructures - Failure of climate technology adoption can cause production delays, system failures, or integration issues	4,200 million THB	15,500 million THB	- Transition to innovative models e.g. smart farming and AI-based efficiency tools - Develop energy-efficient systems leveraging IoT and traceability technologies - Offer training programs and workshops to improve understanding and capability in using new technologies
	Market Fluctuation			
	- Revenue losses from adapting to new market demands and difficulty in forecasting sales. - Increasing cost for marketing or rebranding to respond to shifting consumer preferences	7,650 million THB	20,215 million THB	Transition to low-carbon supply chains through sustainable sourcing and regenerative agriculture
	Reputation			
	- Misleading commitments on GHG reduction and nature-related issues may reduce market valuation and resulting in revenue loss. - Habitat destruction, deforestation, and invasive species spread from land use, causing regulatory risks, reputational harm, and disruptions	914 million THB	3,520 million THB	Build traceability systems into the supply chain to monitor and reduce embodied carbon. Invest in nature-positive initiatives

Measuring Risk

Revenue	Low	Low-Medium	Medium	Medium-High	High
	(±) <0.5%	(±) 0.5-1.5%	(±) 1.6-2.5%	(±) 2.6-3.5%	(±) >3.5%

Risk Type	Effects of Risks and Opportunities	Financial Impacts		Mitigation
		Net-Zero by 2050	IEA	
Physical Risks	Acute Risks			
	- Increasing OPEX costs and insurance premiums due to frequent and flooding, destabilizes ecosystems, impacting CPG’s agricultural and food production and our infrastructures - Raw material scarcity and supply chain disruptions caused by heatwave, particularly in feed ingredients, agricultural products, and packaging results in the increasing OPEX	370 million THB	13,215 million THB	- Enhance infrastructure resilience against extreme weather events to reduce vulnerability - Invest in sustainable agricultural practices e.g. regenerative farming, soil restoration, and agroforestry for resilience - Secure alternative sources for feed ingredients, agricultural products, and packaging materials - Utilize smart farming tools, AI, and predictive analytics to improve resource efficiency
	Chronic Risks			
	- Rising CAPEX associated with investment of climate-resilient crops, temperature-controlled farming, and sustainable agricultural technology - Increasing OPEX and revenue decreased due to changing precipitation patterns that would result on raw material volatility and supply chain disruptions, particularly in feed ingredients, agricultural products, and packaging materials, and increasing procurement challenges	13,780 million THB	50,240 million THB	

Measuring Risk

Revenue	Low	Low-Medium	Medium	Medium-High	High
	(±) <0.5%	(±) 0.5-1.5%	(±) 1.6-2.5%	(±) 2.6-3.5%	(±) >3.5%

Risk Type	Effects of Risks and Opportunities	Financial Impacts		Mitigation
		Net-Zero by 2050	IEA	
Systematic Risks	Ecosystem Collapse Higher procurement costs and operation disruptions for food and retail business due to investing in sustainable agricultural practices and diversifying supply sources	24,250 million THB	78,120 million THB	- Build strategic supplier partnerships with shared sustainability goals - Managing OPEX costs by adopting cutting-edge technologies, optimizing resource use, and incorporating nature-based solutions into farming and production processes
	Aggregate Risk - Increasing water scarcity, biodiversity loss, and competition for freshwater resources are driving higher operational costs and intensifying compliance requirements - Raw material scarcity and disruptions in the supply chain create critical challenges for businesses, emphasizing the need for sustainable practices.	9,736 million THB	20,230 million THB	- Optimize production processes to reduce water intensity per unit of output - Strengthen supplier engagement for sustainable procurement and regenerative farming - Restore forests, wetlands, and coastal ecosystems

Measuring Opportunity

Revenue	Low	Low-Medium	Medium	Medium-High	High
	(±) <0.5%	(±) 0.5-1.5%	(±) 1.6-2.5%	(±) 2.6-3.5%	(±) >3.5%

Risk Type	Effects of the Opportunity	Financial Impacts		Action to realize opportunity
		Net-Zero by 2050	IEA	
Opportunity	Resource Efficiency and Circular Economy Implement circular economy solutions to minimize waste, promote recycling, and extend product lifecycles to attract eco-conscious consumers	1,743 million THB	14,520 million THB	- Sustainable Packaging Initiatives - Product Take-Back and Recycling Programs - Eco-design principles to reduce emissions and environmental impact - Develop low-carbon product lines - Create biodiversity-friendly offerings, such as certified sustainable food - Implement water-efficient Technology - Strengthen Infrastructure for Disaster Preparedness
	Products/ Services Lead in sustainability by offering low-carbon, biodiversity-friendly products that strengthen brand value and market positioning	2,550 million THB	23,370 million THB	
	Resilience Access financial incentives for sustainability transitions for climate adaptation and disaster preparedness programs e.g. drought-resistant crops, water-saving irrigation systems, and low-water-use products	1,680 million THB	12,346 million THB	

Risk Prioritization

Climate- and nature-related risks are assessed and prioritized using a risk assessment matrix, which evaluates each risk based on its likelihood and potential impact. The scale of likelihood and magnitude of impact if climate change event occurred are divided into 5 levels as following;

Likelihood

Rare (1)
Unlikely (2)
Possible (3)
Likely (4)
Almost certain (5)

Magnitude of Impact

Low (1)
Low-Medium (2)
Medium (3)
Medium-High (4)
High (5)

The determination of likelihood category and impact magnitude are provided in Appendix 42.



Transition Risks	Physical Risks	Systematic Risks	Opportunities
Policy and legal	Acute	Ecosystem Collapse	Resource Efficiency
Technology	Chronic	Aggregate Risk	Product/ Services
Market Fluctuation			Resilience
Reputation			

Climate and Nature Resilience

Sustainable Energy

- Conserving energy and improving energy efficiency
- Using alternative and renewable energy

Sustainable Operations

- Utilizing resources efficiently in the Production Process and Logistics
- Promoting Zero Waste to Landfill
- Utilizing environmental-friendly Refrigerant

Sustainable Agriculture

- Using of Technology to Increase Productivity, Reduce Emission and Increase Carbon Capture in Agricultural Activities
- Utilizing and producing of Renewable Energy from Agricultural Waste



Wildlife Protection and Anti-Poaching Efforts

- Enforcing laws to combat illegal wildlife trade and habitat destruction.

Protected Areas and Conservation Reserves

- Establishing national parks, wildlife reserves, and marine protected areas (MPAs)

Sustainable Land and Water Use Management

- Implementing agroforestry, sustainable fishing, and responsible mining practices

Carbon Removal and Ecosystem Restoration and Reforestation

- Removing of carbon through natural Approach
- Restoring degraded landscapes through reforestation and wetland rehabilitation.

Sustainable Consumption

- Procuring Raw Materials for Product form Sustainable Sources
- Procuring products and services that help reduce GHG Emission at the Use phase

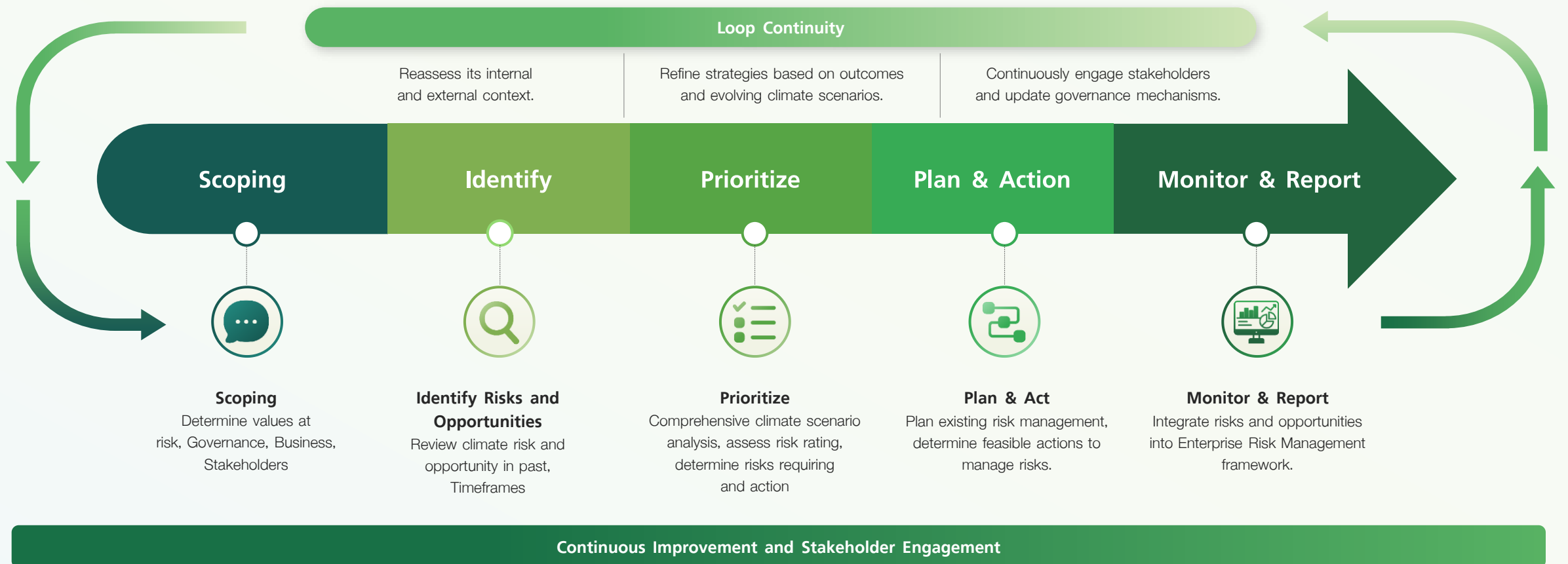
Risk Management



Climate Risk Management

The Climate Risk Management process is a cyclical and dynamic framework comprising five critical phases: Scoping, Identify, Prioritize, Plan & Action, and Monitor & Evaluate. It begins with scoping organizational values at risk and governance context, progresses through identifying historical and projected climate risks, and prioritizes them through scenario-based assessments.

Action plans are then developed to manage these risks effectively, followed by integration into broader ERM systems. This process supports continuous improvement and stakeholder engagement, ensuring climate resilience is maintained across strategic and operational levels.





1. Scoping

Charoen Pokphand Group has implemented a systematic approach to define the scope of climate-related risk assessment across its business operations. The process begins with identifying values and assets at risk, encompassing key sectors such as agriculture, food processing, and real estate particularly in locations vulnerable to natural hazards such as floods, droughts, or heatwaves. Strategic assets, including production centers, large-scale factories, livestock farms, and logistics systems, are prioritized to assess potential impacts on operations and financial performance. Charoen Pokphand Group also establishes clearly defined time horizons for risk assessment to enable flexible and robust responses to climate uncertainty. These timelines are aligned with the Group's strategic goal of achieving Net Zero by 2050. From a governance perspective, Charoen Pokphand Group has established a Group Sustainability Committee, which oversees climate-related policy direction, risk monitoring, and strategic alignment. Roles and responsibilities are clearly assigned across key departments such as environmental management, finance, risk management, and business units to ensure integrated accountability and participation organization-wide.

Through this comprehensive Scoping approach, Charoen Pokphand Group has built a solid foundation for effective risk assessment, aligned with the TCFD framework and international ESG standards. This enables the organization to meet stakeholder expectations and strengthen long-term climate resilience and adaptability in a sustainable manner.



2. Identify

Charoen Pokphand Group places strong emphasis on systematically identifying both the risks and opportunities associated with climate change. The process begins with a thorough review of historical climate-related events and potential impacts across the supply chain, production, logistics, and operational activities of each business unit. These risks include physical impacts such as extreme heat, droughts, floods, and disruptions from changing weather patterns. Additionally, transition risks are assessed such as the tightening of environmental regulations, the introduction of carbon pricing mechanisms, and rising stakeholder expectations for ESG disclosures which may affect financial performance, operational continuity, or brand reputation. Simultaneously, Charoen Pokphand Group also identifies climate-related opportunities that may arise in this evolving context. These include the development of low-carbon products, investment in renewable energy, adoption of smart farming technologies, and expansion into sustainability-driven markets. The organization also categorizes these risks and opportunities based on their expected timeframe ensuring appropriate planning and strategic alignment across business horizons. Through this approach, Charoen Pokphand Group is able to prioritize material risks and recognize potential growth opportunities that support the transition to a low-carbon economy. This process lays a critical foundation for subsequent planning, decision-making, and long-term value creation aligned with the Group's climate resilience strategy.



3. Prioritize

In the Priorities phase, which plays a critical role in the climate risk management process, Charoen Pokphand Group systematically evaluates the climate-related risks identified in previous steps to prioritize those with the most significant impact on business operations. The organization employs climate scenario analysis to assess a range of potential futures, drawing from governmental and scientific sources to simulate the effects of various climate change pathways such as a global temperature rise of 1.5°C or 2°C. Charoen Pokphand Group integrates the scenario analysis with risk rating assessments, evaluating both the impact and likelihood of each risk. This allows the Group to rank risks across multiple dimensions, such as revenue disruption, operational continuity, regulatory compliance, and stakeholder expectations. Each risk is then classified based on the required type of response whether it involves strategic adaptation, additional capital investment, or operational adjustments. The outcomes of this phase enable Charoen Pokphand Group to focus its resources on the most material risks, ensuring effective allocation of attention and investment.



4. Plan & Action

Charoen Pokphand Group focuses on developing and executing strategies to reduce climate-related risks and enhance organizational resilience. Based on the risk prioritization conducted in the previous phase, the Group has formulated a comprehensive climate risk management plan, addressing both mitigation and adaptation dimensions. On the mitigation front, Charoen Pokphand Group has implemented a wide range of initiatives, including the deployment of renewable energy sources (such as solar rooftops, biomass, and biogas), the adoption of energy-efficient technologies, and the reduction of greenhouse gas (GHG) emissions throughout the value chain. In addition, the Group continues to explore lower-carbon materials and processes as part of its broader decarbonization strategy. For adaptation, the organization has taken proactive steps to reduce vulnerability across its operations such as enhancing water management and drainage systems at farms and factories, reinforcing logistics planning in the face of climate disruptions, and conducting capacity-building programs for employees in high-risk business units. These plans are supported by clearly defined targets, performance indicators, and timelines, with regular monitoring at both the business unit and corporate levels. This ensures that climate responses remain agile and effective in the face of evolving risks. The Plan and Action phase thus serves as a key driver in strengthening Charoen Pokphand Group's climate resilience and long-term sustainability amidst the growing challenges of global climate change.



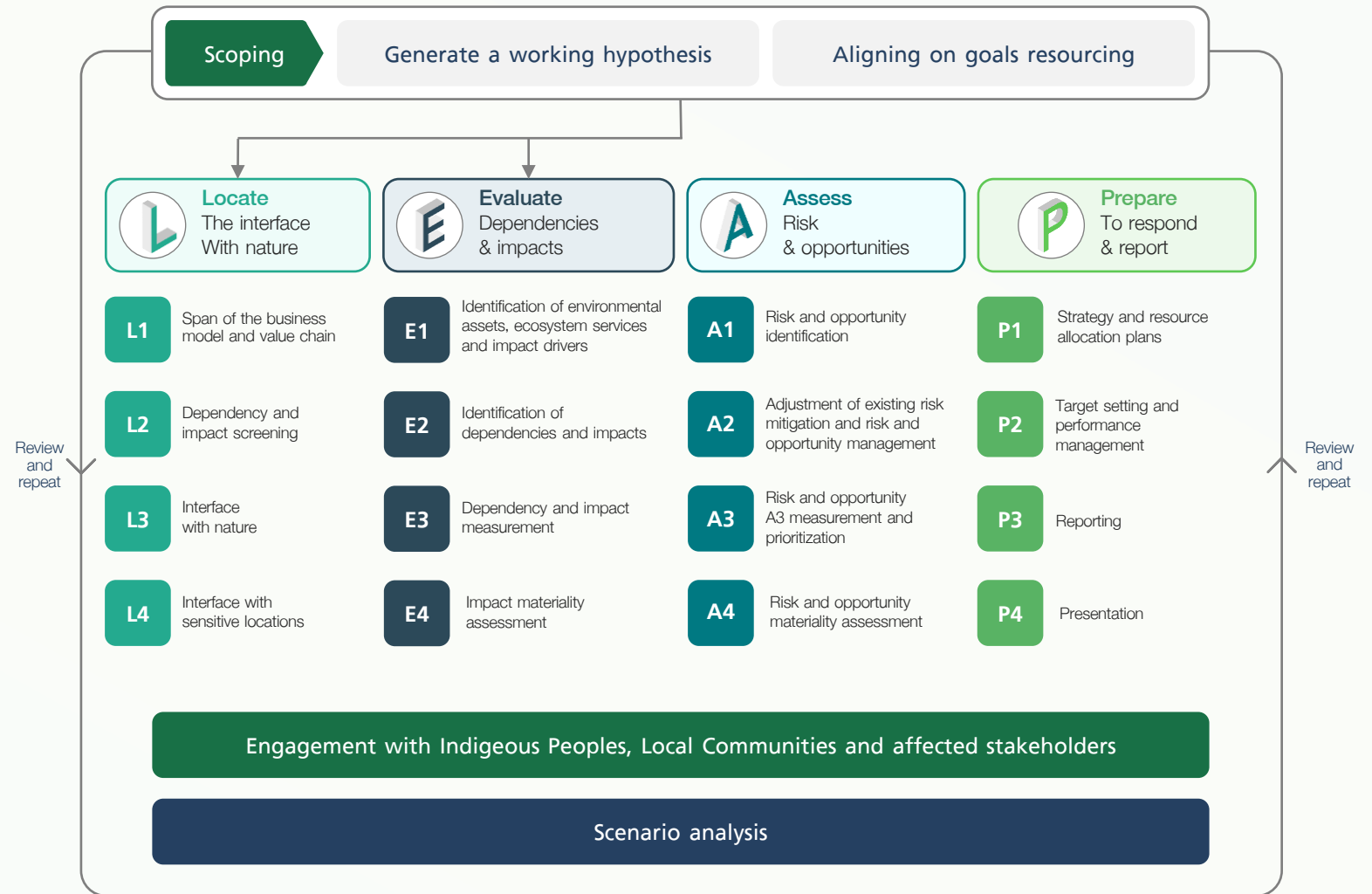
5. Monitor & Evaluate

Charoen Pokphand Group underscores the importance of continuous performance tracking and transparent disclosure of climate-related actions and outcomes. A structured Monitoring & Evaluation (M&E) framework has been established to align with the Group's environmental targets and climate risk indicators at the project, business unit, and corporate levels. This system enables Charoen Pokphand Group to assess the realized impacts of climate-related risks and compare them against prior risk assessments and mitigation assumptions. The organization routinely conducts systematic reviews and updates of its climate risk data, incorporating scientific inputs from meteorological agencies, ESG performance benchmarks, and stakeholder feedback. This iterative approach ensures the Group's climate risk strategies remain adaptive and responsive to both physical climate variability and shifting regulatory or market expectations. For reporting and disclosure, Charoen Pokphand Group adopts internationally recognized frameworks such as the Task Force on Climate-related Financial Disclosures (TCFD) to ensure the clarity, reliability, and comparability of its climate-related information. These disclosures serve as a vital communication tool for investors, strategic partners, and regulatory bodies, reinforcing stakeholder trust and accountability. Furthermore, the Group actively promotes a culture of continuous improvement and organizational learning, leveraging insights from monitoring activities to inform future planning cycles. This integrated approach enhances CP Group's long-term climate resilience and supports its strategic ambition to remain competitive and sustainable in the face of escalating climate-related challenges.

Integrating Nature and Climate Risks: The TNFD LEAP Approach

The Taskforce on Nature-related Financial Disclosures (TNFD) developed the LEAP process to help organizations assess, manage, and disclose nature-related risks and opportunities. As nature's role in economic and financial stability gains attention, businesses must integrate these considerations into decision-making. For Charoen Pokphand Group, this approach aligns with its commitment to sustainability and responsible business practices. The LEAP process consists of four key stages:

- **Locate** – Identifying operations, supply chains, and investments that interact with nature.
- **Evaluate** – Assessing dependencies, impacts, and related risks or opportunities.
- **Assess** – Determining material risks, opportunities, and financial implications.
- **Prepare** – Developing a strategy and disclosures in line with TNFD recommendations.



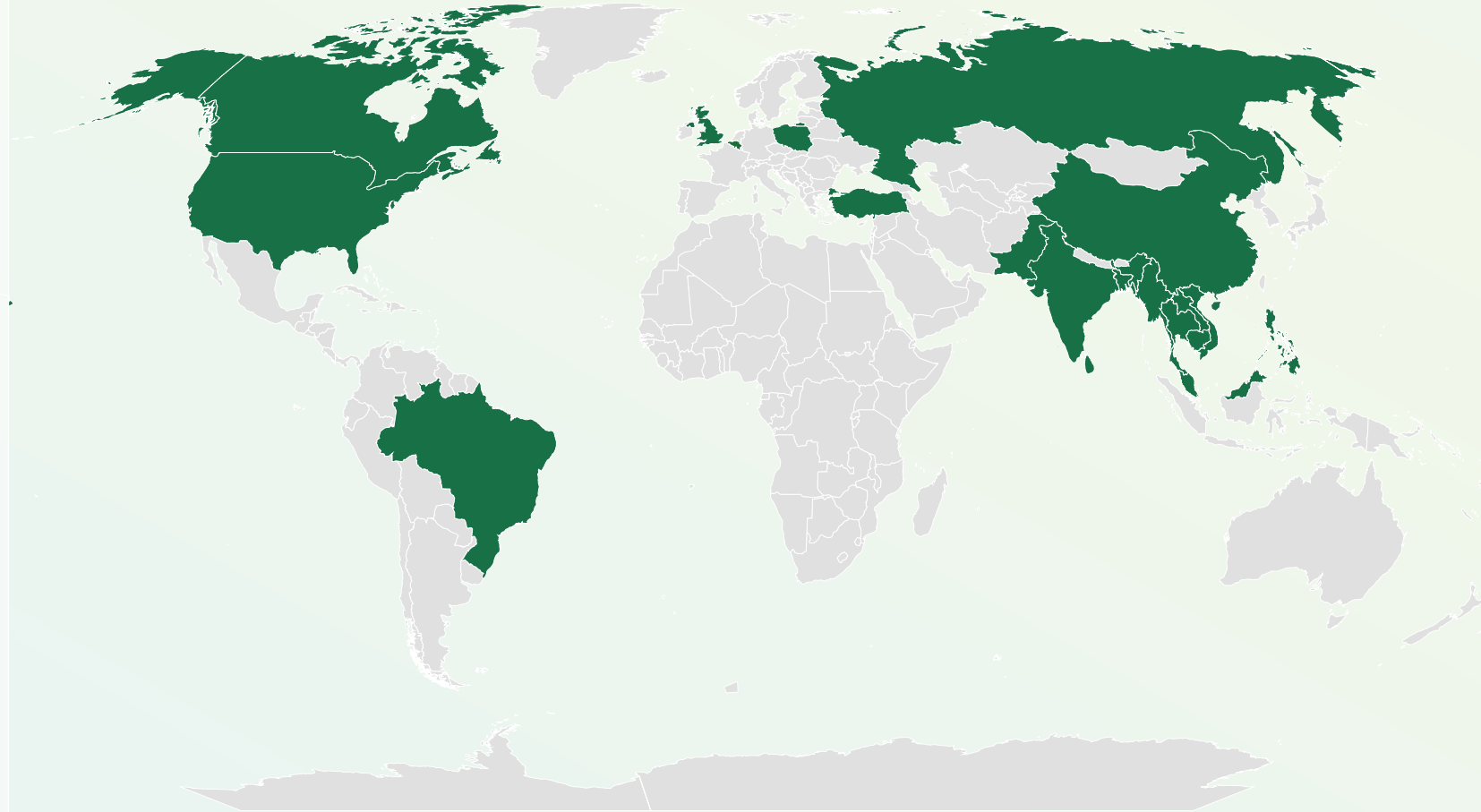
By applying the LEAP process, CP Group enhances resilience, ensures regulatory alignment, and strengthens its sustainability strategy by integrating nature and climate risks into business operations. Recognizing the interconnectedness of climate change and biodiversity loss, CP Group takes a holistic approach to risk management, reinforcing its leadership in the transition to a nature-positive and climate-resilient economy.

Scope of geographical evaluation

Charoen Pokphand Group Co., Ltd. (abbreviated as C.P. Group) serves as a parent company of C.P. Group. As a holding company, we holds shares of subsidiaries in Thailand and overseas. The Group operates across many industries ranging from industrial to service.

These consists of 8 business lines covering 14 business groups including.

- 1 Agro-industry and Food Business Group
- 2 Feed ingredients Trading Business Group
- 3 Crop Integration Business Group
- 4 Pet Food Business Group
- 5 Seed, Fertilizer and Plant Protection Products Business Group
- 6 Retail and Distribution Business Group
- 7 International Trading Group
- 8 Telecommunication Business Group
- 9 E-commerce and Digital Business Group
- 10 Property Development and Infrastructure Business Group
- 11 Pharmaceuticals Business Group
- 12 Automotive and Industrial Products Business Group
- 13 Packaging Business Group
- 14 Finance and Banking Business Group



Reflecting its broad spatial footprint, the company operates across 23 countries with facilities including 14,630 7-Eleven stores, 2,772 Lotus's and Makro outlets, 330 production sites, 91 R&D centers, and 1,075 livestock and aquaculture farms—each potentially exposed to distinct climate-related risks and opportunities.

Key Inputs and Parameters for Transition Climate Risk Assessment

This diagram illustrates the interconnection between data sources, assessment parameters, and operational scope in conducting a Transition Climate Risk Assessment. The process begins with collecting reliable data related to climate policy, regulatory frameworks, technology trends, market behavior, and reputational risks. These inputs provide a foundation for evaluating how external drivers may impact the organization during the transition to a low-carbon economy.

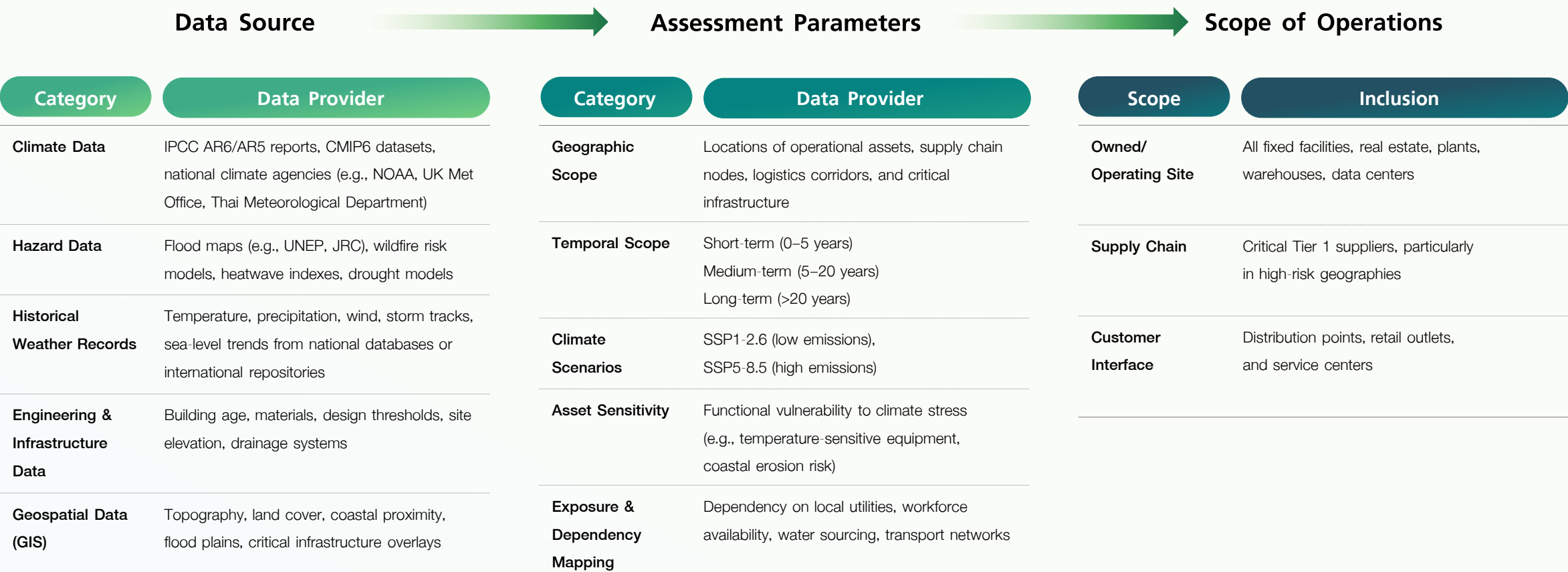
The data informs the assessment parameters, which include identifying carbon-intensive assets, applying climate-related scenario analysis, quantifying financial implications such as carbon pricing or stranded assets (Financial Materiality), and evaluating the organization’s internal capacity to adapt (Strategic Flexibility & Readiness). This structured linkage enables businesses to proactively address transition risks, align with global disclosure standards, and support strategic decision-making.

Data Source		Assessment Parameters		Scope of Operations	
Category	Data Provider	Parameter	Description	Scope	Inclusion
Policy & Regulatory Data	National climate strategies (e.g., NDCs), carbon pricing registries (World Bank), EU CBAM, SEC climate rules	Carbon Exposure Mapping	Identify carbon-intensive assets, processes, and product lines at risk under transition scenarios	Owned/ Operating Site	All fixed facilities, real estate, plants, warehouses, data centers
Technology Trends	IEA Energy Technology Perspectives, patent databases, industry R&D reports	Scenario Analysis	Apply externally recognized scenarios (e.g., IEA NZE, NGFS) to model impacts of policy and market changes	Supply Chain	High-emitting suppliers and sourcing geographies vulnerable to policy shifts
Market Signals & Consumer Behavior	CDP, SBTi targets, ESG investment flows, consumer preference surveys	Financial Materiality	Quantify impact on operating cost (e.g., carbon tax), stranded asset risk, revenue shifts, CAPEX needs	Products & Services	High-carbon products, materials, or offerings facing obsolescence or reduced demand
Legal & Reputational Risk	Litigation databases, NGO campaigns, media monitoring tools, ESG ratings (MSCI, Sustainalytics)	Strategic Flexibility & Readiness	Assess internal capabilities to pivot — R&D investment, alternative product development, workforce transition planning	Geographic Markets	Countries with aggressive climate regulations or evolving carbon pricing

Key Inputs and Parameters for Physical Climate Risk Assessment

This diagram provides a concise framework for physical climate risk assessment, covering three key areas: data inputs, assessment parameters, and operational scope. It recommends using credible sources such as IPCC reports, climate models, and hazard maps to gather relevant data. Key parameters include geographic and temporal scope, climate scenarios (e.g., SSP1-2.6, SSP5-8.5), asset sensitivity, and critical dependencies.

The operational scope includes owned facilities, high-risk suppliers, and customer-facing sites. Together, these components enable organizations to identify, assess, and manage physical climate risks in a structured and strategic manner.



Scenario Analysis of Climate Risks and Opportunities

Climate change poses significant risks and opportunities for businesses and economies worldwide. Scenario analysis helps organizations prepare for multiple possible futures, ensuring resilience and long-term sustainability.

Scenario Framework

We use widely recognized climate scenarios such as:

- **IPCC Climate Projections**
(e.g., RCP 2.6, RCP 4.5, RCP 8.5)
- **IEA Net Zero 2050 Scenario**
- **TCFD-recommended scenarios**
(e.g., 1.5°C, 2°C, and 4°C pathways)

Key Considerations

- **Physical Risks**
(e.g., Flooding)
- **Transition Risks**
(e.g., policy shifts, carbon pricing, market changes)
- **Opportunities**
(e.g., green innovation, cost savings, competitive advantage)

Scenario	Assumptions	Risks	Opportunities
Scenario 1 : Net-Zero by 2050 (1.5°C Pathway)	• Aggressive global policies to limit warming to 1.5°C • Rapid decarbonization and renewable energy adoption • Strict carbon regulations and ESG compliance	• Stranded assets in fossil-fuel-dependent industries • High costs of transitioning to sustainable operations • Regulatory pressure on carbon-intensive businesses	• Expansion in renewable energy and sustainable infrastructure • Cost reductions through energy efficiency and circular economy models • Market differentiation through ESG leadership
Scenario 2 : High Emissions (4°C Pathway, Business-as-Usual)	• Limited global cooperation on climate policy • Continued reliance on fossil fuels • Rising global temperatures with severe climate consequences	• Escalating physical risks: extreme weather, sea level rise, food insecurity • Disruptions in global supply chains and trade networks • High adaptation costs for businesses and governments	• Innovation in disaster resilience and risk management solutions • Market growth for water and food security technologies • Increased demand for corporate adaptation strategies

Climate and Nature Related Transition Plan

C.P. Group has developed a comprehensive plan to achieve net-zero greenhouse gas emissions. The organization prioritizes energy management and resource optimization to reduce emissions while enhancing energy efficiency. By integrating clean energy solutions and adopting green technologies, C.P. Group aims to minimize environmental impacts. Furthermore, the company fosters sustainable collaboration with stakeholders to ensure the long-term success of its greenhouse gas reduction initiatives.



SUSTAINABLE ENERGY

Energy sources and systems that meet current energy demands without compromising the ability of future generations to meet their needs. It prioritizes efficiency, minimal environmental impact, and the responsible use of resources.



SUSTAINABLE OPERATIONS

To business practices that minimize environmental impact while maximizing efficiency, resource conservation, and long-term sustainability. This includes integrating eco-friendly technologies and strategies across various operational areas.



SUSTAINABLE SUPPLY-CHAIN

Sustainable agriculture is a farming approach that meets present food production needs while ensuring environmental, economic, and social sustainability for future generations. It focuses on responsible resource management, reducing environmental impact, and promoting economic viability for farmers and communities.



SUSTAINABLE CONSUMPTION

The responsible use of goods and services in a way that minimizes environmental impact, reduces resource depletion, and supports economic and social well-being by promoting efficiency, waste reduction, and ethical consumer choices.



CARBON REMOVAL

Strategies and technologies aimed at extracting carbon dioxide (CO₂) from the atmosphere to mitigate climate change and achieve net-zero emissions. It includes both nature-based solutions and technological approaches, which play crucial roles in long-term carbon sequestration.



Implementing Internal Carbon Pricing in C.P. GROUP

The implementation of an Internal Carbon Price (ICP) represents an effective approach for managing environmental risks. Organizations can utilize ICP as an internal mechanism to drive strategic decision-making aligned with long-term sustainability goals such as **Net-Zero**.

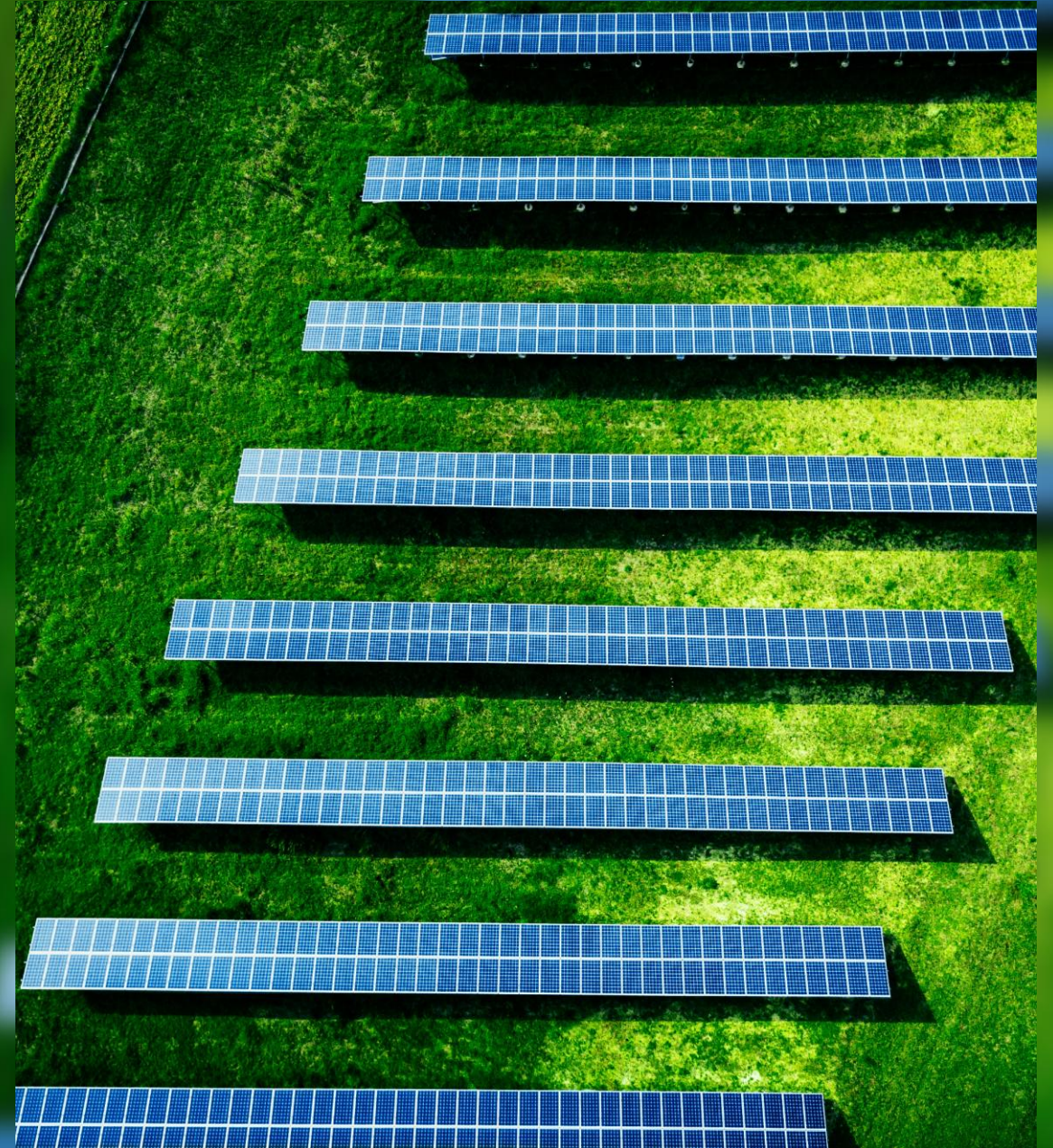
At CP GROUP, the Internal Carbon Price (ICP) is applied as a strategic tool to embed climate considerations into business decision-making. The Group adopts a **Shadow Price model, currently set at USD 25 per ton of CO₂e**, to support investment evaluation and guide resource allocation toward low-carbon solutions.

ICP is integrated across key functions such as capital expenditure planning, procurement, energy selection, and logistics policies. By incorporating a carbon cost into these processes, the Group encourages environmentally responsible choices aligned with its Net-Zero commitment.

CP GROUP also monitors the impact of ICP through clear performance indicators such as estimated CO₂e reductions and energy savings—with outcomes disclosed in the annual Sustainability Report. This approach reinforces CP GROUP's leadership in climate action and sustainable value creation.



Matrix and Target



Matrix and Target

Toward Nature Positive & Net Zero

By 2030, we are committed to integrating climate action and biodiversity conservation throughout our value chain. This includes sourcing 100% of key raw materials from deforestation-free areas, implementing biodiversity management across all business groups, and strengthening nature governance through international collaboration.

In parallel, we are advancing science-based climate actions through energy transition, operational efficiency, sustainable transportation, and low-carbon technologies to reduce greenhouse gas emissions and achieve Net Zero across the entire value chain by 2050.

Together, these initiatives create a resilient, low-carbon, and nature-positive value chain that supports long-term sustainable growth

NATURE : NEAR-TERM TARGET 2030

NATURE POSITIVE

No Net Loss of biodiversity in our priority areas

CLIMATE : NEAR-TERM TARGET 2030



-42% reduction of scope 1 and 2 emissions



-25% reduction of scope 3 emissions

LONG-TERM TARGET 2050

NET ZERO

Greenhouse GAS Emissions in Value Chain

Climate Action Toward NET ZERO 2050

CP GROUP is committed to achieving Net Zero greenhouse gas emissions across its value chain by 2050. Through decarbonization, energy transition, and innovation, the Group is building a resilient, low-carbon future while creating long-term value for society and future generations.

Climate Risks

- Climate change and extreme weather event
- Carbon pricing and emerging climate regulation
- Energy price volatility
- Supply chain disruption and raw material risk
- Increasing stakeholder and investor expectation

Climate Opportunities

- Cost saving through energy efficiency
- Renewable energy investment
- Low carbon products and services
- Green finance and ESG investment
- Strengthened resilience and long-term competitiveness

Strategy in climate



Decarbonize Operations

Improve energy efficiency and transition to renewable energy across all operations



Transform Supply Chain

Engage suppliers and promote low carbon logistics to reduce emissions across the value chain



Develop Low Carbon Products

Innovate and design products and services that reduce emissions through out the lifecycle



Collaborate with Partners

Work with partners, governments and customers to accelerate climate action



Carbon Removal

Increase carbon sinks and invest in nature-based solutions and carbon removal technologies

Key Initiatives



Solar & Energy Storage



Renewable Source (Biomass, Biogas)



Energy Efficiency and Conservation



Low-GWP and Natural Refrigerants



Green Logistic



Reduce Emissions through Supplier Collaboration

Target and Progress

	METRICS	2030 TARGET	2025 PROGRESS
	Reduction in absolute Scope 1 and 2 GHG emissions (Base year : 2021)	 -42%	 -8.06% reduction compare with 2021 (Base year)
	Reduction in absolute Scope 3 GHG emissions (Base year : 2021)	 -25%	 -7.41% reduction compare with 2021 (Base year)
	Renewable energy in total energy consumption	50% in 2030	 18.44%
	Traceability of high-risk maize and deforestation-free sourcing in our operation	100% in 2030	 41%

Nature Action

Managing our impacts and regenerating nature to build a resilient and sustainable future

NATURE CAPITAL	BUSINESS DEPENDENCY How we rely on nature	BUSINESS IMPACT How our operations affect nature	OUR APPROACH How we manage and respond	2030 DIRECTION Our targets and commitments
 Land & Ecosystems	- Productive land for agriculture, forestry and raw materials - Soil fertility and nutrient cycling - Pollination and natural pest control - Habitat and ecosystem services supporting operations	- Land use change and conversion - Habitat loss and fragmentation - Soil degradation and erosion - Pressure on ecosystems and biodiversity	- No Deforestation and No Conversion - Regenerative agriculture and sustainable sourcing - Landscape restoration and nature-positive initiatives - Traceability and supply chain engagement	 NO DEFORESTATION & NO CONVERSION Across priority supply chains
 Water	- Freshwater availability for operations - Water quality for production and communities - Healthy watersheds that regulate water flows	- Water withdrawal - Wastewater discharge and pollution - Alteration of natural water cycles - Degradation of water quality	- Improve water-use efficiency - Increase water reuse and recycling - Watershed stewardship and collective action - Water risk assessment and monitoring	 WATER POSITIVE JOURNEY Reduction of water withdrawal per unit of revenue
 Biodiversity	- Healthy ecosystems and wildlife - Genetic resources for breeding and innovation - Ecosystem services enabling productivity and resilience	- Habitat loss and fragmentation - Species disturbance and decline - Pollution and invasive species - Overuse of natural resources	- Apply mitigation hierarchy (Avoid-Minimize-Restore-Offset) - Protect and restore priority areas and ecosystems - Support community-based conservation - Assess and monitor biodiversity (TNFD/LEAP)	 NATURE POSITIVE No Net Loss of biodiversity in our priority areas
 Resources & Circularity	- Renewable resources for raw materials and packaging - Natural systems to assimilate and recycle by-products - Ecosystem services for nutrient cycling and waste treatment	- Resource extraction and depletion - Waste generation and landfill - Plastic leakage and pollution - Loss of circularity in value chains	- Design for circularity - Reduce, reuse, recycle and compost - Increase recycled content and sustainable materials - Zero Waste to Landfill and Zero Food Waste	 CIRCULAR PACKAGING 100% of packaging reusable, recyclable or compostable ZERO WASTE TO LANDFILL & ZERO FOOD WASTE by 2030



SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

Approved Net-Zero Science-Based Targets



Charoen Pokphand Group Co., Ltd. commits to reach net-zero greenhouse gas emissions across the value chain by 2050.

Near-term Targets

Energy & Industry:

CP GROUP commits to reduce absolute scope 1 and 2 GHG emissions 42% by 2030 from a 2021 base year.*

CP GROUP also commits to reduce absolute scope 3 GHG emissions 25% within the same timeframe.*

FLAG:

CP GROUP commits to reduce absolute scope 1 and 3 FLAG GHG emissions 30.3% by 2030 from a 2021 base year.**

CP GROUP also commits to no deforestation across its primary deforestation-linked commodities, with a target date of December 31, 2025.

Long-term Targets

Energy & Industry:

CP GROUP commits to reduce absolute scope 1 and 2 GHG emissions 90% by 2050 from a 2021 base year.*

CP GROUP also commits to reduce absolute scope 3 GHG emissions 90% within the same timeframe.*

FLAG:

CP GROUP commits to reduce absolute scope 1 and 3 FLAG GHG emissions 72% by 2050 from a 2021 base year.**

*The target boundary includes land-related emissions and removals from bioenergy feedstocks.

**The target includes FLAG emissions and removals.

Date of approval: 06 May 2025

Appendix



Appendix

Likelihood	Magnitude of Impact
Rare (1)	Unlikely during the next 25 years
Unlikely (2)	May arise once in 10 years 25 years
Possible (3)	May arise once in 10 years
Likely (4)	May arise about once per year
Almost certain (5)	Could occur several times per year

Magnitude of Impact
Low (1)
Low-Medium (2)
Medium (3)
High (4)
Medium-High (5)

Minor instances of environmental damage that could be reversed Isolate



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